UNIVERSITY OF SOUTHERN QUEENSLAND

EXPLORING THE EFFECTS OF EMPLOYEE AND ORGANISATIONAL CHARACTERISTICS ON TWO MODELS OF EMPLOYEE WELL-BEING WITHIN AN ORGANISATIONAL HEALTH RESEARCH FRAMEWORK

A Dissertation submitted by

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ABSTRACT

Research within clinical, organisational and community contexts, generally equates an individual's sense of well-being with the absence of adverse psychological states. More recently, proponents of 'positive psychology' have drawn attention to positive affective states, like happiness and joy. The focus on affective states relates to a Subjective Well-Being (SWB) approach to well-being. In contrast, a Psychological Well-Being (PWB) approach considers the role of mastery and efficacy beliefs, a sense of autonomy and positive relatedness with others, as separate dimensions that are related to SWB. Two studies tested the hypothesis that two affect dimensions of SWB, Positive (PA) and Negative (NA) Affect, were independently related to PWB. In both studies, factor analysis differentiated between items from two SWB and PWB measures, whilst correlations between the well-being factors were moderate. A preliminary study reported PWB to be a significant predictor of SWB after controlling for Demographics and Negative Life Events. A lack of association between Negative Life Events and PA suggests independent effects for two broad SWB dimensions. Using an Organisational Health Research Framework (OHRF), a study of high-school teachers further controlled for a five-factor model of personality and both Positive and Negative Organisational Climate. PWB was still identified as a significant predictor of SWB after controlling for demographic, organisational climate and personality variables. Independent effects on positive and negative SWB dimensions were also identified. Assessing change of both dependent and independent variables with two waves of data supported the independence of SWB outcomes and the strong effect of PWB on SWB across time. Higher levels of PWB were mostly related to better SWB outcomes (lower negative and higher positive SWB states). Although the OHRF proposes reciprocal effects of employee well-being and personality on perceptions of climate, the strongest effects were those reported whereby organisational climate and individual characteristics, being mostly independent of each other, strongly predicted employee SWB within and across waves. Implications for future employee well-being research are that organisational interventions need to address reducing negative and improving positive facets of the organisation. Individual interventions which promote PWB components would appear to be a most important avenue by which to improve employee SWB, by reducing NA and improving PA states.

CERTIFICATION OF DISSERTATION

I certify that the ideas, experimental work, results, analyses, software and conclusions reported in this dissertation are entirely my own effort, except where otherwise acknowledged. I also certify that the work is original and has not been previously submitted for any other award, except where otherwise acknowledged.

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Signature of Candidate Date

ENDORSEMENT

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Signature of Supervisor Date

LIST OF PUBLICATIONS AND CONFERENCE PRESENTATIONS RELATED TO DISSERTATION

Burns, R.A. & Machin, M.A. (2008) Investigating the Structural Validity of Ryff's Psychological Well-Being Scales across Two Samples. Social Indicators Research. DOI: 10.1007/s11205-008-9329-1.

Burns, R.A., & Machin, M.A. (2007). Re-evaluating our conception of well-being in an organisational setting. In M. Dollard, A. Winefield, M. Tuckey, & P. Winwood (Eds.) Proceedings of the 7th Industrial and Organisational Psychology Conference/ 1st Asia Pacific Congress on Work and Organisational Psychology (pp. 31-35). Melbourne, Victoria: Australian Psychological Society.

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Thank you all.

Richard A Burns.
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CHAPTER 1

INTRODUCTION

This thesis seeks to explore the nature of well-being. Such a topic has been a frequent point of discussion for philosophers, economists and self-help book authors, yet its focus within the scientific psychology tradition has been limited in scope, at least it will so be argued in this thesis, restricted by inadequate scientific operationalisations that run the full gamut of theoretical approaches.

Within a modern scientific psychological paradigm, notions of well-being have generally been informed by our research into and understanding of mental disease, reflecting a medical model approach that has historically focused on identifying and treating mental disorders, the absence of which was considered an indicator of wellness. However, a number of influential 19th century thinkers had begun to espouse viewpoints that ran contrary to the dominant mechanical approach to human behaviour which underlay the medical model, yet their influence was not to be felt until well into the 20th Century. Most notable was the Danish theologian and philosopher Søren Kierkegaard whose exposition into the experiences of melancholia and angst demonstrated a keen awareness that the good life was not merely the absence of these conditions. This influence on the psychological sciences was strong in the mid 20th Century, but it wasn't until the close of the previous century that there was a mainstream focus on the positive components of health and well-being (e.g. Seligman, 2003; Kahneman 1999).

Objectives

This thesis will identify and summarise the well-being literature which has identified two main approaches, and to extend this research into an organisational context. Whilst the Subjective Well-Being (SWB) approach is related to affective states and judgments of satisfaction and happiness, and until recently was most closely aligned to the ill-being movement, Psychological Well-Being (PWB) is concerned with aspects of the human condition that are associated with healthy and adaptive human functioning, and relate to constructive self-referent beliefs, and reflect competencies

of control, growth and development. A PWB approach focuses less on notions of ill-health but rather on those conditions that lead to health and wellness.

Further issues that will be investigated relate to the associations between these affective and cognitive components of well-being with other aspects of human nature. Personality is one factor that has been demonstrated to be highly associated with both affect and PWB constructs. One question relates to whether well-being and personality are indeed distinct constructs, or whether one is a function of the other. Therefore one part to this thesis will identify how both models of well-being and other individual characteristics are related.

This investigation will primarily examine these issues within an organisational context. Consequently, this thesis will further investigate the organisational factors that influence individual well-being outcomes and how individual and organisational characteristics interact to impact on well-being outcomes. Consequently, uni-directional or reciprocal directionality of organisational and individual effects will be considered. To this end, two studies will be undertaken to investigate these relationships. Firstly, a preliminary study will (1) assess the effects of life-events on SWB; (2) identify the structure of well-being by comparing the relationship between SWB and PWB, and (3) investigate whether PWB influences the relationship between negative life events and SWB. A second study, comprising a sample of school teachers, will be the main study of this thesis and will seek to expand on organisational climate and employee health research, which has traditionally used SWB measures of well-being as an indicator of employee well-being.

Outline of Dissertation

The second chapter will present an overview of several key theories which have investigated those aspects of the workplace that appear to impact on employee well-being. The first section will summarise the basic mechanisms which underlie the stress response and indicate how individual characteristics may account for individuals responding in such different ways to the same stressors. A second section will involve a discussion of a number of transactional models of organisational stress and will highlight the interaction between environmental conditions and individual characteristics which appear to account for organisational and employee well-being

outcomes. This will then be followed by a review of the factors in the workplace that have been identified as specific sources of stress or demands that influence employee perception of workplace climate and which impact on employee well-being, with particular reference to research into the effects of school climate and teacher health. Consequently, a summary of the teacher stress and health literature will follow with a discussion on the impact of stressful work conditions on employee health.

The third chapter opens with a brief review of research to date into two approaches of well-being, the Hedonic and Eudaimonic. Following sections will then discriminate between two models of well-being: Subjective Well-Being (SWB), reflecting a Hedonic approach, and Psychological Well-Being (PWB), reflecting a Eudaimonic approach. The rest of the chapter will review different findings into the relationship between PWB and SWB, as well as the associations between both of these models and a number of individual characteristics, such as age, gender, and personality, physiological health indicators, and sociological effects, such as wealth and culture.

The fourth chapter will include relevant information relating to the method by which two studies were designed and undertaken for this thesis. Firstly, a summary will delineate the general scope and rationale of the thesis. This will be followed by an outline of the two studies that were designed specifically for this thesis, a description of the samples, and how participants were invited to participate. Issues relating to the design of the studies and their implementation will be briefly discussed. The instruments will be listed and described in detail. Finally, the key Research Questions will be outlined.

The fifth thru eighth chapter will summarily present the findings of the key research questions. The sixth and final chapter will extend the discussion of the key findings and will relate these to key literature introduced in the opening chapters. Implications for future research into well-being generally and employee well-being more specifically will be addressed, including the possibility for interventions that target components of PWB.

CHAPTER 2

THE EFFECTS OF ORGANISATIONAL CLIMATE AND INDIVIDUAL CHARACTERISTICS ON EMPLOYEE HEALTH AND WELL-BEING

This thesis seeks to investigate the relationship between individual and environmental characteristics, and to identify their independent and combined effects on employee well-being. Research has primarily focused on notions of employee well-being that are related to satisfaction, positive and negative affect, and physical states of health and well-being. In contrast, advances within clinical, developmental and positive psychology, have indicated the limitations of such models. Alternative conceptions of well-being with a focus on the cognitive components of well-being states have been proposed, but have generally failed to advance research within organisational paradigms.

An individual's psychological and physical well-being greatly contributes to the quality of life they live and can be influenced by many factors including personality, quality of relationships with others, and the ability to maintain a balance between occupational and home demands (WHO, 2001). Over 15 years ago, the British Department of Health (1992) highlighted the importance of understanding the role that work pressures have in developing, maintaining and impeding employee well-being, calling on employers to change those working conditions that had a detrimental effect on the employee. Such a view was echoed throughout Western Europe, particularly Scandinavia and France, amongst others (E.C., 1997 & 2002), and the industrialised world. In Australia, this was reflected in the Australian National Action Plan for the Promotion, Prevention and Early Intervention for Mental Health (DoHA, 2000, p.20) which noted the evidence for a "significant increase over recent years in the level of reported workplace stress and an associated increase in related mental health problems and mental health costs".

An increase in flexible work practices, such as job-share, flex-leave and holiday loading, represent attempts by employers to address the negative impact of employee working conditions, yet despite the British Department of Health's important

declaration (1992), the UK's Health and Safety Executive (2002) found a reduction by nearly 50% in health support interventions within the workplace since 1990, and suggests that many employers still fail to understand the role in which work impacts on employees' health, well-being and life satisfaction, and subsequently organisational performance. Introduced initiatives can be perceived as 'gimmicky' by the workforce, a waste of time and money by the company, and so ineffectual in the long run. The result of an over-extended and unhappy workforce, whose perception of management as being uncaring and insincere in their attempts to alleviate work-related pressure, further leads to the development of health issues at both the individual level (e.g. depression, alcoholism, cardio-vascular disease), and at the organisational level (e.g. reduced productivity, higher employee turnover, decreasing profit margins) (Travers & Cooper, 1996). This is particularly so within the teaching profession which will be the focus of research within this thesis.

Almost two decades ago, Williams (1994) maintained that the organisation plays an important part in dealing with the effects of work pressures, arguing that, although many non-work factors do contribute to an individual's well-being, organisations must accept that the workplace has a strong influence on the individual. Organisational restructuring and the provision of Employee Assistance Programmes (EAP's) are key features to any strategy that attempts to improve individual well-being, and in the long run, optimise organisational productivity.

After introducing general concepts relating to stress and health, this chapter will review several landmark theories and approaches within the organisational stress and climate literature. Key areas of interest that are frequently identified as factors which impact on employee health and well-being will be identified within a general organisational context.

Theories of Stress Perception and its Impact on Human Behaviour

Defining Stress

Stress is a common and universal phenomenon for which many definitions exist. However, it is generally accepted that there are three main perspectives to conceptualising stress: either as an external stimulus; an internal response; or as an

interaction between a stimulus and a response (Baum, 1990; Coyne & Holroyd, 1982; Hobfoll, 1989).

The first approach focuses on the environment and those external pressures or demands that emerge from it, often referred to as stress or stressors. This approach suggests that stressors exist as stimuli, either in the external world or within the individual, and that there is a continual attempt to balance the individual's resources to cope with the demands placed on them. Whilst this led to an attempt to objectively identify sources of stress in the environment, such as levels of workload, it is now accepted that individual differences exist in the levels of tolerance and capacity to cope with these stressors, as well as with the self-perceptions of what can be tolerated (Sutherland & Cooper, 1995). This is useful in so much as to identify those specific aspects of the environment that may prove a common source of stress. It was following this model that French and Caplan (1973) demonstrated Yerkes and Dodson's hypothesis (quoted in French & Caplan) relating to the non-linear relationship between stress and level of performance.

The second approach focuses on the individual's reaction to stress, often described as strain. At the individual level, strain can act on psychological or physiological levels, either independently or both at the same time. One early model (Canon, 1929, quoted in Sarafino, 1998), introduced evolutionary principles, such as 'survival of the fittest', to offer an explanation about why and how people react to stress and threats to their well-being. The 'fight or flight' theory indicates two possible causes of action when an organism feels threatened or under stress, to either attack or flee. Physiologically, the process involves an activation of the sympathetic nervous system, which stimulates the secretion of epinephrine from the adrenal glands, causing a heightened state of arousal. This arousal allows the organism to effectively choose between these two modes of reaction.

General Adaptation Syndrome (GAS)

Canon's model was adapted by Selye (1956), who consequently discovered that a prolonged state of arousal was harmful to health, demonstrating that Canon's discovery was in fact the first part in a series of reactions the organism makes when under stress. Selye's premise was that GAS is non-specific in its response to

stressors, meaning that the physiological reactions that occur during GAS will occur no matter the type of stressor, although later research indicated that particular stressors do facilitate the release of particular hormonal responses. Mason (1975) demonstrated that whilst certain stressors were associated with increased levels of epinephrine, norepinephrine and cortisol, other stressors may only release epinephrine and norepinephrine. For example, anxiety-provoking situations are associated with higher levels of adrenaline, whereas noradrenalin is found in response to situations that require an aggressive response (Sutherland & Cooper, 1991).

Whilst Selye's model highlights the distinction between the external stimulus and the individual's response, an interactional approach to the study of stress and strain posits that these elements do not exist as separate entities, but that stress reflects an interchange between the environment and the individual (Cox, 1978; Lazarus, 1966, 1978; Lazarus & Folkman, 1984; Lazarus & Launier, 1978).

Stress as an Interaction of Individual and Environmental forces

Travers and Cooper (1996) proposed that research (e.g. Cooper, 1987; McGrath, 1974) into stress rarely views stress as either just a stimulus or response, but rather as a complex interaction between the factors presented in the previous stress models. According to Cooper (1991), stressful transactions are a product of the environment and the individual's capacities to respond, and occur when the stressor extends or exceeds the individual's capacity to cope and change the environment, or to modify their response to the stressor.

This interaction between the person and the environment has led to recognition of the importance of personal characteristics in determining stressful appraisals. Lazarus (1966) argued that the individual's phenomenological interpretation, or personal frame of reference, is an important factor in appraising an event as stressful. This suggests that it is the individual's perception of the stressor rather than the actual presence of the stressors that lead to manifestations of stress. Such an approach introduces a dimension to stress research that demonstrates the importance of an individual's cognitive processing in explaining the continuous reciprocal transaction between the individual and the environment. Stress can therefore be considered a

dynamic process whereby the individual acts to influence the extent to which the impact of stress increases strain. Consequently, Sarafino (1998), defined stress as *"The condition that results when person-environment transactions lead the individual to perceive a discrepancy – whether real or not – between the demands of a situation, and the resources of the person's biological, psychological or social systems"* (p. 88).

Sutherland and Cooper (1995) suggested that there are a number of variables to be considered within this interactional model that may mediate a stressful responses and impact on employee health and well-being. Cognitive appraisal (Lazarus, 1978), which is based on phenomenological interpretations of such factors as past experience, expectation, environmental stimuli and demand, intellect, personality, and interpersonal influences, appears to be one of the most important of individual characteristics.

Cognitive Appraisal

The transactional approach highlights the importance of the individual's cognitive assessment or belief in their ability, or lack thereof, to cope with stressors. This process involves the assessment of a stimulus as threatening or not to their well-being, and whether they have the resources available for meeting the demands placed on them (Cohen & Lazarus, 1979, 1983; Folkman, et al. 1986; Lazarus & Folkman, 1984). Lazarus further distinguishes between two types of appraisal: primary and secondary.

Primary appraisal involves the subjective assessment of a potentially stressful event to determine the level of risk a situation has on our well-being. Lazarus (1978) identifies three outcomes of this process. Firstly, the stressor can be labelled irrelevant and as no long-term threat to the individual's sense of well-being. Secondly, the 'benign-positive' stressor (Sarafino, 1998), allows the individual to experience a stressor as a justified means to an end. A third outcome involves the interpretation of a stressor and its subsequent evaluation as stressful. Sarafino suggests there are three implications when a stressor is appraised as stressful: harm-loss, threat, and challenge. Whilst challenges provide the individual with opportunities for personal growth, to develop skills and demonstrate ability, harm-

loss and threat are more likely to lead to the experiencing of overwhelming strain (Hobfoll, 1989).

Whilst primary appraisal focuses on the potential of the stressor to impact on the individual, secondary appraisal involves the assessment of coping skills in meeting the demands of a stressful event, though no 'a priori' temporal relation between the two appraisal states is expected. That is, secondary appraisal does not necessarily follow primary appraisal (Cohen & Lazarus, 1983). Indeed, the processes of primary and secondary appraisal are highly interrelated and secondary appraisals can lead to a primary appraisal of threat when it might otherwise have not occurred (Coyne & Holroyd, 1982).

It follows that the experience of stress involves an assessment of one's resources that will allow one to cope with the demands placed on them, and that the greater the perceived discrepancy between the demands and the resources, the greater the experience of stress will be. This approach is related to the Job Demand-Control-Support/Resources (Karasek & Theorell, 1990) model to be expanded on later in this chapter. However, Trumbull and Appley (1986) have demonstrated that stress could be experienced without the activation of the cognitive appraisal process. This suggests that an individual can experience physiological responses to a stressful event before changes in the individual's affective state or cognitive appraisal. This may support the influence of childhood and early life experiences, which shape how an individual perceives stressors and their ability to cope, such that some future responses are perhaps autonomic.

Factors Influencing Cognitive Appraisal of Stressful Conditions

A number of factors appear related to cognitive appraisal. Personal factors that are related to cognitive appraisal include intellect, motivation, gender, age and personality. Cohen and Lazarus (1983) demonstrated that self-esteem is highly correlated to an individual's interpretation of a stressful event. An individual with high self-esteem is more likely to perceive a stressful event as a challenge rather than threat, whilst an individual with low self-esteem may appraise the same stressor as a threat to their well-being. Within the ambit of the cognitive therapies, Beck (1967) and Ellis (1987) have identified processes by which many people may increase their

likelihood of experiencing negative stress, depression and anxiety, whereby faulty negative thought processes contribute to the individual's stress experience.
The notion that an individual's cognitive functioning is an important part of the appraisal process is similar to the cognitive model of human behaviour, which suggests that human behaviour is the consequence of four domains: the physiological, behavioural, cognitive and affective (Persons, 1989). Whilst each domain has its own unique and important role to play in determining and explaining human behaviour, these different aspects of human behaviour combine, interact, and influence each other to determine individual behaviour. Such a model indicates the complexity in determining the causes of human behaviour, suggesting that any understanding of the experience of stress must consider these interdependent components of human behaviour (Scott & Stradling, 2001).

Within the cognitive-behavioural therapy perspective, the focus has historically focused on the cognitive and behavioural factors, particularly the client's interpretations of an activating effect. This is a process supported by Psychological Well-Being (PWB) proponents who argue that interventions that focus on the affective states as a mechanism to long term change are relatively ineffective. This will be expanded on in the Well-Being chapter (Chapter 3). Such a focus on the cognitive and interpretative element led Persons (1989) to the conclusion that many of our conscious thoughts or overt behaviours may exist due to a thought or schema that exists in an individual's subterranean or unconscious level and that this core belief determines a person's reaction to an activating effect. A similar pattern may also be attributed to the development of an individual's stress response. For example, Scott and Stradling (2001) have indicated that stress and anxiety sufferers are characterised by maladaptive interpretations of an activating effect which are indicated by "What I should/What I shouldn't have done" thoughts. The importance of these ideas further support the importance of cognitive appraisals in determining the levels of stress experienced (Burns, 1980).

The Role of Schemas

Beck (1967) has suggested that much of this faulty cognitive processing stems from childhood experiences and schema development, and through the processes of assimilation and accommodation which provide personal knowledge about the world.

Beck laid much importance on schemas as they could account for the development of self-defeating cognitive processes that are reflected in mental ill health. Beck hypothesised that schemas, functioning at the subconscious level, could account for the repetitive themes of negative perception of one's environment and self that individuals with mental ill health reported. For Beck, the schema is the template of experience that guides an individual in their interaction of life experiences, forming the basis of all judgements and organisation of experiences into an understandable form. Beck (op cit.) writes, *"A schema is a cognitive structure for screening, coding and evaluating the stimuli that impinge on the organism…. On the basis of the matrix of schemas, the individual is able to orient himself in relation to time and space, and to categorise and interpret experience in a meaningful way"* (p. 283).

Thus, inadequate phenomenological interpretations of events lead to individual differences in stress responses and management, and once these maladaptive schemas are developed during the individuals' early life experiences and they are difficult to eradicate (Young, 1990). It would appear that cognitive appraisal of workplace stressors is an integral part to understand the link between organisation and employee well-being.

Situational Factors Influencing Cognitive Appraisal

As well as the influence of individual characteristics, transactional approaches also highlight the influence of environment in influencing stressful appraisal. Indeed, situational factors can contribute to a stressful appraisal above the effect of individual factors (Lazarus & Folkman, 1984). Cohen and Lazarus (1983) have demonstrated that events are seen as more stressful when strong external demands are made and require immediate response. Transitions through life, such as starting university, entering a new career, or becoming a parent, involve substantial changes in individuals' lives with new demands being placed on them. Whilst new demands require new forms of coping, coping ability also changes with age and further indicates the influence of individual characteristics. Lazarus and Folkman (1984) have suggested that the timing of stressors, that is whether they are expected or unexpected, is also an important feature in determining whether these events are perceived as stressful. Within the organisational psychology literature, considerable

attention has been directed to understanding those aspects of the organisation that appear most highly related to employee and organisational outcomes

Organisational Stress

The Stressors and Strain Approach

The most dominant approach to identifying organisational effects on employee well-being has been the 'stressors and strain' approach. This approach attempts to establish the way in which the environmental demands or characteristics of the organisation increase levels of stress, the effect of which impacts on individuals' psychological and physiological functioning, and is frequently described as strain (Cox, 1978). Research within this paradigm typically identifies the sources of workplace stress, and to associate levels of stress with various strain indicators such as psychological distress, burnout, and rates of absence. Until recently, inherent weaknesses to the 'stress and strain' approach, including ambiguity relating to operational definitions of key assumptions, have rarely been called into question (Hart, 1999; Hart & Cooper, 2001).

One questionable assumption relates to the notion that levels of occupational stress are associated with levels of negative and unpleasant emotions. Within a teaching context, Kyriacou and Sutcliffe (1978) operationalised occupational stress as the experience of tension, frustration, and anger. This was later to be associated with models similar to the negative affect scale from Watson, Clark, and Tellegen's (1988) Positive Affect and Negative Affect Scale (PANAS), and with definitions of psychological distress (Headey & Wearing, 1992). Unfortunately, the identification of occupational stress with negative affect led to a common view that occupational stress is solely related to employee negative affect relating to the workplace, failing to recognise that workplace stressors can also be sources of positive mental states such as vigour and morale (Shirom, 2003).

A further weakness relates to the assumption that stress can be quantified in terms of a single model which is often related to indices of anxiety, depression, and satisfaction (Newton, 1989). However, this has been called into question as stress results from the interaction of a number of factors (Cooper, 1991; Lazarus, 1990) and one measure cannot reflect the individuals' whole stress experience. As previously

described, the stressors and strain approach is focused on negative work experiences that contribute to negative outcomes, for both the individual and organisation. By focusing primarily on the effect of negative work experiences on negative outcomes, the approach ignores the role of positive workplace experiences and emotions.

Hart and Cooper (2001) highlighted other issues with the stressors and strain approach. Firstly, it is not driven by any single coherent theory, but instead involves the identification of particular workplace stressors which are then related to strain outcomes. The failure to link and relate important individual and organisational constructs, such as personality, self-esteem, organisational downsizing and outsourcing, fails to identify the complex relationships between these factors. Consequently, Hart and Cooper have called for a stronger commitment to theory-based research whereby the complex mesh of environmental and individual interactions can be identified and measured. Recent research, within the ambit of transactional models, has focused on expanding on the theories and ideas briefly presented here and describe an organisation as a source of both positive and negative work experiences that impinge on employee health.

Transactional Theories of Organisational Stress

Transactional theories of occupational stress have attempted to address the theoretical weaknesses of the stress and strain approach by developing a framework whereby stress results from a reciprocal transaction between individual and organisational factors. Reciprocity between individual and environmental factors suggests that the experience of strain can also increase the likelihood of increased levels of stress. The employee is then continually attempting to maintain a state of equilibrium between these states of stress and strain. Methodologically, much of the research within occupational stress research has been of a cross-sectional nature, yet it is logical to assume a reciprocal relationship between individual and organisational factors occurs across time. As such, cross-sectional studies may fail to clearly demonstrate the relationship between these factors and a serious problem in the organisational psychology literature is clearly the lack of studies implementing longitudinal methodologies with more than two waves of data (Hart & Cooper, 2001).

A key model within the transactional domain, the person-environment-fit model (French, Caplan, & Harrison, 1982) suggests that psychological, physiological, and behavioural strain is the result of a mismatch between the individual's personal characteristics and the demands of the environment. Such approaches have been the cornerstone of modern organisational stress literature. However, this model generally failed to distinguish between positive and negative perceptions of stress and strain unlike more modern approaches to employee well-being (e.g. Hart, Wearing, Conn, Carter, & Dingle, 2000).

Lazarus and Folkman's (1984) cognitive-relational theory, attempted to address these concerns by conceptualising stress as a multivariate process, relating all areas in an individual's life that may impact on well-being, as well as to distinguish between affective states and environmental stressors that could be either positive or negative in nature. This approach introduced the importance of both appraisal and coping processes in explaining the relationship between environmental demands and the individual's capacity to adapt and maintain a state of equilibrium.

The Organisational Health Research Framework

It has been said that a weakness of those theories that incorporate a cognitive-relational approach to stress, is the failure to consider the impact of enduring employee characteristics such as personality. The development of an Organisational Health Research Framework (Hart, 1999; Hart & Cooper, 2001) incorporates the strengths of the aforementioned transactional models by establishing relationships between the stressors related to the multiple domains of an individual's health and well-being, but also those personal characteristics identified as moderators of 'stress and strain'. In particular, an Organisational Health Research Framework recognises the importance of (1) distinguishing between positive and negative perceptions of stress, (2) identifying positive and negative environmental effects, and (3) that workplace well-being, such as morale and distress, can further moderate the appraisal process. Within an organisational paradigm, and in keeping with notions of equilibrium and disequilibrium, workplace stress is a dynamic process that occurs within a complex network of reciprocal relationships between environmental demands and personality characteristics (Headey & Wearing, 1989).

The Organisational Health Research Framework differs from other models of occupational stress in that it emphasises the importance of recognising reciprocal relationships between these variables, especially the relationship between employee and organisational outcomes, that are influenced by a combination of individual and organisational characteristics (Fig 2.1). This theory has been supported by studies that have consistently linked personality, coping processes, and organisational climate to a number of indices of employee well-being (Cotton & Hart, 2003).

The Organisational Health Research Framework (Fig. 2.1) proposes that both individual and organisational characteristics impact on well-being which in turn impact on organisational performance. Individual and organisational characteristics also impact directly on organisational performance. Reciprocal relationships between these factors are also proposed. The use of models similar to the Organisational Health Research Framework (Fig. 2.1) have been proposed in a variety of occupational settings and in a number of different cultural settings (e.g. Hart, Griffin, Wearing & Cooper, 1996; Williams & Cooper, 1994) with considerable success, although financial and time constraints make the capacity to model all these effects somewhat prohibitive. Yet, clearly the model's strength lies in unifying several divergent approaches to the study of occupational stress and to link research within several domains of psychology including organisational, health, well-being and quality of life research, and demonstrates the relationship between employee stress and organisational outcomes.

Despite its potential application, Hart and Cooper (2001) have argued that due to financial and time constraints, few studies have been undertaken which attempt to support the Organisational Health Research Framework, in part due to the extensive nature of the model which incorporates so many reciprocal relationships. However, organisational psychologists may incorporate research findings from other areas of psychological investigation, such as research into personality and well-being, to inform on such relationships within an organisational context. Such issues will be discussed at length in the next chapter.

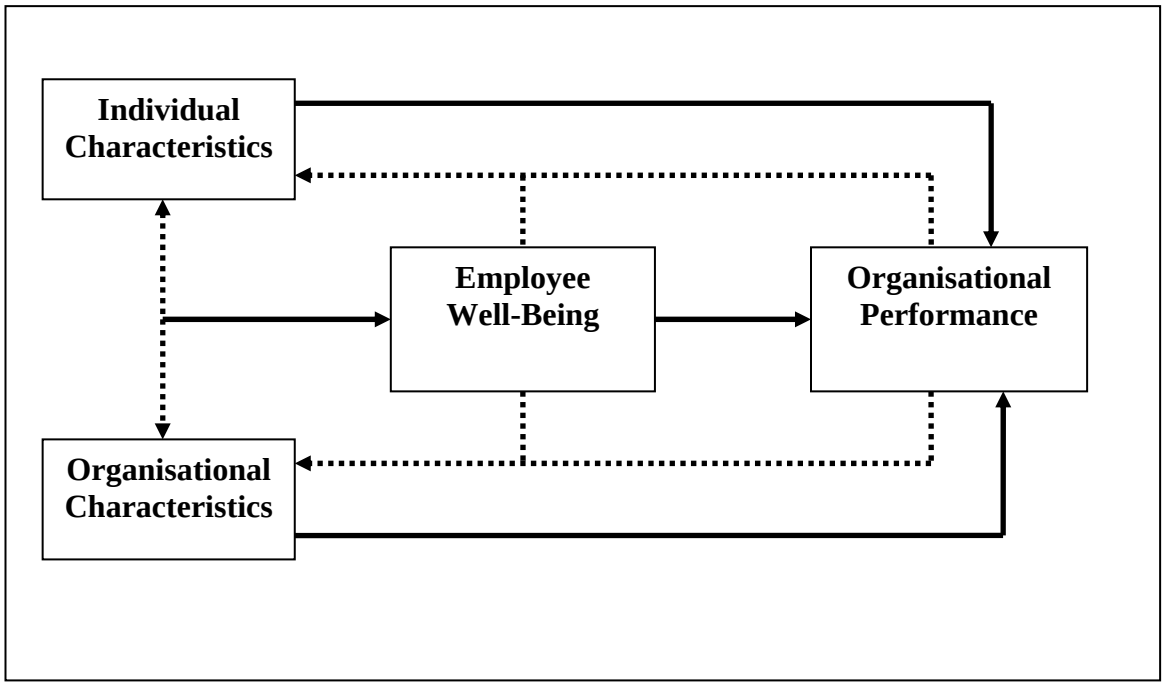

Figure 2.1. Model of an Organisational Health Research Framework (Hart, 1999).

Models of Occupational Stress

Despite the lack of studies (Hart & Cooper 2001) that have intentionally sought to support the Organisational Health Research Framework, a number of models of occupational stress have been developed in the past that appear to identify the roles of individual and organisational factors on both employee and organisational well-being. Examples include the Vitamin Model (Warr, 1987), the Demand-Discretion (Control) model (Karasek, 1979), later revised as the Demand-Control-Support (Resources) model (Karasek & Theorell, 1990), and Cooper and Marshall's (1975) Model of Occupational Stress, all of which have marked similarities with each other. These models all reflect different aspects to the Organisational Health Research Framework and demonstrate the difficulties in defining and describing the construct of work/employee stress or well-being. For example, a demanding workload may be a source of stress, but the extent to which this factor becomes a source of negative stress or a challenge, depends on a number of mediating and/or moderating variables including cognitive appraisal, the individual's personality, and particular characteristics of the work environment, like supportive leadership.

Warr's Vitamin Model

Warr's (1987) model of occupational stress identifies a number of organisational factors that influence an employee's health status (Table 2.1). Warr's model suggests that low levels of these 'vitamins' leads to low job satisfaction, an increased perception of work-related stress and poor health. Though there is no benefit from the excess intake of a vitamin. Indeed, a curvilinear relationship suggests that the over-provision of elements can have detrimental effects on the individual. For example, too much variety of work-related tasks or having too much control could prove too stressful for workers who must constantly adapt and learn new work-skills, or are burdened by a sense of too much responsibility.

Karasek's Demand-Discretion (Control) Model

Perhaps more simply, Karasek (1979) proposed a demand-discretion model that focused on the roles that job demand and control have on employee stress in the workplace (Table 2.2). Demands involve a range of factors that impact on the employee, and involve some response on the employee's part. Control is defined in terms of the degree of latitude an employee has in determining what and when duties are fulfilled, and other decision related activities.

In terms of an employee's well-being, Karasek's model identified increased risks of cardiovascular disease amongst those with high demand and low control jobs, as well as lower levels of employee psychological health and job satisfaction (Marmot et al. 1991; Pieper, LaCroix & Karasek, 1989). The simplicity of the model would suggest that work stress could be appraised as less stressful by workers by increasing the amount of control an employee may have. Karasek (1990) demonstrated this in a review of employees who had undergone company reorganisation to increase their levels of job control. The results indicated a reduction in employee self-reports of physical stress symptoms including depression, exhaustion, heart problems, dizziness and headaches.

Table 2.1 Warr's Vitamin Model of Organisational Health

Vitamin	Definition
Opportunity for control	An employee's health will be related to the extent of personal control over various aspects of the work environment.
Opportunity for skill use	The more opportunity for the worker to use pre-existing and to develop new work-related skills, the more positive the effect on health.
Externally generated goals	Health is directly related to the extent to which the environment makes demands on the worker
Variety	Health is affected by the variety of the tasks that are required by the worker.
Environmental clarity	Three elements are important in relation to health: 1) feedback about one's actions at work, 2) the extent to which fellow workers and the job act predictably. 3) the extent to which the worker's job description is clear and understandable.
Opportunity for interpersonal contact	This highlights the need for friendship and social support within the workplace and is especially important in those occupations where group cohesion is necessary to improve organisational productivity
Availability of money	Financial rewards help maintain satisfaction at work and alleviates strain, anxiety and worry associated with the capacity to support either one's independent living or family. Increased financial incentives can determine the extent to which other factors, such as variety and control, may contribute to declining health at work
Physical security	Job security and working conditions can influence the experience of stress. The threat of redundancy or poor working conditions, such as lack of benefits, will increase the level of poor health whilst safety will encourage workers to thrive.
Valued social position	Social esteem promotes well-being amongst the workforce.

Table 2.2. Work Stressors as Demands/Constraints

Work Demands	**Work Constraints**
Job Pressure	Job discretion, autonomy, control
Having too much to do	Quality of relationships at work
Having too little to do	Role ambiguity
Being responsible for people	Social perception of the job
Being responsible for people	Participation in decisions
Demands from others	Salary
Conflicting demands and roles	Physical working conditions
Over/under promotion	Organisational changes
Organisational Climate	Expectancies of others
Office politics	Organisational structure

Workload is often identified as a major source of stress with both overload and low demands being identified as sources of stress. For example, high levels of demand are frequently correlated with poor motivation, low self-esteem, absenteeism, and alcohol consumption (e.g. Cooper, Davidson & Robinson, 1982; Margolis, Kroes & Qunn, 1974; Smith, 1985).

Separate effects for control have been reported as the most important characteristic related to stress (Walsh, 1998; Warr, 1992). Control is reflected in the decisions workers are able to make in relation to planning their work schedule, tackling work problems, and participating in decisions that affect the organisation. According to Warr, control is the most important characteristic of the job that moderates perception of stress, and as with demand, too much responsibility may lead to increased perceptions of stress. Walsh identified that management styles dictate how workers are treated and the amount of control they report.

The interest in demand and control has received considerable attention. The demand-control model suggests that control acts both as a direct effect and as a moderating variable with job demands. For example, Karasek (1990) argued that high job demands were likely to lead to strain when the worker has limited control. According to Karasek's model, an 'active' job involves high levels of demand and control and does not incur strain, whereas jobs high in demand, but low in control do lead to strain. As well, jobs that are low in demand and control, or even high in control,

provide little challenge to the worker and may lead to increased job dissatisfaction (Van der Doef & Maes, 1998).

Jobs that create low levels of job strain are usually those that consist of low levels of demand, and high levels of control. Those jobs which consist of high demands and high amount of control are known as active jobs which although stressful are mediated by the increased level of control. Finally, jobs whose demand is low and control is low, generally lead to passive workers. These combinations are depicted in Figure 2.2. This may prove a limitation to Karasek's model since its focus on workplace factors affecting employee's well-being is limited to aspects relating simply to demand and control.

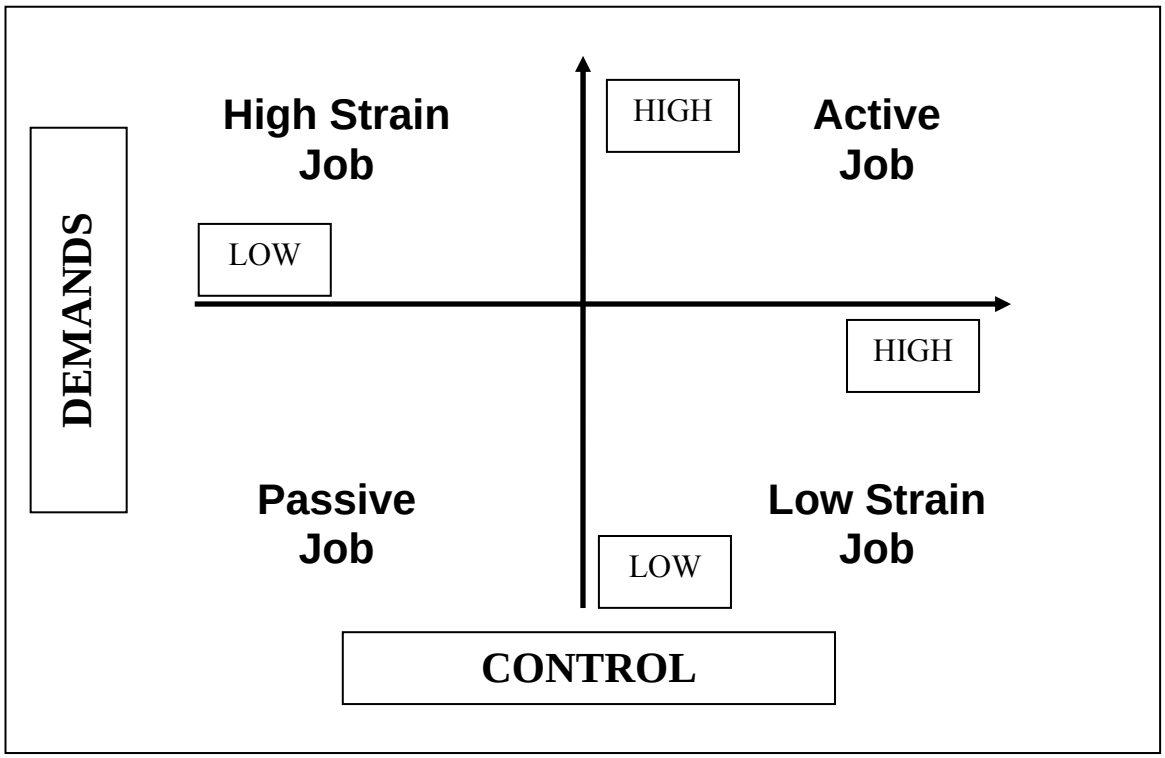

Figure 2.24. Karasek's job strain model.

The application of this model to various occupations has been made, even though the opportunity to control varies within different workplaces. Clearly, different job-types will influence the possible degree of control latitude. For instance, a school teacher is expected to teach at a particular time, and a course of work within the context of a school or government mandated curriculum, although the specifics may be up to the teacher. Though even this will vary from school to school.

Within the teaching profession in particular, control of the work environment is hierarchically determined from an education authority, the school principal, senior management, heads of department and finally the individual teacher. Thus the practicality of using this model to improve teacher health in the provision of more control may be limited.

Karasek and Theorell's (1990) Demand-Support-Constraint Model

Karasek and Theorell's (1990) demand-support-constraint model includes an additional factor to Karasek's (1979) initial demand-control model with the inclusion of support functioning as a resource to alleviate the negative effects of stressors. As with the earlier Karasek model, demands relates to the job demands that an employee must satisfy to complete the requirements of their job. An iso-strain hypothesis posits that working conditions characterised by high demands, low control and support, contribute to poor employee well-being outcomes, whilst a buffer hypothesis argues that the effects of workplace demands are buffered by control and support (Van der Doef & Maes, 1998). A limitation of both these models is that stressors are generally clumped together as demands, and fail to consider independent effects of different demands that may report independent positive and negative effects. Also, it fails to consider other aspects of the organisation, such as role clarity, professional growth, and leadership quality and effectiveness, which may also report significant effects on employee well-being.

Cooper and Marshall's (1976) Model of Occupational Stress

The Warr, Karasek (DC), and Karasek and Theorell (DCS) models clearly highlight the role in which different aspects of the workplace can function on employee health and well-being. However, one of the problems with these models is that they fail to consider the effects of individual's characteristics as highlighted in the Organisational Health Research Framework. Cooper and Marshall (1976) developed an interactional stress model of occupational stress which alludes to the notion that individual factors are involved in the stress appraisal of workplace stressors.

Cooper and Marshal's (1976) model describes the process by which environmental sources of stress exert pressure on the individual, whose unique attributes mediate the extent that these sources of stress are appraised as stressful, leading to the

development of stress symptoms. Cooper and Marshal recognised that work-related stressors can impinge not only on the individual, but also on the organisation as well (Figure 2.3). A further strength to the Cooper and Marshall model is the recognition of a number of workplace characteristics in addition to perceptions of demands, control and support that are related to employee well-being. However, the model suggests that individual characteristics function as mediators of occupational effects on organisational and employee well-being and this fails to consider the role individual characteristics such as personality have in perceiving workplace demands and characteristics.

Following Cooper and Marshall's (1976) model, Cox (1985) identified several other aspects of the workplace that increase negative employee outcomes, including the use of time and skills, and task variety. Cox argues that it is specifically time pressures and inflexible working hours that contribute to strain, whilst the limited use of skills and lack of variety in job tasks lead to feelings of routine, anxiety, boredom, depression, and poor general health.

Role ambiguity has also been identified as a major source of negative work experiences and occurs when job descriptions are unclear or non-existent and the employee's expectations are unclear. French and Caplan (1970) correlated role ambiguity to higher levels of blood pressure and higher heart rates, as well as increased feelings of tension and anxiety. Other studies have linked role ambiguity with increased job stress and decreased job satisfaction (DeFrank & Cooper, 1987).

Negative workplace relationships with colleagues and management can increase feelings of anxiety and job dissatisfaction. Cooper (1987) demonstrated the importance of positive social support as it offsets the negative effects of stressful environments including a reduction in blood pressure, glucose levels and cigarette use (French & Caplan, 1973), and anxiety, tension, and job dissatisfaction (Motowidlo, Packard, & Mannin, 1986).

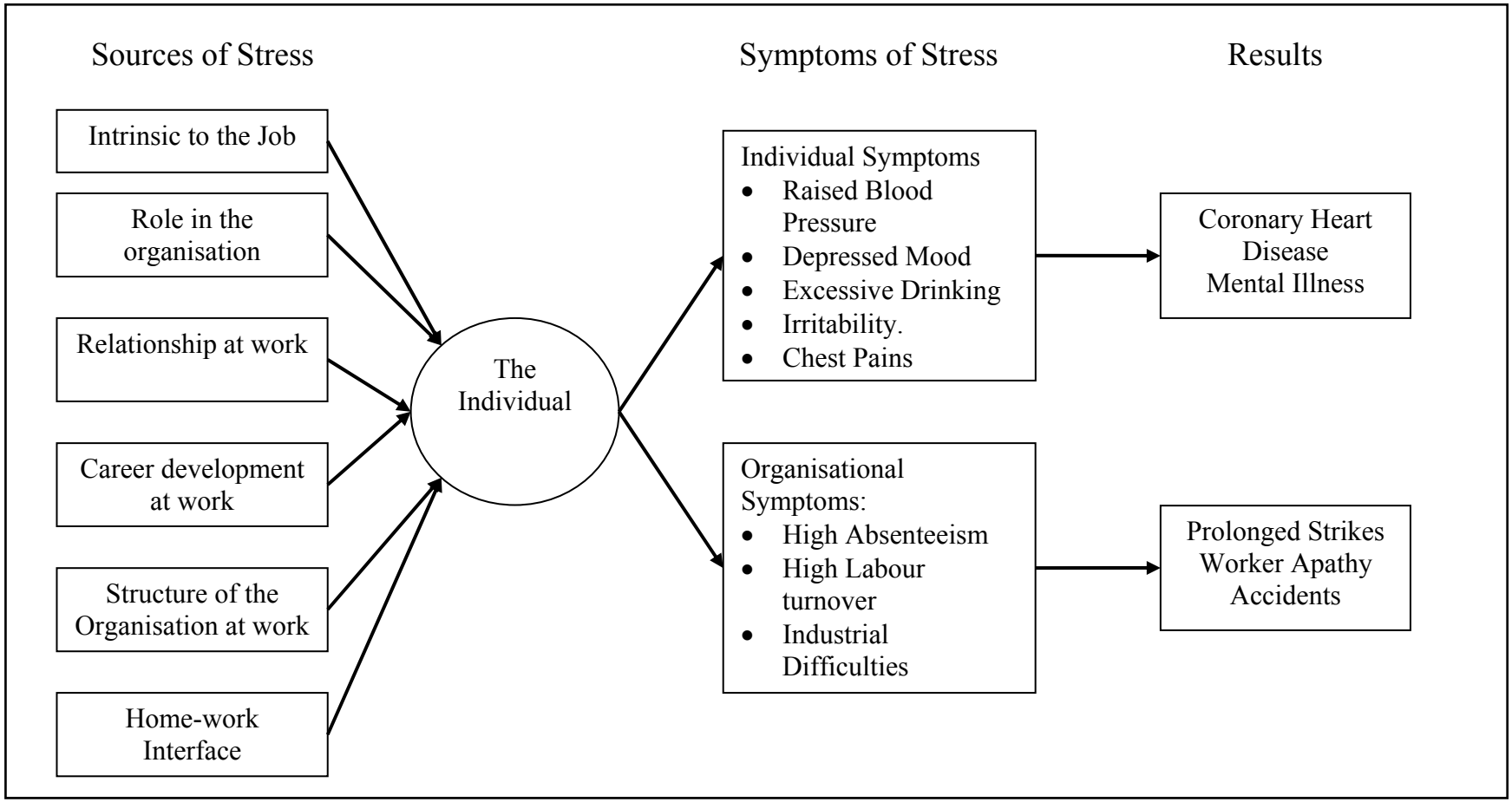

Figure 2.3. Model of Occupational Stress (Cooper & Marshall, 1976).

Organisational Stress, or a Perception of Climate?

Since a number of organisational factors appear related to employee well-being, the concept of organisational climate was introduced to define an employee's perception of the different components of their organisation (Patterson et al 2005), and reflects a relatively more recent approach to conceptualising organisational factors that contribute to employee health and well-being. Although these perceptions of climate were originally thought to represent descriptions of an employee's workplace (Schneider & Reichers, 1983), more recent research suggests that perceptions of organisational climate represent both evaluative and affective judgments of workplace stressors (Patterson, Warr & West, 2004). James and Jones (1974) discriminated between psychological climate and organisational climate, whereby psychological climate represents individuals' cognitively appraised judgements of their environment in relation to their individual needs, and organisational climate referred to the aggregate of individual employee perceptions about an organisation and could be likened to the workplace stressors identified in the aforementioned section though with the addition of employee's evaluative and affective judements.

Early attempts to determine the structure of organisational climate resulted in the development of a number of similar theoretical models. For example, Campbell, Dunnette, Lawler and Weick (1970) identified a four-factor model consisting of employee autonomy, reward orientation, imposed organisational structure, consideration, warmth and support. Another theoretical four-factor model (Jones & James, 1979) identified role stress and lack of harmony; job challenge and autonomy; leadership and support; and colleague co-operation, friendliness and autonomy as important elements of organisational climate. However, the proliferation of climate measures throughout the late 1970's and early 80's led to confusion and slow theoretical progress in the establishment of an adequate indicator of organisational climate.

A review by Glick (1985) established several common themes of early organisational climate measures, which included leaders' psychological distance; managerial trust and consideration; communication flow; open-mindedness, risk orientation, service quality, equity, and centrality. These measures of organisational climate attempted to

establish facet-specific approaches to understanding organisational climate, however global approaches have also been developed. As Patterson et al. (2005) suggested, the global and domain-level approaches to climate are two sides of the same coin, and both are valid measures of organisational climate. Whilst global approaches allow for overall assessments of how organisations function, domain level approaches can highlight specific areas within an organisation that can impinge on a range of organisational and individual outcomes, including employee well-being, absence rates, employee performance, and organisational performance and productivity.

Organisational Climate Questionnaires

A consequence of the development of so many different measures that purported to measure organisational climate, was the extent to which conclusions could be drawn about the role of organisational climate in determining individual and organisational outcomes. The lack of either a unified theory or consistent operationalisation has meant that most measures of climate lack validation, making it difficult to draw any clear conclusions from subsequent findings. For example, one of the first established and validated measures of organisational climate was the Organisational Climate Questionnaire (OCQ) developed by Litwin and Stringer (1968), which comprised 50 items measuring nine different dimensions of organisational climate. Over the next 20 years, further use of the OCQ established six factor structures of the OCQ although a review by Rogers, Miles and Biggs (1980) showed that most of these studies could not agree on which items loaded best onto the different factors, thus failing to establish a well validated measure of climate. Further attempts to develop validated measures of climate were restricted by a lack of a common theoretical basis, small sample sizes, and continued problems in operationally defining climate and the various facets that make up climate.

The Competing Values model (Gifford, Zammuto & Goodman, 2002; Quinn & Rohrbaugh, 1983) attempted to address these issues by assessing a broad range of organisational variables that could be organised on two dimensions: flexibility-control, and internal-external orientation. In relation to these dimensions, four major types of organisation design and management procedures were identified. The human relations approach (Table 2.3) consisted of a flexible and internally focused

orientation, emphasising the well-being, growth and commitment of it's employees. The internal process approach (Table 2.4), consisted of an internally focused and tightly controlled approach, whilst the open systems approach (Table 2.5), consisted of an external focus and flexible relationships. Finally, the rational goal approach (Table 2.6) with an external focus but tight control, is typical of rational economic models of organisational functioning which focus on organisational productivity and performance.

Table 2.3 The Competing Values Theory: A Human Relations Model

Climate Variable	Definition
employee welfare	the extent to which the organization values and cares for employees
Autonomy	designing jobs in ways which give employees wide scope to enact work
participation	employees have considerable influence over decision-making
communication	the free sharing of information throughout the organization
emphasis on training	a concern with developing employee skills
Integration	the extent of interdepartmental trust and cooperation
supervisory support	the extent to which employees experience support and understanding from their immediate supervisor

Whilst such a model failed to address specific facets within an organisation, as Patterson et al. (2005) have suggested, the success of Quinn's work lies in its ability to succinctly draw on various business models in order to establish a measure of organisational climate that could be applicable to a wide range of organisations. For example, the human relations model (internal focus, flexible orientations) involves those dimensions of climate associated with belonging, trust, and cohesion. Coordination and control are accomplished through empowerment and employee participation in the decision making processes. The internal process model (internal focus, control orientation) emphasises adherence to formal rules and procedures, representing classic bureaucracy. The open systems model (external focus and flexible orientation) emphasises readiness, change and innovation.

Table 2.4 The Competing Values Theory: An Internal Process Model

Climate Variable	Definition
formalization	a concern with formal rules and procedures
tradition	the extent to which established ways of doing things are valued

Table 2.5 The Competing Values Theory: An Open Systems Model

Climate Variable	Definition
Flexibility	an orientation toward change
Innovation	the extent of encouragement and support for new ideas and innovative approaches
outward focus	the extent to which the organization is responsive to the needs of the customer and the marketplace in general
reflexivity	a concern with reviewing and reflecting upon objectives, strategies, and work processes, in order to adapt to the wider environment

Table 2.6 The Competing Values Theory: The Rational Goal Model

Climate Variable	Definition
clarity of organisational goals	a concern with clearly defining the goals of the organization
effort	how hard people in organizations work towards achieving goals
efficiency	the degree of importance placed on employee efficiency and productivity at work
quality	the emphasis given to quality procedures
pressure to produce	the extent of pressure for employees to meet targets
performance feedback	the measurement and feedback of job performance

The rational goal model (external focus and control orientation) emphasises the pursuit and attainment of well-defined objectives associated with productivity, efficiency, goal fulfilment, and performance. Patterson et al. (2005) demonstrated strong support for a competing values model, based on a sample of 6869 participants drawn from 55 manufacturing organisations in the UK, suggesting that Quinn's model is a significant theoretical basis for identifying and assessing organisational climate.

Teacher Stress and School Climate

Clearly, the review of organisational stress and climate presented so far has identified weaknesses with traditional stress-strain approaches and also with subsequent models that have sought to delineate the effects of organisational and individual characteristics on employee and organisational well-being. Even frequently cited models (e.g. Karasek & Theorell, 1990) appear to have their limitations. This thesis will seek to extend recent climate models (The Organisational Health Research Framework) that identify both the individual and organisational factors that appear related to both individual and organisational outcomes. Given the author's experience as a high school teacher, it was decided to investigate the Organisational Health Research Framework using a teaching population, a population that is frequently cited as an occupation that places high levels of expectations, demands, and responsibilities on its workforce, often with little latitude for control.

In their initial study of teacher stress, Kyriacou and Sutcliffe (1977) defined teacher stress as "the experience by a teacher of unpleasant, negative emotions, such as anger, tension, frustration or depression, resulting from some aspect of their work as a teacher" (p. 28). Kyriacou (1998) maintained that this definition has since been the basis for subsequent teacher-stress research, which views stress as an emotional experience, triggered by the teacher's appraisal of their teaching climate as a threat to their well-being. This bears a similar resemblance to the general occupational approaches to stress as postulated by Lazarus and Folkman (1984), Cohen and Lazarus (1979), and Beck's (1967) cognitive appraisal theory.

Identifying Sources of Teacher Stress

Many models identify the effect of workplace stress on teacher well-being. More recently, models have focused on the match or mismatch between the organisational demands and the individual's ability to cope. Increasing attention has been given to teacher burnout with research investigating the role of emotional and physical exhaustion in teachers who have been unable to cope with work demands over a long period of time (Vandenberghe & Huberman, 1999).

The JDCS model has been extensively applied to the teaching population. For example, the EUROTEACH study (Verhoeven, Maes, Kraaij & Joekes, 2003) assessed 2796 secondary school teachers in 13 different European countries and found support for the iso-strain hypothesis. In addition, this study found main effects of the JDCS model on negative (e.g. depersonalisation, somatic complaints) and positive (e.g. personal accomplishment, job satisfaction) outcomes. Furthermore, except for personal accomplishment, non-linear (U-shaped) relationships between the JDCS variables and employee outcome measures were reported and support Warr's Vitamin model that suggests that too much of an element can be as toxic and harmful as too little of an element. However, this study demonstrated that the JDCS model is an overly simplified model for the prediction of wellness and health outcomes in teachers, and that other job conditions and job characteristics should be taken into account when exploring the relationship between organisational variables and employee outcomes. The Organisational Health Research Framework certainly includes more elements of the workplace that may more likely explain more variance in teacher well-being (Hart, 2000).

Kyriacou (2001) has noted that demands related to time pressures and workload are particularly strong sources of teacher stress. Cotton and Hart (2003) have argued that a heavy workload can actually contribute positively to morale, if the employee assesses their available resources and support as sufficient to deal with such demands. However, perceptions of overload can contribute to increased distress if resources are not available and the demands are continuous. It therefore makes sense that workload is a significant factor in determining teacher well-being, since the profession is frequently described by teachers as an occupation with little job latitude or control, continuous demands, and often little or no support.

Cotton and Hart's (2003) focus on morale and positive work place experiences indicates one of the limitations of current research into employee and organisational well-being, which has generally been to focus on issues of negative components of employee health such as depression and anxiety (Caplan & Jones, 1975), physical ill health (Shirom, 2003) and burnout (Maslach & Jackson, 1984). This mirrors the same issues that will be outlined in Chapter 3, where decades of research into mental health equated the absence of adverse affective states with well-being (Ryan & Deci, 2001). However, in line with an increasing focus on positive components of well-being in the general well-being literature (e.g. Huppert, Keverne, & Baylis, 2006; Seligman, 2003), there appears to be an increasing number of organsiational researchers who are extending research of employee well-being into positive domains such as vigour (e.g. Shirom, 2007).

Brown and Ralph (1998) identified several other factors that appear to contribute to the occurrence of stress at school. These include the organisation's culture, function, and structure, the nature of management procedures, poor recruitment, inadequately trained staff, and finally poor consultation and communication between staff and management. Brown and Ralph's study highlighted the importance of both personal and organisational factors in explaining the onset of teacher stress, supporting an interactional model of stress and suggested that any study of teacher stress must consider the complex and structural process between the teacher and workplace, to explain the nature of how perceived stress and strain outcomes occur.

Huberman (1993) interviewed 160 Swiss high school teachers in an attempt to identify the factors that led to teachers leaving the profession. His interviews indicated that perceptions of work-related stress were clearly moderated by the number of years of experience of each teacher as teachers in different stages of their careers had different expectations from their jobs. However, common reasons for leaving, regardless of the number of years they had been teaching included fatigue, nervous tension, frustration, burnout, difficult pupils, and general dissatisfaction with the profession.

The previously described 'Vitamin' model or 'Job Characteristics Model' (Warr, 1987), has many features that might help explain which factors within the teaching

occupation may contribute to teacher well-being. Firstly, there exist those characteristics that are intrinsic to the job including opportunity for control, variety of tasks, workload, opportunity for skill use, and environmental clarity. According to Warr's model there also exist several extrinsic factors that may contribute to teacher well-being, including pay, relationships with colleagues, status, physical security, and relationship with supervisors.

For teachers, there are specific factors that may be covered in this aspect of Warr's model. Opportunity for control is one that has been identified within the teacher stress research, especially as governments worldwide have become more dominant and controlling in the application and procedures of teaching, removing a lot of the control and decisions which were traditionally in the teachers' domain. As previously described, the amount of workload and expectations placed on teachers are frequently posited as sources of stress. Environmental clarity has become more of an issue for teachers as their role expectations are unclear or set too high, and sometimes job descriptions are lacking altogether. Most of these external factors are frequently highlighted in the research as significant effects on teacher well-being (Kyriacou & Sutcliffe, 1979; Pithers & Soden, 1998; Travers & Cooper, 1996). Based on an earlier transactional model of occupational stress (Cooper & Marshal, 1976), Cooper (1986) identified stressors intrinsic to the job including the physical working conditions, level of demand, workload and conflict; roles in the organisation, including role ambiguity, conflict, and amount of responsibility; relationships at work with colleagues, supervisors and pupils; lack of career development, including job insecurity, and reduced possibility of promotion; organisational structure; and the home-work interface, including the effects that responsibility for each has on each other. These findings were supported by Boyle, Borg, Falzon and Baglioni (1995) in their study of 710 full-time schoolteachers in Malta and Gozo.

Using an exploratory factor analysis of 20 items of a teacher stress inventory (TSI) followed by a confirmatory factor analysis, Borg, Riding and Falzon (1991) supported a five factor model of the sources of teacher stress, relating to pupil misbehaviour, time and resource difficulties, professional recognition needs, poor relationships, and workload. Most of the variance in predicting teacher stress was

accounted for by the factors of workload (32.1%) and student misbehaviour (7.7%). However, there were considerable differences between socio-demographic variables such as age, experience, gender and years of teaching experience, in the report of teacher stress; something supported by a number of other key studies (Borg et al., 1991; Brown & Ralph, 1992; Punch & Tuetteman, 1990). However, the sources of stress identified within the teaching profession appear to be consistently reported between studies (e.g. Brown & Ralph, 1998; Coopers & Travers, 1996; Dunham & Varma, 1998).

Over three decades ago, Kyriacou and Sutcliffe (1978) and Dunham (1977) identified that relationships with colleagues, pupils, parents and management are significant sources of stress for teachers and has been supported by more recent research (Boyle, Borg, Falzon, & Baglioni, 1995; Coopers & Travers, 1996; Dunham & Varma, 1998). Claxton (1988) has suggested that the development of factions within the workplace (e.g. departmental rivalries over resource allocation), could result in inter-staff conflict and further add to stress in the school environment. Kyriacou (1981) has argued that it is the responsibility of management to try and improve social relations amongst staff. However, instances often occur whereby factions develop between teaching staff, middle management and upper management. Whilst teachers may resent what they perceive as unrealistic demands placed on them by management, as Sutherland and Cooper (1991) have suggested, this perception of unrealistic demands may be due to a conflict of personality between managers and employees. Managers might exhibit ‘abrasive’ personalities and are unable to empathise with staff concerns, to interact with them socially, and may be oriented to improving the standard of the school and its pupils, without due consideration to the effect on teacher health and well-being (Levinson, 1978). Teaching staff resent the overly high expectations placed on them, group together for support and develop an ‘us vs. them’ attitude.

The importance of relationships at work has been demonstrated in a study by Dick and Wagner (2001), who highlighted the role of social support in their study of 557 German Secondary schoolteachers. High rates of workload and poor relationships with colleagues led to increased number of stress reactions whilst support from

colleagues, family and friends, were effective in moderating and reducing the negative impact on well-being.

Research has not established a clear pattern relating discipline problems and pupil misbehaviour as a major source of stress for most teachers. For example, whilst Cichon and Koff (1978) did find evidence for the impact of pupil misbehaviour on teacher well-being, a study by Litt and Turk (1985) did not. Kyriacou (1987) has suggested that this might be due to differences of operational definition. There are also different levels of pupil misbehaviour from minor pupil annoyances to physical assault to be considered. Whilst some studies have investigated major acts of misbehaviour, most studies have not differentiated between these different levels of misbehaviour or have focused solely on the day-to-day discipline problems. Upon careful examination of the research material, it might be most accurate to posit that a single major disruptive event will be less of a stressor in the long term, than the cumulative effect of constant or repeated 'low-level' disruption (Travers & Cooper, 1996).

Moreover, relationships with pupils are not just focused on the issue of misbehaviour, but also pupils' general attitude to work and school. Kyriacou and Roe (1988) identified 'under-achieving' students as a most serious problem, supporting Kyriacou and Sutcliffe's (1978) earlier claim that a pupil's poor attitude to work was the highest rated source of stress amongst teachers. Freeman (1987) and Pratt (1976) have suggested that the apathetic attitudes of students interact with other sources of stress, such as role expectations, and that a teacher's job satisfaction is affected by the extent to which teachers believe they can motivate their students to perform to the expectations of the school, parents, and the teacher's own expectations. Byrne (1991) has found that the type of student taught, such as those of special need or requiring of more attention, has a significant impact on the stress experienced by educators, at all levels of schooling.

Personal Teacher Factors contributing to Stressful Appraisals

As with the research into work-related stress described previously in this thesis, early research into teacher stress (Cichon & Koff, 1978; Kyriacou & Sutcliffe, 1978) recognised that personal characteristics are important in the development of positive and negative health outcomes in the workplace. The most frequently investigated personal factors include gender, age, years of experience, level of qualification, and personality type. However, conflicting conclusions over the influence of these factors have been identified with some studies providing support (Hiebert & Farber, 1984; Kyriacou & Sutcliffe, 1979a; Moracco et al., 1983) with other studies finding no relationship (Chatterton, 1979; Mykletun, 1984). However, as better validated measures have developed (e.g. personality – Costa & McCrae, 1985) it is now recognised that individual characteristics do interact with situational influences to develop stressful appraisals as proposed by the Organisational Health Research Framework (Hart & Cooper, 2001).

Age has frequently been considered an important moderator in teachers' responses to stress, as life experience and particular stages of life may lead particular individuals to be more vulnerable. Age may also influence the coping methods used, and Travers and Cooper (1996) suggest two ways in which age might influence the effects of stress. Age may influence the amount of workload a person is capable of enduring as an older person may not be able to work the same long hours or perform the same workload as a younger person. Conversely, increasing age may indicate sufficient experience with stressful situations so that the older and more experienced person is better able to cope than the younger and more inexperienced.

Age may also interact with the years of teaching experience. For example, studies by Edworthy **(**1988) and Laughlin (1984) have demonstrated that the younger and less experienced teachers suffer higher levels of stress than their colleagues. Sources of stress within the job may vary according to a person's age and experiences. A younger, less experienced teacher, is more likely to experience stress associated with discipline problems, the low ability of the pupils, and general responsibility of the pupils, whilst the older teacher may consider lack of career promotion, balancing work and home responsibilities, and the organisational structure as their main source

of work-related stress. Differences between different levels of age and years of experience are often reported on those items pertaining to pupil behaviour and classroom management duties, with the younger and less-experienced considering these workplace facets as stressful (Griffith, Steptoe & Cropley, 1999; Kyriacou & Sutcliffe, 1978).

Brief, Rude and Rabinowitz (1983) identified teachers with Type A personality as characterised by working long hours to meet deadlines and the demands of the work overload, finishing work at home and on weekends, too busy and not enough time to relax, not taking holiday entitlement so as to work, competitiveness with themselves and with others, a need to meet high and unrealistic standards, feelings of frustration, and irritability with colleagues and pupils. In relation to British teachers, Travers and Cooper (1996) argued that increasing pressures, for example with the introduction of the National Curriculum, increased administration and assessment demands, and resulted in an increase of Type A symptoms and behaviours. Indications are that these results are indicative of findings worldwide (Pithers & Fogerty, 1995).

Fontana and Abouserie (1993) found there was a positive correlation between personality type and the level of teacher stress experienced. They found positive correlations between scores on psychoticism and neuroticism scales and the level of teacher stress experienced. The psychotic personalities were described as being troublesome, insensitive, aggressive and hostile to others, whilst the neurotic was characterised by people who were anxious, worriers, moody and often depressed. The recommendation might be that trainee-teachers, who score highly on one of these scales, may need to be provided career counselling and directed into employment that suits their personality or else provided with some skills-based programme that instils more positive coping strategies.

Two of the ‘big five’ personality traits (Costa & McCrae, 1985), emotionality and sociability, appear to be two key determinants in how people perceive organisational climate (Hart, 2000). Emotionality describes how emotional people become in response to environmental demands and changes And explains how some individuals react more emotionally than others. Sociability describes how individuals relate to others and the amount of social interaction they enjoy.

Kelsall (1980) and Travers and Cooper (1996), highlighted the higher proportion of females in the teaching profession. Differences between gender levels in relation to job satisfaction are frequently reported. Whilst female teachers typically report classroom situations and pupil behaviour as their greatest source of stress, male teachers report administration and organisational demands as being a higher source of stress (Griffith, Steptoe & Cropley, 1999; Kyriacou & Sutcliffe, 1978; Laughlin, 1984; Travers & Cooper, 1996). Females typically record higher levels of job satisfaction than their male colleagues (Travers & Cooper, 1996).

Within occupations generally, particular factors are more prominently experienced by women, including the 'glass-ceiling effect', job insecurity, increased level of competition, social isolation and a lack of social support (Davidson & Cooper, 1992; Nelson & Quick, 1985). Differences between the genders also occur in relation to negative health outcomes reported, with higher incidences of headaches, tearfulness and exhaustion amongst female teachers (Dunham, 1984; Kyriacou & Sutcliffe, 1978). However, it may simply be that females are more willing to accept and express that they suffer from negative states, whilst men are more likely to deny or mask strain by using avoidant coping mechanisms. Also, female teachers are also more likely to report mood disorders, including depression, though Travers and Cooper (1996) do urge caution in interpreting these differences as it is highly possible that any number of confounding variables may mediate these differences in stress between the sexes. For example, Fontana and Abouserie (1993) did not find any significant differences between genders on stress outcomes, when controlling for the effects of the Big Five personality traits (Costa & McCrae, 1985).

The Organisational Health Research Framework in Schools - The School Organisational Health Questionnaire

Drawing on the Organisational Health Research Framework, the development of the School Organisational Health Questionnaire (Hart et al., 2000), was undertaken to develop a well validated climate measure that could assess the impact of various dimensions of the workplace on teacher health outcomes including morale and distress. Although a plethora of research has identified the relationship between various aspects of the school environment and teacher health, teacher morale and climate have in themselves attracted little empirical attention.

The School Organisational Health Questionnaire (SOHQ) was designed for use in schools. In a similar vein to Quinn's competency values model, the SOHQ consists of several generic areas of organisational climate including appraisal and recognition, excessive work demands, goal congruence, participative decision-making, professional growth, professional interaction, role clarity, and supportive leadership which represent different sources of workplace stress that may impact on employee well-being and perceptions of strain. The school specific components of organisational climate include effective discipline policy, curriculum co-ordination, school misbehaviour, and student orientation. Well-being outcomes include measuring levels of individual morale, individual distress, school morale, and school distress. The generic components of the questionnaire have been used in a number of public and private sector organisations across Australia, the UK and North America providing a considerable wealth of evidence to support the validation of this measure across employment types (Hart & Cooper, 2000).

Key Drivers of School and Teacher Health

The benefit to approaching organisational climate from an Organisational Health Research Framework, according to Hart (2000), lies in its ability to account for considerable variation in the indicators of organisational health (Table 2.7). Hart (2000) has accounted for 83% of the variation in terms of School Morale and 68% of School Distress. In terms of Individual Morale and Distress however, far less of the variation between schools could be explained by the Organisational Health Research Framework, with 39% of the variation explained in Individual Morale, and 58% for Individual Distress. It is interesting to note the identification of both Individual and Workplace Morale and personality traits as key drivers in determining School Distress and Morale, which follows the reciprocal nature of the constructs within the Organisational Health Research Framework. Clearly individual factors were more important in explaining individual health outcomes, and organisational factors in explaining organisational outcomes.

Hart (2000) has made a number of assertions about the results from his studies. Importantly the identification of key drivers for the different outcomes suggests that at a practical level, employee assistance programmes should address particular key drivers of individual and school morale. For example, as professional development and appraisal and recognition are identified as key drivers of individual morale and

not distress, it would mean that changes to these aspects of the organisational climate can be used to improve individual morale but not decrease distress.

Table 2.7 Key Drivers of School and Individual Morale and Distress based on Hart (2000)

School Morale $R^2 = 0.83$	School Distress $R^2 = 0.68$	Individual Morale $R^2 = 0.39$	Individual Distress $R^2 = 0.58$
Professional Interaction	Excessive Work Demands	Neuroticism	Neuroticism
Supportive Leadership	Goal Congruence	Professional Development	Role Clarity
Goal Congruence	Role Clarity	Supportive Leadership	Supportive Leadership
Role Clarity	Individual Morale	Extraversion	Extraversion
Emotionality	Supportive Leadership	Role Clarity	Excessive Work Demands
Sociability	Emotionality	Appraisal and Recognition	
	Workplace Morale	Professional Interaction	
	Sociability		

Supportive leadership appears to be an important key driver in all of the four outcomes identified above. Hart argued from the data that if leadership were improved by 10% there would be a 6.3% increase in school morale, a 5.1% decrease in school distress, a 3.2% increase in individual morale, and a 3% decrease in individual distress. Supportive leadership relates to the quality of a leader's interpersonal style, in terms of being approachable, trusting, respectful, and engaging and motivating staff. These features have much in common with the concept of transformational theories of leadership, with the supportive leadership scale of the School Organisational Health Questionnaire correlating .70 with two well validated measures of transformational leadership (Hart, 2000).

The importance of transformational leadership goes above just being supportive, but requires behavioural responses including, appraisal and recognition, involving staff in decision making, and appropriate delegation. These behaviours reflect not just supportive leadership, but also an attempt to support and encourage staff in their everyday work activities. As well, Hart (2000) highlighted the need of principals to communicate goals and direction, as well as dealing with core school duties such as recognising, creating and seizing opportunities for the school, as well as prompt decision making.

Clearly, several well-validated measures identify the effect of various aspects of the organisation and their impact on employee, and more specifically teacher, health and well-being. What follows is a review of significant findings that demonstrate the positive and negative effects of work conditions on employee well-being.

Employee Well-Being

Based on the work of early quality of life researchers (Bradburn, 1969), organisational psychology has typically focused on affective states of employee well-being. Bradburn's early recognition of the differentiation between positive and negative aspects of well-being was further developed by Watson et al. (1988) with the Positive Affect Negative Affect Scale (PANAS) and by the life satisfaction work of Diener and colleagues (e.g. Diener et al 1985; Diener et al. 1999). It is typically accepted that an individual's emotional experience can be explained by the independent dimensions of positive and negative affect, and that the relationship between the levels of these constructs is an accurate measure of satisfaction (Ryan & Deci, 2001). Positive affect is often referred to as a state characterised by pleasant emotions such as enthusiasm, energy and mental alertness, whilst negative affect relates to negative emotional states such as anger, anxiety, and guilt. Rather than occurring at separate ends of a continuum of emotion, Bradburn and Watson et al's work demonstrates that these constructs are statistically and conceptually different. An individual's level of affect on one dimension does not, to any large degree, indicate the level on the other dimension of affect.

Although a rather inclusive term, job satisfaction generally refers to employees' judgements about their satisfaction in terms of their work experiences. Given that these experiences relate to dimensions of either positive or negative affect, it is not surprising that the relationship between these constructs of affect is an excellent predictor of job satisfaction. As a result, the development of concepts relating to psychological distress and morale have become more influential in organisational research, particularly within an Organisational Health Research Framework (Hart & Cooper, 2001) as these are more indicative of the effects of positive organisational climate. The concepts of morale and distress (Hart & Cooper, 2001) highly relate to Watson et al.'s (1988) PANAS.

Work characteristics and employee health and wellbeing

Numerous studies have linked workplace factors with teacher health outcomes. Schonfeld (1992) demonstrated that newly appointed female teachers who reported the most depressive symptoms, worked at the most adverse schools. Conversely, those with the least number of depressive symptoms worked at the schools with better working conditions. A lack of resources has adverse effects on teacher's time management and can create feelings of frustration and disillusionment. Dewe (1986) demonstrated that a teacher's dissatisfaction and level of well-being at work, increased in relation to the working conditions, especially the condition of staff room facilities, classroom equipment and furniture, and the availability of teaching resources.

Work overload is also identified by the increasing amount of work that must be completed at home, impinging on the teacher's home-life, and leaving little down-time for relaxation and family life (Dunham, 1980). This adds to the number of hours in the teacher's working week and increases conflict with family members as the teacher fails to meet their responsibilities at home (Fimian & Santoro, 1983). One interesting aspect of teacher experiences that has been identified by Kyriacou (1987) is the notion that teachers must accept responsibility for students throughout the day and that this constant alertness and vigilance, even during morning break and lunchtime, is a stress that can cause great amounts of strain rather than the intense one-off stressors that can arise. There is therefore little time at work for teachers to take time out to relax, or even to simply enjoy their lunch. This all adds to teacher reports of feeling drained, both physically and psychologically (Sparks, 1979; Weiskopf, 1980).

French and Caplan (1970) demonstrated that taking responsibility for others was significantly correlated with the incidence of Coronary Heart Disease (CHD). Also, in his early review of teacher stress, Caspari (1976) also found that teacher's responsibility for looking after and maintaining discipline over students, was more closely linked to psychological and physical exhaustion than any other aspect of work. As well, Dunham (1981) suggested that noisy and misbehaving students, who can often be abusive and insolent, can lead some teachers to negatively reassess their teaching skills and effectiveness. However, discipline is not the only problem in

student-teacher interaction. Over the last 30 years, the goal of modern educational practice has changed from simply satisfying educational goals to the needs of each individual student. Clagget (1980) referred to this as the "Good Shepherd Ethic" and suggests that this unrealistic expectation to meet the individual needs of all students can increase strain, especially when linked with inadequate resources and specialised training.

Ambiguous role expectations can lead to poor psychological adjustment including job dissatisfaction, lack of self-esteem and confidence, depression, and low motivation (French & Caplan, 1970; Travers & Cooper, 1996). Role conflict, where the teacher is faced with balancing the demands between the organisation, the teacher's beliefs about education practice and the needs of their pupils, can increase the incidence of strain and lower job satisfaction. Byrne (1999) has identified a number of examples where role conflict may occur for teachers. It can include conflict arising from balancing the amount of work to be done and the need to maintain a high standard of quality of work within time constraints. Conflict may also arise by needing to balance the group demands of overly large classes with individual student needs that reflect diverse ability levels. Dunham (1980) suggests the effect of role conflict leads to teachers ignoring their own principles and judgment values, often to the detriment of their own physical and psychological health.

Marshall (1977) identified two areas in which the lack of career progression may reduce employee job satisfaction. Firstly a lack of job security may involve early redundancy or early retirement, whilst the second area involves a state of incongruence, highlighted by the glass-ceiling effect or frustration at being overlooked for promotion. Teachers are under considerable pressure given the threat of school closures and the stigma of poor examination results in under-performing schools (Travers & Cooper, 1996). As well, many changes are occurring within education in terms of theory, practice and technological advancements, and it is more likely that the teacher who can master these changes will increase their chance of promotion. A lack of career progression and development is related to a range of health problems including ulcers, muscular and emotional complaints (Cobb & Kasl, 1977; Smith, Cohen, Stammerjohn, & Happ, 1981).

According to Baron (1986), the process of being evaluated is a stressful experience for many teachers, especially when these evaluations affect career progression. In Britain, Travers and Cooper (1996) highlighted the effect of the appraisal process that teachers, especially in state-run schools, must undergo with the School Inspectorate. This, on top of the daily evaluation they face by colleagues, pupils and parents, has increased worldwide in the light of governments implementing 'pay for performance' policies.

Dunham (1992) studied the effect of the United Kingdom's Education and Reform Act of 1988 on individual teachers, finding that the use of a standardised national curriculum and testing system developed feelings of disempowerment in teachers. Following Karasek's (1979) model of occupational stress, if teachers lacked the necessary amount of control needed to offset the high demands of their job, the result was increased job strain. As well, Dunham (1992) found that a national education system increased the amount of role conflict experienced by teachers, with the goals of educational change being prioritised over the care and needs of the teacher and student. Dunham's results were supported by Black (1994) in his review of the effect of national assessments in England and Wales where teachers struggled to meet the demands of government and educational targets. Similar finding were reported in an American study where case studies identified the impact of the California Mathematics Curriculum Framework (Wilson, 1990).

The Effects of Organisational Climate on Organisational and Employee Well-being

According to Wilson et al. (2004), healthy organisations are those which possess organisational structures and processes that promote a positive and healthy climate. Three characteristics of healthy organisations were related to a number of employee health and well-being outcomes, as well as improved organisational outcomes (Wilson et al., 2004). Firstly job design focuses on the workload, degree of autonomy, role clarity and environmental conditions that employees work under. Secondly, job future relates to areas regarding job security, pay and promotion opportunities, and flexible work arrangements. Finally, the organisational component relates to the social and interpersonal aspects of the workplace, consisting of leader and co-worker support, health and safety, participation and involvement. The healthy organisation is one in which all of these workplace aspects are addressed.

However, the cross-sectional nature of this study precludes the ability to suggest causative directions between these factors, though according to the Organisational Health Research Framework (Hart & Cooper, 2001) it may be possible to suggest that the relationships between factors are reciprocal. The importance of the Wilson et al. (2004) study lies in its ability to identify organisational climate as playing a significant role in a range of employee and organisational outcomes.

Parker et al. (2003) described the direct and indirect effects by which climate can impact on employee and organisational outcomes. The effects of climate on performance can be direct or mediated by both employee work attitudes and motivation and draws on work by Kopelman, Brief and Guzzo (1990) which demonstrated that both cognitive and affective states relate to an individual's work motivation, job satisfaction, commitment and involvement, which further influence organisational performance.

An Organisational Health Research Framework (Hart & Cooper, 2001) supports this and highlights the need to consider both employee well-being and organisational performance concurrently. In this sense, a successful organisation is of little value if in the long term the organisation's performance is undermined by employee poor health and well-being. At the same time, happy and satisfied employees are of little benefit if the organisation is performing poorly. Also, the Organisational Health Research Framework suggests that employee and organisational outcomes are influenced by both individual and organisational factors.

In terms of organisational well-being, Hart and Cooper (2001) defined staff well-being as being synonymous with job satisfaction, an evaluation of the satisfaction with work after weighing up both the positive and negative experiences employees have. This is a similar model to that presented by Subjective Well-being (SWB) proponents (e.g. Bradburn, 1969; Watson et al. 1988), discussed at length in the next chapter. However, Hart and Cooper (2001) do highlight that knowledge of satisfaction implies nothing about the employees' experiences and whether 'a little unsatisfied' at work is due to many negative experiences, or not enough positive experiences, or a combination of them both. As such, Hart and Cooper continue to

borrow from the modern SWB literature whereby well-being is defined and assessed in terms of both stress (negative affect) and morale (positive affect). Also in line with the research into positive and negative affect (e.g. Watson et al. 1988), Hart and Cooper argued that there was an independent relationship between an employee's experience of morale or distress and the experience of positive and negative valence. This contrasts with a much older consideration of the SWB literature (e.g. affect balance – Bradburn, 1969) whereby positive and negative affective states were seen as polar opposites. Instead, the Organisational Health Research Framework, as does modern SWB approaches (Watson et al. 1988) views positive and negative valence as independent orthogonal constructs.

According to Hart and Cooper (2001) cross-cultural studies involving over 170,000 employees have supported an Organisational Health Research Framework demonstrating the influence of individual and organisational characteristics on a range of employee and organisational outcomes. Whilst job satisfaction and stress were more closely related to individual characteristics, motivation and morale were most closely related to organisational characteristics. Both individual and organisational characteristics were significant determinants of organisational performance (Fig 2.4).

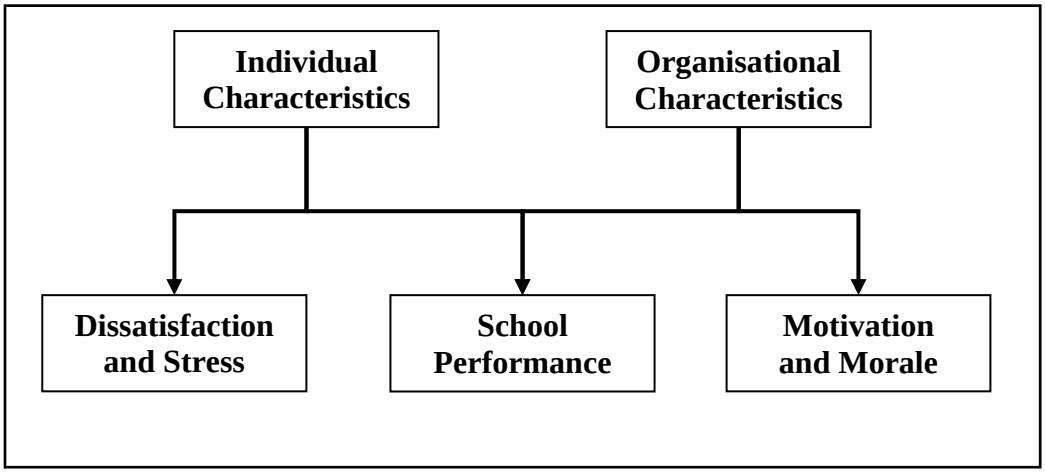

Figure 2.4. Key determinates of School Organisational Health

Affect as an Indicator of Teacher Well-Being

There exists conjecture over the use of Affect scales, as critics have argued that there are significant differences between trait and state descriptions of an individuals' affective state. However, Thoresen, et al. (2003) undertook a meta-analysis of affect in terms of attitudes and perceptions of the workplace, and, while no statistically significant differences were found between either state or trait measures of affect, they did find several significant relationships between affect and job attitudes. Results indicated that positive affect was positively correlated with, and negative affect negatively correlated with job satisfaction, organisational commitment, and personal accomplishment. Conversely, positive affect was negatively correlated with, and negative affect was positively correlated with several burnout dimensions: emotional exhaustion, depersonalisation, and turnover intentions.

A number of cultural differences have been demonstrated when investigating the relationship between work-family stressors, working hours, and well-being (Spector, et al., 2004). Firstly, the perception that increased workload and the number of hours worked would impact more family-work pressure was greatest in individualist nations than collectivist nations. Spector et al. (2004) suggested that this can be possibly explained by the individualist societies viewing increased workload as taking away time and opportunities to be with family. Collectivist nations generally reported lower household incomes and as such they would perceive the need to work longer hours and increased workload as an opportunity to increase household income. This may be seen as less important for members of individualist nations given higher incomes and the support of social security benefits.

Cross-cultural studies have not necessarily found any differences in terms of well-being (Spector et al., 2001), despite the intuitive hypothesis that differences in well-being, measured in terms of job satisfaction, psychological and physical strain, should exist between individualistic and collectivist nations. Although self-determination, operationalised in terms of locus of control, varied according from individualistic nations to collectivist nations, this failed to impact on well-being, contrary to the relationship between notions of self-determination and autonomy that

have been previously associated with improved well-being within organisational research (Deci, Connell & Ryan, 1989).

There has been contrary evidence to the notion of spill-over in the investigation between work and non-work experiences and their effect on life satisfaction. Whilst spill-over theory suggests that work and non-work experiences can impact on various domains of satisfaction, Hart (1999) has suggested that the relationship is much more complex and supports a segregated theory. Hart (1999) was able to demonstrate how work and non-work experiences influence work and non-work satisfaction respectively. In Hart's study, there was no spill-over of effect from either domain, but rather changes in work and non-work satisfaction contributed independently to overall life satisfaction. However, this study related experiences within particular domains of life with specific evaluations on these separate domains, and it is not surprising that little effect was related between the different spheres of an individual's life. However, Hart's (1999) demonstration that work experiences do not impact on non-work satisfaction does not detract from the idea that work experiences can impact on an employee's overall well-being, since one's overall sense of well-being will reflect a judgement of all aspects of life, work and non-work related. Consequently, it is important to consider common teacher response behaviours to stressful working conditions.

Teacher responses to work-related stress

Cox (1985) identified several behavioural changes that occur as a result of negative workplace experiences. These include impulsive behaviour, excitability, restlessness, excessive eating or a loss of appetite, increased use of alcohol, coffee, cigarettes or illicit drugs, and absence from work. Many of these behaviours by their very nature increase the feelings of stress and ill health (Caplan, Cobb & French, 1975; Plant, 1979).

Absenteeism and Staff Turnover

Poor health, both physical and psychological, is a major source of absenteeism (Miner & Brewer, 1976). Grunberg and Oborne (1983) demonstrated that absenteeism, teacher turnover and early retirement were all correlated with poor health as well as job satisfaction. These relationships were recognised by the UK's

Health and Safety Commission (1990), which urged education authorities to develop policies to deal effectively with teacher stress, and to curb sky-rocketing rates of absenteeism and turnover, which was leading some local authorities to replace up to 1/3 of their staff numbers who were leaving the profession (Financial Times, 1990). Further figures suggested that 66% of teachers had seriously considered leaving the profession within five years (Travers & Cooper, 1996). The reasons for teachers wanting to leave the profession relate to those factors that have already been identified as negative workplace experiences.

Substance Use

One of the largest studies into teacher substance use was conducted by Travers and Cooper (1996), on a sample of British teachers. Their results suggested that there are slightly higher numbers of teachers (18.6%) smoking in comparison with other occupations (17%), though it is recognised that the number of teachers smoking has reduced following decades of health warnings over cigarette use. More worrying is that 71% of teachers who did smoke, smoked 12 cigarettes or more a day, and that almost half (45.5%) of the teachers smoked for stress release.

Although the number of teachers drinking alcohol is high, the health benefits of light and moderate drinking has been established (Andreasson, 1998; Sarafino, 1998). From Travers and Cooper's (1996) study, it was noted that most (88.1%) teachers drank alcohol and a significant proportion (28.7%) felt a need to cut down, suggesting that teachers may consume unhealthy levels of alcohol. This is suggested by findings that reported that 19.6% of men and 14% of females consume above their recommended safe limit (Travers & Cooper, 1996). Also of concern is the recognition by 56% of the sample that they drink to relieve the feelings of stress.

That a quarter of the teaching population has been prescribed either anti-depressants (28%) or sleeping pills (25%) is an alarming statistic (Travers & Cooper, 1996), when considering the high use of alcohol. It would suggest that some teachers are combining their use of these different substances, with serious consequences on their health, let alone the standards in their teaching.

Other findings (Table 2.8) from Travers and Coopers' (1996) nationwide study included the amount of caffeine consumed through coffee and tea, the number of

teachers considering leaving the profession, and the number of absences through illness. The mean rates for coffee and tea consumption were not overly high though there is clear indication that the use of these drinks for the caffeine and stimulant properties is acknowledged. All of the leavers from the teaching profession were significantly less satisfied, had poorer mental health, consumed more alcohol, higher rate of absences, and reported higher levels of strain. Whilst this sick-day rate was equivalent to the then British national average, the national average reflects a whole calendar year, whereas the teacher rate reflects only an academic year, roughly 38 – 40 weeks per annum, thus suggesting a much higher rate amongst teachers.

Much effort has sought to understand how teachers cope with work-related pressure and why some teachers are more vulnerable than others (Dunham, 1984; Kyriacou, 1986; Kyriacou & Sutcliffe, 1978). Travers and Cooper (1996) concluded from their research that, *"One of the most disturbing findings from this study of teacher stress is that too many teachers are suffering from excessive levels of anxiety and other symptoms of mental health."* (p. 162). Perhaps more worrying, is the high incidence of maladaptive coping strategies, including alcohol and medication, the effects of which have already been mentioned (e.g. Travers & Cooper, 1996).

Table 2.8 Caffeine Consumption, Absence and Leaving Rates (Travers & Cooper, 1996)

Teacher Outcome Variables		Frequency/Amount of Consumption
Caffeine Consumption	Coffee	4 cups a day
	Tea	3 cups a day
Leaving the Profession	Actively considered leaving the profession in the last five years	66.4%
	Currently seeking alternative employment	27.6%
	Seeking premature retirement	13.3%
Sick Leave	Average days of for illness each year	7 days
	Average days of for stress-related illness each year	4 days

Whilst the presence of particular sources of pressure may trigger experiences of stress, Kyriacou (1998) argued that two important aspects in understanding these developments include the individual's perception of a stressor and their means of coping with these stressors. The use of strategies that may exasperate the incidence of poor psychological health is well demonstrated in the literature (e.g. Griffith, Steptoe & Cropley, 1999).

Physiological and Psychological Health

An extensive literature clearly links negative work experiences with physiological and psychological health, including cardio-vascular disease risk, elevated cholesterol and blood pressure levels (Kahn & Byosiere, 1992). Shirom (2003) has further identified associations between work-related stress and physiological factors including elevated blood lipids and uric acid.

Blood Pressure

James and Brown (1997) identified blood pressure changes in response to environmental demands. This enables adaptation to the environmental stressor. The onset of acute diastolic levels in response to stress has been correlated to increased susceptibility to coronary heart disease, stroke, and renal disease (Fredrikson & Matthews, 1990). This is important to the research on work-related stress higher levels of blood pressure at the workplace are consistently reported (James & Brown, 1997). However, blood pressure is mediated by other factors including personality and socio-economic factors. People demonstrating Type A personality characteristics report greater diastolic pressure increase to daily work tasks than in comparison to non-Type A individuals. Higher diastolic pressure was also reported by those whose behaviour was characterised by impatience, time urgency, over-competitiveness, aggression and hostility (Lyness, 1993). Lyness (1993) also suggested that it is the evaluation of the stressor that seemed to mediate these differences, further supporting the role of cognitive appraisal.

James et al. (1996) suggested that higher levels of blood pressure were also associated with increased work demands that led to increased physical activity and other behavioural responses. In turn, these physical activities may themselves lead to an increase in blood pressure. However, the evidence between long-term experience

of work-related stress and the effects on increased blood pressure is inconclusive (Schwartz et al., 1996).

Of importance is the recognition that high blood pressure is a major risk factor for CHD, stroke, and kidney disease. Reports suggest that around 25% of the general population suffer from hypertension, with 10% of these sufferers classified as secondary meaning their high blood pressure is due to other disorders, such as with the kidneys or endocrine system. On the other hand, 90% of hypertension sufferers are classified as primary hypertension, in that the physical sources for their hypertension are not known (Sarafino, 1998).

There are a number of published risk factors, which are commonly seen as determinants for the development of hypertension, and these include obesity, diet, excessive alcohol use, physical inactivity, family history, and other psychosocial factors which may be highly influence by experiences within the workplace (AMA, 1989). The importance of these factors is quite relevant to the study of well-being. For example, obesity, diet, excessive alcohol use and physical inactivity may reflect poor coping behaviours to negative workplace experiences.

Blood Lipids

The importance of studying the relationship between blood lipids, such as cholesterol and triglycerides, and well-being, lies in the association between higher levels of blood lipids and an increased risk of coronary heart disease (Brindley et al., 1993; Niaura et al., 1992). Whilst increased blood lipid levels are influenced by a range of factors including genes, gender, BMI, dietary fat intake, physical activity and cigarette smoking, Dimsdale and Herd (1982) and Niaura et al. (1992) have argued that these factors account for only a small portion of the variance found in serum levels. Instead, they have presented accounts for differences in serum levels that identified the role of stressors, as a source of elevated cholesterol and triglyceride levels. Mattiasson et al. (1990) and Siegrist et al. (1988) have specified certain types of chronic stress, including job insecurity and instability, that are implicated in these elevated serum levels, demonstrating that concentrations of cholesterol were elevated whilst stress was perceived. Similarly, Shirom et al. (1997) has demonstrated that

overload was also a predictor of elevated cholesterol levels in female manufacturing employees, even after factoring out age, obesity, emotional reactivity and burnout.

Uric Acid

Early evidence indicated increased uric acid levels as a response to negative work experiences (Mueller & French, 1974). Research links elevated uric acid to the development of coronary arteriosclerosis and coronary heart disease (Brand et al., 1985; Lee et al., 1995), and Mueller and French (1974) suggested that higher levels of uric acid are toxic to the central nervous system and that stress is a trigger for an increase in the production of uric acid (Trevisan et al., 1997).

Coronary Heart Disease (CHD)

A considerable amount of research has demonstrated a link between negative workplace experiences and CHD. As mentioned, there is a well-demonstrated link between a number of negative health conditions like high blood pressure that further increases the chance of developing CHD. For example, stress can result in physiological changes and behavioural adaptations that are known to be major factors in the incidence of CHD. Physiologically, stress promotes the release of catecholamine and corticosteroid from the adrenal gland that damages both the arteries and heart, leading to hypertension and arteriosclerosis and later CHD. Smoking and alcohol use are linked with high levels of stress that are in turn risk factors for the development of CHD (Sarafino, 1998). Quick and Quick (1984) demonstrated that negative work factors, are positively correlated with higher amounts of CHD, a finding supported by Garrity and Marx (1979) who, using retrospective designs, indicated that heart attacks were preceded by high levels of work stress months before.

Depression and Anxiety

In comparison to other occupations, teaching is often cited as a more stressful occupation with considerable negative effects on physical and psychological health in comparison to other occupations (Johnson, Cooper, Cartwright, Donald, Taylor, & Millet, 2005). However, few studies have undertaken a diagnostic approach to identifying rates of depression and anxiety amongst schoolteachers (Eaton et al., 1990; Kovess-Masfety et al., 2006). Using a community sample (N = 11,789 persons

aged 18–64), Eaton et al. (1990) estimated the prevalence of depression over 1 year using DSM-III diagnostic criteria, as ranging from 3% to 10% depending on the level of education the teacher worked. Instead, a majority of studies into teacher mental health have concentrated on the burnout rate.

Burnout

Burnout is a construct that typically reflects feelings of exhaustion, cynicism, and reduced professional efficacy (Maslach & Jackson,1984). Exhaustion can reflect both physical and psychological strain that typically results from high demands. As a coping mechanism in the face of work demands, cynicism relates to an employee's mental state that reflects an attitude of indifference towards work in general and with colleagues. Finally, a lack of professional efficacy refers to reduced feelings of competence, successful achievement, and accomplishment both in one's job and the organization. More recently, exhaustion and cynicism have been identified as the main drivers of burnout, worker engagement and physical health outcomes (Schaufeli & Buunk, 2003). In a recent German study (Bauer et al., 2006) of schoolteachers, levels of burnout, engagement and physical health were all significantly related to pre-mature retirement.

Engagement

Work engagement is a positive and fulfilling, state of mind characterized by vigour, dedication, and absorption with one's work (Hakanen, Bakker & Schaufeli, 2006). Vigor has recently received considerable focus in recent years (e.g. Shirom, 2004; 2007) as a positive construct that is related to positive work experiences. It reflects an employee's level of energy and psychological resilience while working, the willingness to invest effort in one's work, and the ability to persist when difficulties arise. Dedication relates to a sense of enthusiasm and pride in work-related activity whilst engagement relates to the extent to which a worker is concentrated and happily immersed in work-related activity.

In line with the Organisational Health Research Framework and Hart's (1999) contention that positive and negative work experiences are independently related to positive and negative outcomes, Shirom, Toker, Berliner, Shapira, and Melamed (2006) have identified independent effects of vigour and engagement on a number of

bio-markers. However, recent research indicates engagement to be highly related to burnout although Hakanen, Bakker and Schaufeli (2006) identified burnout to be a significant mediator of negative organisational experiences on work engagement and physical health outcomes in a sample of Finnish schoolteachers.

Summary

Given the amount of attention paid towards work-related stress there has been an increasing recognition by government and health organisations of the effect of work-related stress on an individual's well-being. For example, growing concerns about the level of stress and strain experienced by people at work, led The European Commission (1997) to present several recommendations that provided a framework by which organisations could help foster healthy work environments and practices, which would effectively help deal with work-related stress. These recommendations involved companies (1) taking action to raise awareness of the issue of work-related stress, (2) acknowledging that work-related stress is not just a personal problem, but an issue that affects the organisation as a whole, and (3) encouraging workers to come forward as problems emerge (European Commission, 1997). However, it would appear that though governments and legislators recognise that current work practices pose serious health risks for workers, little has been done to promote these organisational changes and challenge the environments that workers find themselves in, worldwide.

An individual's psychological and physical well-being greatly reflects the quality of life led both at home and in the workplace. Within the workplace, the British Department of Health (1992) argued the importance of understanding the role that work plays in developing and maintaining an employee's well-being. This statement called on employers to change working conditions that had detrimental effects on the individual employee.

Despite the need for improving working conditions, many organisations and workplaces still overlook the role that work impacts on an individual's health and life satisfaction, being instead too focused on increasing company profit and productivity rather than employee well-being. It is maintained that organisational changes are an important part to dealing with the work-stress issue (Williams, 1994). Although

many non-work factors do contribute to an individual's well-being, organisations must accept that the workplace has a strong influence on the individual and that organisational restructuring must be a key ingredient to any strategy that attempts to improve an individual's health (Williams, 1994). In addition, it is clear that individual characteristics (1) influence perceptions of workplace climate, (2) mediate the effects of workplace climate, and (3) influence reactions to negative workplace characteristics that may exacerbate negative health outcomes. An Organisational Health Research Framework has provided a theoretical basis on which the interplay between organisational and individual characteristics impact on organisational and individual well-being and will therefore form the basis of the research undertaken later in this thesis.

CHAPTER 3

EXTENDING NOTIONS OF WELL-BEING: BEYOND THE PLEASURE PRINCIPLE

The highest and most beautiful things in life are not to be heard about, nor read about, nor seen but, if one will, are to be lived.

Søren Kierkegaard

Within an organisational paradigm, the preceding chapter identified the effects of both environmental and individual characteristics on individual health and well-being. However, within the well-being literature itself, and as this chapter will demonstrate, there is considerable debate and often limited consensus in delineating concepts of health and well-being.

An Introduction

Well-being appears to be a multi-faceted construct that has received considerable focus, particularly in recent decades as the interest in 'positive psychology' has featured more prominently in the research literature. At a general level, well-being is a term that refers to an individual's optimal level of functioning and experience, often reflected in our everyday language by "How are you?", and whose state is typically contrary to those components of ill-being like depressive and anxiety emotional states and physical ill-health. Whilst consensus exists over our lay understanding of well-being, attempting a similar degree of agreement within the scientific study of well-being has generated much debate and controversy, particularly in relation to defining optimal levels of functioning and in what constitutes 'the good life' (Ryan & Deci, 2001).

There are a number of features to well-being that may explain why differences over operational definition have occurred. Firstly, there are distinctions between the affective and cognitive aspects of well-being. For example, whilst there are two main affective components, such as positive and negative affect, judgements of satisfaction and happiness represent a cognitive assessment. Though judgements of

satisfaction and happiness are often highly correlated with the relationship between constructs of affect. Models of ill-being have traditionally been used as markers of well-being, yet well-being is increasingly defined as more than simply the absence of mental illness and adverse mental states. This reflects a growing recognition within the cognitive approach to well-being that links with existential psychology and has led to research in areas such as personal growth and meaning (Deci, 1975).

Regardless of the approach taken, research within well-being, mental health, wellness, happiness and other related topics, reflect an area of considerable interest to psychologists from a number of different applied areas, including health, lifespan, organisational, counselling, and clinical psychology. However, there are considerable methodological concerns regarding past research into well-being, with studies limited by poor methodology, preference for cross-sectional rather than longitudinal designs, a lack of universally accepted operational definitions, and poorly validated measures. The last decade has seen a considerable move to address these issues and most research into well-being now relates to one of two distinct yet overlapping perspectives of well-being (Ryan & Deci, 2001).

In a now seminal work, Ryan and Deci (2001) described current research on well-being as deriving from two perspectives. The ‘hedonic’ approach, which focuses on happiness and defines well-being in terms of pleasure attainment and pain avoidance; and the ‘eudaimonic’ approach, which focuses on meaning and self-realization defining well-being in terms of the degree to which a person is fully functioning. The ability to successfully delineate notions of well-being between these two perspectives is a consequence of the availability of more advanced statistical processes that have enabled advanced multi-level modelling to identify highly related but distinct constructs that constitute well-being. For instance, the use of hierarchical linear modelling has allowed researchers to extended studies into not only why individuals feel the way they do, but also to understand the factors that influence change in well-being over time (Ryan & Deci, 2001). Such advances have fuelled theory-driven research, which have developed these two distinct approaches.

The Hedonic approach

The Hedonic approach relates well-being to subjective happiness and can be derived from the attainment of goals or valued outcomes within different contexts (Diener & Lucas, 1999). Recently, Kahneman et al. (1999) defined hedonic psychology as the study of "what makes experiences and life pleasant and unpleasant" (p. ix), and focuses on three components of subjective well-being (SWB): life satisfaction, the presence of positive mood, and the absence of negative mood (Diener & Lucas 1999).

With philosophical roots in the 4th Century BC philosophy of Aristippus, SWB is based on the hedonic principles that pleasure and happiness are of primary concern to the individual, echoed centuries later by Priestley and Bentham's 'greatest happiness principle' that a good society is built on individuals' attempts to maximise pleasure and self-interest. Models of SWB have perhaps been the most frequently reported on within the well-being literature (Diener, Suh, Lucas, & Smith, 1999).

Psychological research that has focused on this hedonic principle has predominantly argued that well-being consists of subjective happiness which is a consequence of an overall evaluation of positive and negative affective experiences. By clearly defining well-being in terms of positive and negative valence, research into the area has been able to clearly differentiate between these constructs and has led to a voluminous amount of research into SWB. Critics (e.g., Ryff, 1989a) have however criticised the assumption of SWB researchers that happiness and pleasure equate to well-being.

There are two important issues concerning the hedonic position of well-being (Ryan & Deci, 2001). The first relates to the validity of SWB measures as operational definitions of well-being, whilst the second concerns the types of social activities, goals, and attainments required to promote SWB. Consequently, there are three positions that result from a consideration of these questions. The first would be to accept a hedonic view and traditional measures of SWB as indicative of well-being. The second would be to operationally define well-being in SWB terms, but to have a eudaimonic view of what cultivates SWB. The third position would simply reject SWB as an optimal indicator of well-being. This last position is hardly a realistic option since SWB has been the primary index of well-being and much of the

research literature into organisational stress has employed SWB as a major outcome variable (Ryff & Singer 1998). Within organisational/employee well-being research, much of this focus on well-being has revolved around measures that attempt to measure SWB as characterised by an individual's level of affectivity (Positive Affect and Negative Affect Schedule (PANAS; Watson et al., 1988)); level of depression (Beck's Depression Inventory (BDI; Beck, 1967)), level of non-psychiatric mental health (Goldberg Health Questionnaire (GHQ; Goldberg, 1978)), and degree of general life satisfaction (Satisfaction with Life Scale (SWLS; Diener et al., 1985)). Renewed attention in the 'positive' psychology field has furthered the notions that well-being represents one's level of happiness and that absence of mental illness is too narrow and constrictive a viewpoint to be used as an indicator of wellness. However, even a focus on positive affective states overlooks other important constructs of well-being such as personal growth and development (Waterman, 1993) that reflect a eudaimonic approach to well-being. Therefore, a significant aim of this thesis will be to extend research into employee well-being and to discriminate between affective and cognitive components of well-being, and to identify the degree two which PWB predicts SWB outcomes.

The Eudaimonic approach

Also based on ancient Greek philosophical traditions, as described by Aristotle, Psychological Well-Being (PWB) has its foundations on eudaimonic assumptions that suggest that well-being is related to whether individuals live their lives according to the true nature, and not on states of happiness and pleasure. Many philosophical approaches to eudaimonic well-being are rather critical of the hedonic approach, which may lead to momentary pleasure, but not to human growth and wellness (Fromm, 1981). However, unlike the clearly delineated SWB constructs, researchers have struggled to develop well-validated measures of PWB. This is in part, unlike SWB constructs, due to the vagueness of PWB operationalisations of wellness and living the good life.

According to Waterman (1993), the eudaimonic conception of well-being calls upon people to live in accordance with their 'daimon', or true self, a state that Waterman labelled Personal Expressiveness (PE). Waterman has demonstrated that measures of hedonic enjoyment, operationalised as enjoyment and pleasure with an activity, and

PE, operationalised as feeling alive and having a sense of identity undertaking an activity, are strongly correlated, but still indicative of distinct types of experience. For example, whereas both PE and hedonic measures were associated with drive fulfilments, PE was more strongly related to activities that promoted personal growth and development. Furthermore, increased PE was highly associated with being challenged and exerting effort, whereas hedonic enjoyment was related more to being relaxed, away from problems, and happy.

In a similar vein to Waterman, Ryff and Keyes (1995) described well-being not simply as the attainment of pleasure, but as "the striving for perfection that represents the realization of one's true potential" (p.100). Reflecting this eudaimonic approach, Ryff and Keyes (1995) introduced a multidimensional approach to the measurement of PWB that tapped six distinct concepts of human well-being, including autonomy, personal growth, self-acceptance, purpose in life, environmental mastery, and positive relatedness with others.

Self-determination theory (SDT) (Ryan & Deci, 2000) is another theoretical PWB model that has embraced the concept of eudaimonia as a central aspect of well-being. SDT delineates three basic psychological needs which include Autonomy, Competence and Relatedness. Fulfilment of these needs is essential for psychological growth, integrity, life satisfaction, and psychological health, as well as experiences of vitality (Ryan & Frederick 1997) and self-congruence (Sheldon & Elliot 1999). Identification of these basic needs defines the minimum requirements of psychological health and importantly for the organisational context, highlights the importance of an environment in providing opportunity for people to thrive and grow psychologically.

SDT has described a lifespan model of well-being, where the satisfaction of these needs varies to different degrees of importance within various developmental periods and within specific social contexts such as schools, workplaces, and friendships. These needs are not necessarily valued equally across all families, social groups, or cultures, but generally, failure to strive for these needs will result in negative psychological consequences. Contextual, cultural and developmental factors continually influence through the expression, satisfaction, and supports for these

needs, and it is because of their effects on need satisfaction that they, in turn, influence growth, integrity, and well-being at both between-person and within-person levels.

SDT suggests that satisfaction of these basic psychological needs typically fosters SWB, as well as eudaimonic well-being, and the assessment of positive and negative affect is useful insofar as emotions are appraisals of the relevance and valence of events and conditions of life with respect to the self. Therefore SDT research has typically used SWB as one of several indicators of well-being and recognises that whilst some conditions foster hedonic well-being they do not promote eudaimonic well-being. For example, Nix et al. (1999) demonstrated that success at an activity, while feeling pressured to do so, resulted in happiness, but not in vitality. In contrast, and as predicted by SDT, succeeding at an activity while feeling autonomous resulted in both happiness and vitality. This clearly demonstrates the limitations in measuring well-being along SWB constructs alone as conditions that promote SWB may not necessarily yield increases in eudaimonic well-being.

PWB proponents (e.g. Ryff & Singer, 1998) have challenged SWB models as being limited in describing long-term positive functioning, and that SWB is often a fallible indicator of healthy living given its focus on affective states and generalised evaluations of satisfaction, which generally change little over time, but which are highly reactive in shorter temporal contexts (Headey & Wearing, 1989, 1992). The fallibility of SWB can be attributed to the reactive natures of the constructs which suggests that their variability makes them poor indicators of long term wellness. Yet, Diener et al. (1999) have defended SWB as an approach whereby people to tell researchers what makes their life good whilst PWB is where experts define well-being. Consequently, this clash of paradigms has led to differing definitions of wellness which have led to quite different types of inquiry concerning the causes, consequences, and dynamics of well-being.

Hence, an important aspect of this thesis will be to investigate and distinguish the relationship between PWB and SWB, whether these are multiple indicators of well-being or whether SWB is an outcome of PWB. It is the author's position that this has

been overlooked in research into organisational effects on employee well-being, which to this point has focused on the 'hedonic' notion of SWB.

Predictors and Covariates of Subjective Well-Being (SWB)

Subjective Well-Being (SWB) is a hedonic construct that represents people's subjective evaluations of their lives, incorporating an assessment of the range of emotions they are experiencing. SWB relates to the evaluation individuals make about different aspects of their lives and can be described in terms of life and job satisfaction, lack of negative affect, such as depression and anxiety, and the presence of positive affect, such as joy. These evaluations comprise cognitive and mostly affective interpretations of external events, and unlike objective measures of psychological and physical health, reflect an individual's personal assessment of their own life. According to Diener, Suh and Oishi (1997), SWB is not an overall indicator of mental health, but is only one aspect of the notion of well-being that is a desirable characteristic for most individuals.

As a psychological construct, SWB emerged during the 1960/70's as an attempt to measure quality of life and monitor the impact of social policy on social change (Bradburn, 1969). These studies emphasised the importance of life satisfaction and happiness as indicators of well-being and life quality, and it was in Bradburn's (1969) seminal work into happiness, from which emerged the importance of the balance between positive and negative affect in determining happiness. The separation of positive and negative affect has since been well substantiated (e.g. Cacioppo, Gardner & Berntson, 1999; Keyes, 2000). A review of SWB and its associations with various demographic factors will now follow.

SWB, Age and Personality

Whilst gains and losses in positive affect through the lifespan have been identified, changes in negative affect appear mostly unrelated to age (Headey & Wearing, 1989; 1992). Instead, changes in negative affectivity appear highly related to personality characteristics. This suggests that some individuals are able to adapt to the aging process (Shmotkin, 1998), though this is hard to establish since a range of factors, including heredity, personality, and environmental conditions have been identified as key determinants of SWB (Lykken & Tellegen, 1996; McCrae & Costa, 1996) but are often excluded from many analyses.

Indices of SWB usually involve self-report measures, but because of validity and reliability issues, and error related to response and memory bias, alternative methods of assessing SWB can be employed. Alternative methods of data collection can include reports from the respondent's significant other, or by assessing the respondent's emotion at random moments over a certain period of time. Diener et al. (1997) suggested using a combination of data collection procedures in order to maintain some consistency in SWB reports over a prolonged period. Furthermore, there appear to be considerable issues relating to the differences in reports of on-line and global SWB, as some events may be interpreted in a negative light during the experience, but perceived as a positive experience afterwards. According to Fredrickson and Kahneman (1993), the peak-end rule demonstrates that the mean experience of an event at its peak and end will generally determine the global evaluation an individual holds of that event and indicates how emotional evaluations are influenced by temporal and contextual effects.

Clearly, the role of cognition in determining appraisals of stressors has been discussed earlier in the preceding chapter in relation to perception of stressors, and a similar argument in relation to SWB has been proposed and demonstrated (Larsen, Diener & Croponzano, 1987) whereby emotions were regulated by the cognitive labelling the individual makes of an experience. Increased SWB, operationalised in terms of high satisfaction and positive affect, and low levels of negative affect, have been associated with cognitive traits of certain groups of people. For example, positive SWB reports are usually higher for religious individuals than non-religious individuals, and for those individuals who concentrate their efforts to the pursuit of attainable goals (Ellison, 1991; Emmons, 1992).

Twin studies, involving mono and dyzygotic twins separated at birth, have indicated that hereditary has a powerful effect on SWB, with almost half of the variation between individuals attributable to genetics (Lykken & Tellegen, 1996). This has been particularly so for reports of unpleasant affect where up to 80% of long-term negative affect could be attributed to inherited characteristics. Kagan (1994) has even been able to demonstrate that emotional reactivity in infants predicted fear responses later in life. Røysamb et al. (2002) used a latent variable approach to model both genetic and non-shared environmental effects on males and females separately, and

found that almost 100% of the variance in SWB could be accounted for, with a roughly 50/50 split between additive genetic and non-shared environmental factors. Clearly, stable and enduring characteristics with strong genetic components, like personality, must be a considerable force in accounting for SWB, but this does suggest that interventions at either the individual or the environmental levels could exert a considerable effect on SWB states.

There appear to be distinct patterns between personality types and the different affective components of SWB (Costa, McCrae & Zonderman, 1987). For example, those high in extraversion are more likely to report higher levels of positive affect, whilst those high in neuroticism report higher levels of negative affect. Importantly, these effects are generally independent. That is, extraversion is usually not associated with negative affect, and neuroticism is typically not associated with positive affect. Whilst extraversion and neuroticism are significantly related to positive and negative affect respectively, the traits of agreeableness and conscientiousness appear to correlate only moderately with SWB. Diener et al. (1997) suggested that this may be due to the positive environmental reinforcements individuals receive when they demonstrate these traits. For example, agreeableness may not directly improve levels of SWB, rather it may attract rewards that improve SWB.

SWB and Culture

Other factors related to SWB include cultural and demographic effects. Although factors such as economic wealth do not generally correlate with average levels of SWB, people in poorer nations do report SWB scores at or just below average (Diener & Diener, 1995). However, this is confounded by SWB reports that are generally higher in individualistic nations which typically emphasise autonomy and individualism. This may reflect complex effects relating to dimensions of individualism and collectivism, as collectivist nations emphasise group functioning over the needs of the individual's sense of happiness. Or simply, individualist nations, which emphasise greater independence and personal wealth, are generally richer than their collectivist counterparts. Paradoxically, whilst these individualistic nations report higher levels of SWB, they also report higher rates of depression, suicide, and divorce. According to Diener et al. (1997), this may be due to the fact that individuals in these individualistic nations are more likely to make self-

attributions, given their greater focus on the self, and therefore negative and positive experiences are experienced more intensely. As well, these nations may have less stable and effective social support networks which are more evident in the collectivist nations. Further differences between individualistic and collectivist nations have been reported in well-being have been reported. Suh, Diener, Oishi and Triandis (1997) have shown that satisfaction amongst college students in individualistic nations is based on recent emotional experiences, whereas for college students in collectivist nations, it is based on cultural notions of a satisfying life.

Early theoretical propositions suggested that demographic characteristics are related to SWB, however such relationships appear to reflect personality rather than demographics such as age or gender (Ryan & Deci, 2001). It is generally accepted that demographic characteristics are weakly correlated with SWB. Campbell, Converse and Rodgers (1976) determined that all such characteristics accounted for less than 20% of variance in SWB. Of these factors, education, ethnicity, and age appear to be of less importance than marriage, where both sexes report higher happiness than those who have never married, divorced or are separated. As discussed with the issue of collectivistic nations, it may be that marriage provides supportive social networks. However, Mastekaasa (1991) has suggested that happy people are more likely to marry in the first place suggesting that the causal relationship between marriage and SWB is either reciprocal or spurious. In support of the earlier findings, Gohm, Darlington, Diener and Oishs (1997) also demonstrated a benefit to marriage in relation to levels of SWB. Their survey of children from intact and broken homes has found that life satisfaction was lower in high-conflict marriages or divorced homes.

Stability of Affect

Affect and assessments of life satisfaction are generally stable constructs throughout the lifespan (Headey & Wearing, 1989, 1992). Analyses of longitudinal studies in Europe and Australia supported the set-point theory of affect which postulated that although level of affective states may change as a consequence of daily experiences, it would appear that most people will eventually return to their own individual, primarily heritable, pre-determined level of affect. This is in line with Lykken and Tellegen's (1996) proposition that at least half of the variance in emotional states

could be attributed to genetic factors. It is not surprising therefore that over time most individuals reported stable mean levels of SWB.

More recently, using over 20 years of data from the German Socio-Economic Panel, Headey (2008), has identified that for most, the set-point does not appear to change. However, for those high in extraversion and/or neuroticism, there were changes in set-point for life satisfaction when positive and negative life events occurred. This bears some resemblance to the interactional models proposed within organisational paradigms (Cooper & Marshal, 1975; Hart & Cooper, 2001) which highlight the interaction between workplace and individual characteristics and changes in employee well-being outcomes. Headey and Wearing (1989) coined the expression dynamic equilibrium to describe the dynamic processes by which individual and environmental characteristics interplay to influence momentary affective changes from set-point levels.

Support for the set-point theory has been found. Silver (1980) was able to demonstrate that whilst spinal cord injured paraplegics and quadriplegics experienced higher levels of negative affect immediately after the accident that produced their paralysis, within three months their level of positive affect was higher than their levels of negative affect. Suh, Diener, and Fujita (1996) studied the effect of life events on recently graduated college graduates and showed that the effect of events on SWB was limited, lasting no more than three months. This supports the dynamic equilibrium theory whereby changes in SWB eventually return to base-line levels.

Goal Pursuits

Further influences of SWB appear to relate to goal achievement and suggests that SWB outcomes relate to individuals' aspirations as William James (quoted in Burns, 1979) wrote over a century before, when he projected the notion that it all 'depends on what you back yourself to be'. In a similar vein to modern self-concept theory (Burns, 1979; Wylie, 1974), the impact of aims and goals seems to be related to the importance that the individual places on a particular aim and goal. Whilst individuals high in SWB considered their goals important to them and believed they were most likely to succeed in achieving their goals, individuals low in SWB perceived more

goal conflict. Within the context of the Organisational Health Research Framework described in the previous chapter, individuals who experience conflict in their goals at work may report a decrease in their self-report of SWB. The question is whether the relationship between these variables and SWB is reciprocal as it is suggested by Mastekassa (1991) above, and as described by Hart and Cooper (2001) in their development of an Organisational Health Research Framework.

Findings within the SWB literature have several implications for determining the effect of organisational climate on employee SWB. Ryan, Sheldon, Kasser and Deci (1996) have proposed the importance of determining whether goals are of intrinsic or extrinsic value for individuals since intrinsic motivation appears to be highly related to positive SWB. Within an organisational paradigm this would be important, for when goals are of importance for both the organisation and the individual, the employee would value the goal for intrinsic reasons. Conversely, the pursuit of goals for extrinsic reasons is usually associated with low levels of SWB.

Predictors and Covariates of Psychological Well-Being (PWB)

Whilst decades of research have related notions of positive mental and physical health with the absence of such adverse states as depression, anxiety and physical illness, a number of researchers have proposed that well-being is not necessarily an antithesis to these constructs of ill-being (Huppert, Keverne, & Baylis, 2006; Kahneman, 1999; Ryff, 1989a). The Eudaimonic or Psychological Well-Being (PWB) model emphasises those mechanisms that are associated with healthy human functioning and adjustment. Whilst daily SWB fluctuates with life experiences (Headey, 2000; Headey & Wearing, 1989), PWB is a relatively stable construct that emphasises those aspects of human functioning more likely to lead to adaptive human functioning and positive experiences (Ryan & Deci, 2001). Such theories are not new. As with SWB, PWB is grounded in ancient philosophical works (e.g., Epictetus) whilst more recent proponents have included the existential writings of Kierkegaarde and Tillich, both of whose discourses into the experience of melancholia and anxiety led to the conclusion that the good life is one not free of ‘angst’, but one that is lived in spite of it.

Ryff's Psychological Well-Being Scales

Ryff's (1989a, 1989b) Psychological Well-Being scales drew from gerontological and life-span research and reflect one construct-oriented approach to PWB. Their theoretical underpinnings stemmed from a wide range of influences including Allport's (1961) concept of the mature personality, Rogers' (1961) fully-functioning individual, and Maslow's (1968) self-actualisation and led to the formulation of six dimensions of PWB that were previously identified (autonomy, positive relations with others, environmental mastery, personal growth, purpose in life, and self-acceptance) (Ryff, 1989a; 1989b).

With intuitive appeal and widespread interest, the use of the PWB scales have been applied to a number of psychological areas (Clarke, Marshall, Ryff & Wheaton, 2001; Fava, et al., 2004), despite unresolved questions relating to their validity (e.g., Springer & Hauser, 2006; Springer, Hauser, & Freese, 2006). Also, Keyes, Shmotkin and Ryff (2002) have identified significant associations between PWB and SWB variables which raises questions about the degree to which PWB and SWB are distinct or related constructs. Still, Ryff's (1989a, 1989b) work reflects one major attempt to quantify what was seen as a highly subjective area of study.

Through interviewing young, middle-aged and older members of the general population, Ryff (1989b) was able to demonstrate that these six key areas (Table 3.1) were consistently identified by members of the general population as indicative of the good life and well-being. These findings revealed that self-acceptance was often a significant feature of mental health, and a significant construct within theories of self-actualisation and fully-functioning individuals (e.g. Rogers, 1961) which emphasised an ability to develop warm trusting relationships with others, whilst personal characteristics included being empathetic and affectionate towards others. Yet, these individuals remained autonomous persons who resisted societal expectations to change and conform. Environmental mastery reflected individuals' ability to manipulate and function within their environment, in relation to any physical limitation. Purpose in life intends to reflect those characteristics which identify people as having goals and a sense of direction in their lives, of all which contributes to the notion of having meaning in one's life. Personal growth reflects the need for individuals to continue to grow and realise one's potential. These concepts

are all fundamental to the need to actualise or maintain a fully functioning self. Although conceptual overlap between these six domains is supported by the reports of bivariate correlations, extensive research has demonstrated differential effects of these different dimensions with a range of different variables, including health outcomes as well as age, culture and gender (Ryff, 1989b;).

Table 3.1. Summary of PWB variables and their definitions (Ryff, Singer, & Love 2004).

PWB Variable	Definition
Environmental Mastery	describes how individuals can feel competent and able to manage their environment and meet the responsibilities of everyday life.
Personal Growth	relates to an individual's feelings of continued development, potential, and openness to experience.
Purpose in Life	relates to individuals possessing goals and a sense of direction in their lives, and the feeling that past and present experiences are meaningful.
Self Acceptance	relates to having a positive attitude of self, acknowledging and accepting the various facets of the self-structure. Rather than being 'pollyana'ish' it means being able to accept ones' strengths and weaknesses.
Positive Relations With Others	describes the extent to which individuals have warm, satisfying and trusting relationships, are socially concerned, and are capable of empathy, affection and intimacy
Autonomy	relates to how individual's describe themselves as self-determining and independent, resisting external pressures to think and act in ways to meet social expectations, but rather to evaluate in terms of personal standards.

Despite research typically indicating that the separate PWB factors domains are independent predictors of various health outcomes, a number of analyses have used a total PWB score to reflect an individual's level of PWB (e.g. Freund & Baltes, 1999). However, this fails to discriminate between individuals with the same overall PWB score who may differ at the factor level, whereby one individual scores high on two or three factors and low on the others, whilst another individual may score

consistently across factors. One argument could be that individual PWB factors are related to specific outcomes, in which case the individual factor score is more important that a total PWB score. Another approach would be to consider the effects of interactions between different PWB factors on various outcomes. The issue of delineating between hierarchical and dimensional effects is not new to self-referent beliefs (e.g. Burns, 1979; Wylie, 1974) where decades of research into the self-concept failed to address these very issues, and where now there is a consensus, at least amongst self-concept researchers, that global assessments are generally poor predictors in comparison to context specific self-referent assessments (e.g. Pajares, 1997; Skaalvik & Skaalvik, 2004).

It was through her work on elderly samples that Ryff (1989a, 1989b) began to determine differences between the constructs of PWB and SWB. Her research into the aging process identified that on the whole, old age is associated with increases in positive SWB despite the many age-related challenges and losses that occur. It was in identifying why most individuals increased or maintained their levels of SWB, as opposed to those who reported declines in SWB, that Ryff identified these PWB dimensions, and that this was what determined successful aging from non-successful aging. In line with the hypotheses described earlier in this chapter, these findings suggest SWB may be an outcome of successful PWB. The PWB approach places less emphasis on promoting the experience of positive emotions, or for that matter reducing negative affects, rather they are concerned more with the appropriateness of the emotional experience. As such, after negative life events such as the death of a loved one, it is only natural for an individual to experience an appropriate degree of negative affect. Emotion, for researchers within the PWB perspective, is contextual and an appropriate response to life events. The end goal of experiencing emotions is to contribute to promoting personal growth in the long term (Ryan & Deci, 2001).

Age, Gender and PWB

Longitudinal analyses of PWB reported a number of interesting findings (e.g. Ryff et al., 1994). Firstly, whilst environmental mastery and positive relations with others appeared to increase with age, both personal growth and purpose in life declined, suggesting that PWB is in part influenced by the experiencing of various life events and, in accordance with epigenetic principles, supports the notion that different

stages of life present different challenges for individuals. However, at this stage, it is not possible to determine whether these changes are due to maturational effects or simply error due to the cross-sectional design methods employed (Ryff & Keyes, 1995). Age effects have not generally been reported for positive relations with others and self-acceptance.

Gender effects of PWB indicated that women consistently rated higher on positive relations with others and personal growth. The other four dimensions consistently failed to report any gender effects (Ryff & Keyes, 1995). Findings from the longitudinal MIDMAC study (e.g. Ryff et al., 1994) confirmed these cross-sectional findings. For example, women of all ages reported higher levels of positive relations with others and personal growth than compared to men. These results are interesting given the higher incidence rates of depression and other psychological disturbances among women, because on at least two dimensions of PWB, they appeared to possess greater psychological strengths. This could be explained by reference to the discussion elsewhere in this thesis about the role of stability and level of well-being. It may be that although women reported higher levels of well-being, they may also have reported greater instability in SWB levels. The concept of emotional reactivity is proposed to explain differences between those who report greater changes in their well-being over time, and it is for this reason that measures of well-being must consider how both hedonic and eudaimonic concepts of well-being change over time.

From midlife, educational attainment and occupational status correlate with greater PWB, particularly self-acceptance and purpose in life. Ryff et al. (1994) argued that more longitudinal and mixed design studies will be needed to confirm the gains and loses in PWB from young adulthood, though midlife and into old age and between genders. For example, a European study using a repeated measures design, sampled 450 participants from a general population in Bologna, Italy (Ruini, et al., 2003) and found quite different findings to Ryff et al. (1994). Whilst Runi et al. (2003) demonstrated statistically significant negative correlations between all PWB domains and negative affect, female participants reported higher levels of negative affect and lower levels of PWB.

PWB and Physiological Health

As has been previously described, PWB proponents posit that human health constitutes more than simply the absence of negative states or illness (World Health Organisation, 1948), and perhaps a sense of well-being is possible regardless of one's level of illness. Ryff, Singer and Love (2004) have argued that wellness constitutes an individual's capacity for growth and to flourish, having a sense of purpose and direction, with positive relationships with others, and that this is possible despite the presence of illness. Research into this area provides circumstantial evidence at best, though a significant number of individuals with acute and chronic conditions, from cancer to arthritis, still report a quality of life or SWB comparable to their pre-diagnosis states or in comparison to healthy participants (e.g. MacDonald, 2001). It may well be that PWB aids both in recovery from illness or in learning to adapt to significant life changes as a consequence of disease states.

More recently, PWB researchers have sought to identify positive associations between PWB and physiological functioning amongst a non-clinical sample. Ryff, Singer and Gayle (2004) investigated the relationship between physiological functioning and PWB and SWB. Results indicated significant relationships between PWB and neuro-endocrine markers. Participants with higher levels of purpose in life and personal growth reported less reactive levels of salivary cortisol than in comparison with those with low levels of well-being. Also, those who reported higher purpose in life reported lower levels of cortisol in the morning and throughout the day. This was a relationship reported in an earlier study by Lindfors and Lundberg (2002). Higher levels of autonomy were associated with higher levels of noradrenalin, however, as increases in noradrenalin and adrenalin are often associated with increased levels of stress, the impact on well-being is unclear. It may be that the baseline levels of catecholamines differ from individual to individual and that the negative impact of these hormones occurs when levels differ from an individuals' normal level of healthy functioning. Purpose in life was also associated with pro-inflammatory cytokines, including IL-6, notable for its negative role in the relationship between psychological stress and inflammatory response. Long term consequences include atherosclerosis, insulin resistance, and type II diabetes (Black, 2003). Ryff, Singer and Gayle, (2004) demonstrated that high purpose in life was associated with lower levels of inflammation response. Their findings also

demonstrated that positive relations with others, personal growth and purpose in life were all highly associated with better cardiovascular functioning. Participants with higher levels of PWB reported lower levels of glycosylated haemoglobin, lower waist-hip ratios, lower total/HDL cholesterol ratios, and weighed less.

Following all these relationships between PWB and physiological functioning, it is noteworthy that SWB reported only one significant relationship, between negative SWB and increased level of HDL cholesterol. The lack of associations between SWB with health indicators supports a number of findings discussed elsewhere in this thesis. Primarily, the reason for this failure to demonstrate significant effects between SWB and health is that most people report themselves to be happy (Diener & Diener, 1996), and in line with dynamic equilibrium, affect reaction to poor health states eventually returns to set-point levels. Research into the relationship between SWB and physical health suggested weak to moderate correlations between physical health and SWB when rated by self-assessment (Okun, Stock, Haring & Witter, 1984). However, when the rating was undertaken by others including family members and health professionals, correlations became negligible as individuals with high levels of SWB may still suffer from poor health states.

It is clear that the relationship between SWB, PWB and physical health outcomes are dogged by the lack of an identification of temporal cause and effect. Clearly, one could hypothesise that either physical ill-health predisposes individuals to experiencing increased negative SWB, or vice versa. This is something that the author has investigated within an ageing context (e.g. Anstey, et al, in submission; Anstey, Burns, von Sanden, & Luszcz, 2008) with the conclusion that the relationship between SWB and physical health states is reciprocal. It might be that PWB functions to moderate this relationship, but to date this has rarely been tested. Hayne et al. (2003) investigated Ryff's model of PWB and immune functioning and studied lymphocyte activity in relation to the production of interferon-gamma (IFN-gamma) and interleukin-10 (IL-10) in 18 individuals as a result of either influenza or hepatitis A immunization, with results showing strong Pearson correlations between PWB and both IFN-gamma and IL-10 production, suggesting that physiological functioning and PWB are related.

The Structural Validity of PWB

Abbot et al.'s (2006) recent review noted that most of the psychometric analyses of the PWB scales occurred almost a decade after the first publication of the PWB scales (Ryff, 1989b) with a number of different findings reported. Whilst the 'a priori' correlated 6-factor model has received some support (e.g., Ryff & Keyes, 1995), a number of studies (e.g., Clarke, Marshall, Ryff & Wheaton, 2001) have indicated a high degree of correlation between four of the PWB variables: environmental mastery (E), personal growth (G), purpose in life (P), self-acceptance (S) (EGPS), sufficient to warrant analysing these factors as one super-ordinate factor. Further analyses of the PWB scales have supported this structure with separate first order factors for autonomy and positive relations with others, and one-second order factor containing the EGPS variables (Abbot et al., 2006). More recently, using an exploratory factor analysis procedure, Burns and Machin (2008) have supported Abbot et al.'s (2006) amended PWB structure.

A number of the studies reviewing the structure of the PWB constructs (e.g., Kafka & Korma, 2002; Ryff & Keyes, 1995; van Dierendonck et al., 2007) have been fraught with methodological limitations. Whilst the original scale (Ryff, 1989b) included 120 items, shorter scale versions have included an 84, 54, 42 and 18 item scales, all with an equal number of items per PWB variable. Most analyses have tested the factorial validity of the PWB scale with the smallest 18-item (3 items per variable) scale, though two recent analyses used a 42-item scale (Abbot et al., 2006; Springer & Hauser, 2006) or an amended 39-item scale (van Dierendonck et al., 2007). There are issues relating to the validity of these findings since there is a lack of consistency in the items that comprise the shorter versions of the PWB scales. Whilst the 84-item version comprises all items used in the 54-item scale, there is considerably less overlap in the items used between the shorter versions, with only 6 common items between the 18- and 42-item scales. Van Dierendonck (2004) analysed the 84, 54, and 18-item scale versions and found support for a 6-factor model with a second-order factor. Although internal consistencies were high, Goodness of Fit Indices (GFI) indicated poor fit for the two larger scales.

Further issues relate to the methodology employed in developing the PWB scales. Initial development of the original 120-item scale is explained fully elsewhere (Ryff,

1989b; Ryff & Singer, 2006), but in summary, an initial pool of some 80-items per variable were reduced to 32 items per variable. Ryff (1989b) then analysed the bi-variate correlations of items to their respective composite variable and retained items (20 per variable) with the strongest correlations, so long as an item's strongest correlation was reported between the item and its parent scale. Even so, this process means that some items which scored most highly on their respective variables will likely fail to discriminate between other variables if they also reported lesser but still very strong correlations with other variables. This process certainly explains why high correlations (e.g., van Dierendonck et al., 2007) and cross-loading of items across PWB variables (e.g., Springer & Hauser, 2006) have been reported, and why internal consistency of the PWB variables is often quite high (e.g., Ryff, 1989b).

Kafka and Kozma (2002) assessed the validity of Ryff's original 120-item scale and found support for one general PWB factor. However, the authors first extracted all factors with eigenvalues greater than one and then the 'a priori' 6-factor model using principal components analysis (PCA), with an orthogonal (Varimax) rotation. PCA is generally described as a data reduction process, and it is not surprising that most of the PWB items loaded onto the first factor. Given the frequently reported high degree of correlation between the PWB variables, a Principal Axis Factoring (PAF) method with an oblique rotation would seem most appropriate to identify a correlated PWB factor structure. A re-analysis of the original item pool with PAF, using an oblique rotation, may yet prove constructive and informative.

Clearly the longer scales, or at least the 84- and 54-item scales, should be used to test the validity of Ryff's 6-factor structure of PWB. A significant amount of meaningful data is lost when only 3 or 7 of the original 20 items per variable are used in the data collection as it is likely that the influence of sample characteristics, like gender (Marks & Lambert, 1998), age (Ryff & Keyes, 1995) and culture (Ryff, Keyes, & Hughes, 2004), all of which have been demonstrated to have some effect on PWB, will be reflected on the PWB factor structure, particularly when using a smaller item pool. It may be that sampling characteristics influence particular response patterns to items of different content. Given these effects, the validity of Ryff's (1989b) original development of the scale must also be considered with caution since 60% of the

original sample (N = 321) were female, and the sample was stratified by three age groups.

However, despite the weaknesses related to certain aspects of the scale's initial construction, and the limitations of some subsequent analyses, considerable evidence (Ryff & Singer, 2006) does relate PWB to a range of outcomes including biological indicators (Ryff, Singer, & Love, 2004), successful transitions in later life (Smider, Essex, & Ryff, 1996) and better counselling interventions (Fava, et al., 2004), supporting the utility of the construct and its operationalisation using Ryff's scales.

Distinguishing between PWB and SWB

There is growing support for the thesis that PWB and SWB constitute two related yet different approaches to modelling well-being (Burns & Machin, 2007 & 2008; Lucas, Diener, & Suh, 1996), and in the last decade, researchers have begun to investigate the relationship between these approaches. One significant report (Compton, Smith, Cornish, & Qualls, 1996) factor analysed 18 different indicators of well-being and mental health from which two factors were identified. They concluded that whilst one reflected aspects of SWB and the other reflected Eudaimonic principles, like personal growth, there was a moderate correlation between the two factors. Yet, despite a growing body of evidence indicating PWB to be an important indicator of well-being, there has been little empirical evidence to demonstrate the conceptually related yet empirically distinct constructs of PWB and SWB within a general population. Only one study has attempted to distinguish the differences between these concepts of well-being within an organisational paradigm (Burns & Machin, 2008), whose findings were consistent with those in non-organisational contexts.

Keyes, Shmotkin, and Ryff (2002) examined the distinctions between SWB and PWB modes of well-being, and surmised that whilst SWB represents global evaluations of affect and life quality, PWB represents evaluations related to existential approaches to living. Compton et al. (1996) found moderate correlations between a SWB factor, consisting of happiness and life satisfaction, with the factor personal growth, consisting of openness to experience and maturity. Similarly,

McGregor and Little (1998) identified two distinct factors: Happiness, which included measures of depression, positive affect and life satisfaction; and Meaning, which included measures of personal growth, purpose in life, positive relations with others and autonomy. These findings led Keyes et al. (2002) to propose a model of well-being comprising these two approaches that tested individuals' well-being states. Their analysis allowed for testing a number of possible on-diagonal well-being types, where individuals had either low or high levels in both modes of well-being, and off-diagonal types whereby, individuals score high on one model of well-being and low on the other well-being dimension.

Keyes et al. (2002) reported that 18.6% of their sample, randomly drawn from the general population, had optimal well-being, scoring high on both PWB and SWB, whilst 12.6% and 19.3% reported moderate and low levels on both modes of well-being, respectively. These combinations were defined as on-diagonal types. Interestingly, in line with their original hypothesis, 45.2% of the sample reported disparate combinations of well-being, with 23% reporting high levels of PWB and low levels of SWB, and 22% reporting high levels SWB and low levels of PWB. These combinations were defined as off-diagonal types. Keyes et al. (2002) were also able to demonstrate a complex relationship between personality and both of these on and off-diagonal well-being types. In line with previous studies (Costa & McCrae, 1980; Watson & Clark, 1992), neuroticism was the strongest predictor of life satisfaction, happiness and negative affect and was the most significant personality trait in determining levels of the on-diagonal well-being types (e.g. high levels of both SWB and PWB). Furthermore, extraversion and conscientiousness differentiated between individuals who scored high and low on both modes of well-being. These three personality traits were most important in determining on-diagonal levels of SWB and PWB, whether high, low or moderate. Within the off-diagonal types, openness to experience was able to differentiate between those who reported high levels of PWB with low levels of SWB and those individuals who reported low levels of PWB and high levels of SWB.

A significant limitation of this study however was the cross-sectional nature of the assessment as these levels of well-being may be of secondary importance to the stability of well-being levels over time. In contrast, there is good evidence to support

the notion that PWB is highly related to personality characteristics (Schmutte & Ryff, 1997) of which a significant proportion can be accounted for by hereditary factors. Therefore, these traits are more likely to be stable than reports of SWB which appear to be more susceptible to environmental stressors and life events, even though set-point theory (Headey & Wearing, 1989) would posit that over the long-term, mean level of SWB remains stable.

A range of social, demographic and personality characteristics have been related to both PWB and SWB. Age has been demonstrated to have significant relationships with well-being, possibly because of normal lifespan development, which would suggest that as individuals pass from young adulthood through middle age and into old age, life events and individual aspirations impact on well-being (Neugarten, 1973; Ryff, 1989). However, as previously discussed, the limited use of longitudinal studies on PWB has failed to answer whether these differences are truly developmental or rather just cohort effects. Educational attainment has also been emphasised given that educational status can differentiate access to a range of resources and opportunities which influence health, well-being and economic status (Adler, McEwen, & Marmot, 1999). Accordingly Keyes et al. (2002) argued that individuals scoring high on both PWB and SWB, comprised those in their middle adulthood and with a high degree of educational experience. Educational experience provides access to continued employment, fiscal security and status, whilst middle age represents a peak time of experiences at work and home.

Generally, proponents of Eudaimonic well-being give little attention to notion of happiness or positive affect when defining human wellness. Waterman (1993) has argued that positive functioning may require a degree of effort and discipline that may at times run contrary to the pursuit of short-term happiness. Indeed, consider the doctoral candidate who, in trying to complete his thesis, neglects the short-term happiness that can be attained from going outside to ski in the Norwegian wilds in waist-deep snow. The deferment of short-term happiness occurs in the hope for greater rewards, the completion of a PhD thesis, at a later date. Philosophy and history both provide detailed arguments against the notion of happiness being of ultimate concern for individuals. Becker (1992) provides countless examples of people who have lived unjust, pointless lives who have nonetheless been happy in

the long run. Reports of disabled, unemployed, and abused people indicates that people can still be happy in the long-term, and raises question about the possible overly unjustified focus western and individualistic societies tend to direct towards happiness as a significant life goal. As Diener (1994) has suggested, happiness is less an end in itself but a consequence of other more noble pursuits.

In fact, previous research has demonstrated that individuals' valuing of extrinsic goals can be negatively correlated to various indicators of well-being (Kasser & Ryan, 1993; Sheldon & Kasser, 1995; Sheldon, Ryan, Deci, & Kasser, 2004). As Sheldon et al. (2004) argued, it is the people who value and place greatest importance on amassing wealth, presenting an attractive image, and status who tend to report greater levels of anxiety, depression, narcissism, and high-risk behaviours.

In line with proponents of the over-justification effect (Nisbett & Borgida, 1975), criticism of the pursuit of external goals lies in the motives that people have for pursuing such behaviour. However, extrinsic motivation and goals are not in themselves the problem. As Sheldon et al. (2004) have demonstrated, it is the motives behind the action, in particular the notion of autonomic motivation, that predict well-being. Sheldon et al. (2004) also delineated a clear negative relationship between goal content, measured by wealth, fame and image, and well-being, a relationship that was moderated by level of autonomy, a PWB construct that features in both Ryff's (1989b) PWB scales and Deci and Ryan's (2001) tripartite SDT model.

The relation of wealth and social class to well-being has been the subject of much speculation particularly within lay circles, e.g. "Money can't buy happiness", and research appears to indicate five major trends in this relationship. Firstly, people in richer nations report higher levels of SWB than those in poorer nations. Secondly, increases in developed nations' national wealth is not associated with subsequent increases in SWB. Thirdly, differences in within-nation levels of wealth show only weak positive correlations with SWB. Once above the poverty line, increased wealth is not associated with increased levels of SWB, and finally, people who strongly desire wealth and status are more unhappy than those who do not (Diener & Diener, 1995).

Diener and Diener's (1995) conclusion was that avoiding poverty and living in a rich country are associated with happiness. However, this conclusion must be questioned when countries such as Australia, Japan, Sweden, Norway, UK, and USA report high rates of mental illness such as depression and suicide (WHO, 2008). This may be related to the growing consensus that individuals in these rich western countries have developed a pre-occupation with the accruement of wealth and goods, and feel failure and unable to cope to meet societal pressures and increase levels of negative affect. A further economic constituent of well-being may need to also focus on non-material goals rather than the procurement of wealth and status.

A focus on wealth may bring about short-term increases in positive affect, but proponents of PWB would ascribe the weakness of this activity in that it fails to contribute to long-term personal development and growth. Kasser and Ryan (1996) suggest that prioritising the attainment of material goods and status, fails to satisfy and fulfil basic psychological needs as such behaviours are usually non-autonomous activities and fail to develop close relationships with others and personal growth. This has been supported by cross-cultural studies using both longitudinal and cross-sectional designs in a range of economically developed nations (Ryan & Deci, 2001).

Assessing Well-being with Biological Reports

Problems associated with the use of self-report in measuring well-being are clear. Self-reports require participant honesty and an ability to accurately assess their personal state of well-being. Self-reports can be validated by the use of reports from significant others, however, there is an increasing body of evidence that suggests that biological markers exist for determining emotional responses in individuals. Functional MRI scanning indicates pre-frontal cortex activity to be a good indicator of emotion regulation, including the ability to suppress negative emotion and the ability to recover from negative emotional experiences (Jackson, et al., 2003). Morgan, Romanksi and LeDoux (1993) lesioned the pre-frontal cortexes of rats and found that this inhibited the rats' ability to cease a conditioned aversive response. The importance of the pre-frontal cortex, in particular the left pre-frontal cortex, appears to be its ability to control and inhibit the amygdala, the brain's emotional trigger (Jackson et al., 2003). Considerable research has demonstrated asymmetric

activation of the prefrontal cortex in terms of emotion and SWB, but only one published report has investigated this in relation to PWB (Urry, et al., 2004), where, as with studies into SWB, there was greater left than right superior frontal activation associated with PWB.

Personality and Well-Being

Despite problems related to the validation and operationalisation of measures and terms, the concepts of affect, well-being and personality are among the most frequently studied topics in contemporary psychology (Schmutte & Ryff, 1997) and although initial interest in these topics developed from distinct fields of psychology, researchers have demonstrated significant relationships between them (e.g. Costa & McRae, 1984; Emmons & Diener, 1985; Schmutte & Ryff, 1997).

Research investigating emotions and SWB have typically found three main trends (Diener & Lucas, 2000). First, people tend to report having positive affect most of the time. SWB researchers have usually concluded that people generally have high levels of SWB given people tend to report positive affect more than negative affect (Ryan & Deci, 2001). Secondly, people can easily judge affect as positive and negative. Finally, people always experience some level of affect. Following the work of Headey and Wearing (1989; 1992), Kahnemann (1999) has addressed how individuals address their mood over time and suggests that generally SWB responds to life events for only a brief amount of time, before returning to baseline levels. PWB and personality may explain differences in the extent to emotional reactivity and why some individuals return to baselines levels more quickly than others (Headey, 2000; 2008; Headey & Wearing, 1989).

DeNeve (1999) suggested that SWB is determined by genetic factors given its stability throughout the lifespan (Headey & Wearing, 1989). This is supported by the high correlation between SWB and personality traits, and where personality has been identified as being significantly determined by genetic influences. DeNeve and Cooper (1998) undertook a meta-analysis of 197 samples involving 40,000 participants in which personality traits, such as extraversion and agreeableness were consistently positively correlated with global SWB, whilst neuroticism was consistently negatively correlated. This has been supported by Diener and Lucas

(1999) who reported correlations of .80 between extraversion and positive affect, and almost perfect correlations between neuroticism and negative affect. Diener and Lucas (1999) also suggest that correlations between the other "big five" personality traits (Costa and McCrae, 1992), conscientiousness, agreeableness, and openness to experience, are moderate and it is likely these three personality traits are more likely to be influenced by environment.

The relationship between personality trait and SWB was also demonstrated by Lyubomirsky and Ross (1999) with high SWB individuals reporting negative life events and situations in a less negative way than those individuals with low SWB. This suggests that people with high SWB posess attributional styles which are self-promoting and contribute to higher levels of happiness. Kling, Ryff, Love and Essex (2003) have demonstrated how neuroticism and openness to experience predicted increases in negative affect after a stressful life event whereas extraversion and openness to experience predicted increases in positive affect. This suggests that the impact of stressful experiences at work on well-being may be a function of an employee's personality. The finding that openness to experience was positively related to both positive and negative affect has also been reported in community longitudinal panel data (Headey & Wearing, 1989).

Using a mixed longitudinal and cross-sectional design, Costa and McCrae (1980) examined the relationship between a five factor model of personality and subjective well-being (positive/negative affect) over a ten year period. Their findings indicated that extraversion was related to positive affect and neuroticism to negative affect and was supported by subsequent findings (Emmons & Diener, 1985; Headey & Wearing, 1989). Other findings demonstrated that the traits: openness to experience, agreeableness and conscientiousness, correlated positively with both positive affect and negatively with negative affect. Given that happiness and satisfaction are correlated directly with the relationship between positive and negative affect, it was argued that personality traits are predictors of well-being. More recently, Vittersø (2001) found support for a growing body of evidence (e.g. DeNeve & Cooper, 1998) which reports that the association between extraversion and two components of SWB (life satisfaction and negative affect), were negligible once neuroticism had been partialed out, though a moderate association with positive affect is still generally

reported. This also supports the need to discriminate between different SWB components.

Criticism of studies into the relationship between personality and well-being has emphasised the possibility that these constructs overlap conceptually and that the correlation between them is a result of a methodology that fails to differentiate between the two constructs. The problem comes through having to differentiate between current affective states and enduring characteristics which moderate the experience of immediate affective states. McCrae and Costa (1991) argued that "personality traits and emotions are so intimately tied that it is often difficult to distinguish the items on a mood measure from those on a personality inventory" (p.227), such as the case with the Positive Affect and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

Schmutte and Ryff (1997) however, provided an excellent explanation in delineating these issues. For example, the facets of the neuroticism scale of the NEO Five-Factor Inventory (Costa & McCrae, 1992) include depression, anxiety, and vulnerability, which are similar to both Bradburn's (1969) Affect Balance Scale which consists of the items depressed, restless and upset, and the items from Watson et al.'s (1988) PANAS Negative Affect scale, nervous, jittery, upset and distressed. Other examples are included for Extraversion and similarity with items on various measures of positive affect (Schmutte & Ryff, 1997). This explains why there can be strong positive correlations reported between neuroticism and negative affect, and extraversion and positive affect (Costa & McCrae, 1980), and why it is difficult to differentiate between them. However, clearly the temporal reference by which items are asked may pose a solution to this, since personality measures usually ask items in general terms (I generally am a happy person) whilst affect scales may ask participants to rate how often they have felt 'happy' in the last week or month (e.g PANAS).

Schmutte and Ryff (1997) attempted to answer this question of collinearity, by the use of controls to help identify source overlap, common affective underpinnings and shared item content. Using Ryff's (1989b) PWB scale and Costa and McRae's (1992) NEO Five-factor Inventory, the authors assessed participants' self-reports in

the light of spousal reports of the participants' well-being. The use of Ryff's PWB draws focus away from level of affect as a sole indicator of well-being, and it also addresses the concern raised about overlap between affective scales and personality traits. There are concerns that domains of Ryff's PWB model, such as positive relations with others, share commonality with Costa and McRae's Agreeableness trait, and the findings revealed strong correlations between Ryff's PWB and Costa and McCrae's NEO personality inventory.

Schmutte and Ryff (1997) additionally controlled for the influence of positive and negative affect in a semi-partial correlation between personality and well-being and still a significant number of relationships existed. Extraversion and neuroticism correlated highly with several dimensions of well-being. In particular, neuroticism correlated negatively with self-acceptance, environmental mastery, purpose in life and autonomy, yet when analysis involved less emotional components of neuroticism, such as self-consciousness and impulsiveness, these negative correlations failed to reach significance, and even reported positive relationship with personal growth. Whilst self-acceptance, environmental mastery and purpose in life were strongly positively correlated with extraversion and conscientiousness, the other domains of PWB reported a range of correlations with personality traits. Personal growth was correlated with openness to experience and extraversion; positive relations with agreeableness and extraversion; and autonomy with extraversion, conscientiousness, and openness to experience. These findings are summarised in Table 3.4. Given that previous studies (Costa, McCrae & Norris, 1981) have suggested that personality traits and affect are similar constructs, the fact that correlations exist between the dimensions of PWB and personality, even after controlling for affect, suggests that there are significant non-overlapping effects between personality and PWB.

Reis, Sheldon, Gable, Roscoe and Ryan (2000) have demonstrated the importance of autonomy, competence in daily activities and relatedness with others as relevant determinants for emotional well-being, supporting earlier research into the importance of self-determination for a range of human behaviours (Sheldon, Ryan & Reis, 1996). However, the role of relatedness appears to be positively associated with positive affect outcomes only. Watson and Clark (1992) have earlier concluded that

positive affect is elevated when social networking is strong, and negative affect is higher during periods of stressful or aversive events. This may be likely due to the positive affect that comes through positive relations with others, whilst poor relations with significant others or work colleagues can exacerbate stressful appraisals of the environment.

Table 3.2. Zero and semi-partial correlations between Personality and Well-Being (Schmutte & Ryff, 1997).

Domains of Wellbeing	Personality Traits Correlated by Domains of Well-Being	Reported level of Correlation
Self Acceptance	Extraversion	.43** (.12*)
	Conscientiousness	.52** (.13*)
	Agreeableness	.37** (.11*)
	Neuroticism	-.70** (-.19**)
Environmental Mastery	Extraversion	.31** (n.s.)
	Conscientiousness	.35** (n.s.)
	Agreeableness	.67** (.32**)
	Neuroticism	-.70** (-.17**)
Positive Relations With Others	Extraversion	.44** (.18**)
	Conscientiousness	.52** (.33**)
	Agreeableness	.38** (n.s.)
	Neuroticism	-.45** (n.s.)
Purpose in Life	Extraversion	.38** (.11*)
	Agreeableness	.28** (n.s.)
	Conscientiousness	.54** (.23**)
	Openness To Experience	.16* (.11*)
	Neuroticism	-.54** (n.s.)
Personal Growth	Extraversion	.43** (.26**)
	Agreeableness	.32** (.18*)
	Conscientiousness	.31** (.13*)
	Openness To Experience	.42** (.39**)
	Neuroticism	-.20* (.12*)
Autonomy	Extraversion	.24** (n.s.)
	Agreeableness	.14* (n.s.)
	Conscientiousness	.39** (.12*)
	Openness To Experience	.17* (.15*)
	Neuroticism	-.48** (-.15*)

* $.001 < p < .05$; ** $p < .001$. Semi-partial Correlations are in parenthesis and represent the degree of correlation between the factors after controlling for Affect.

Level or Stability of Well-Being?

In assessing the importance of levels SWB and PWB, research by Kernis et al. (1998) has demonstrated that well-being researchers should perhaps be less focused on level of well-being but rather the stability of well-being over time. Their study

attempted to investigate the role of self-esteem in the development of depressive symptoms. Results indicated that the effect of level of self esteem was non-significant in predicting depressive symptoms, whilst the stability of self-esteem report over time was a significant predictor in reports of depressive symptoms. These findings echo earlier reports (Roberts & Monroe, 1992), whereby even individuals with low self-esteem were likely to report less depressive symptoms than those individuals with high but unstable self-esteem. The importance of this lies in the proposition that the extent of emotional reactivity, which could be identified as an individual's reporting varied levels of positive and negative affect over time, could be an indicator of poor mental health, well-being and maladjustment. This approach to studying stability of affect, appears to be more important than level, but is limited given the cross-sectional nature of much research into well-being, particularly the effects of organisational stress and climate on well-being. The study of stability of well-being requires longitudinal designs with multiple assessments to determine base-line and time-variant levels of well-being.

Summary

This chapter has delineated a complex network of personal and environmental factors that are related to individual well-being. Two main approaches reflect subjective (SWB) and psychological (PWB) models of well-being. Whilst SWB is related to dimensions of affect (e.g. positive and negative), and general assessments of happiness or satisfaction, PWB is related to processes of healthy functioning, such as purpose in life, and social support. Research suggests that these models are distinct yet related, and support a multi-dimensional approach to conceiving of well-being. The relationship between well-being and a number of individual characteristics, environmental and sociological factors were identified and again support an Organisational Health Research Framework.

CHAPTER 4

METHOD

Rationale

Stress and Well-Being in the Teaching Profession

The investigation of teacher stress and well-being dates from the late 1970's when Kyriacou and Sutcliffe (1977) reported a number of important findings in their paper on the experiences of stress amongst schoolteachers in Northern London. Since then, the issue of teacher stress and well-being has become a major topic of research worldwide. Throughout the 1980's and 90's, many papers were published that expanded on Kyriacou and Sutcliffe's early work and they described the experience of stress amongst a wide range of different teachers. Comparisons were made between primary and secondary teachers, males and females, different subject teachers, and even cross-culturally (Kyriacou, 1987). Consistently, results supported the prevailing notion that teaching was a highly stressful job and this was supported by the start of a trend that has plagued government and recruitment officers worldwide. With the high prevalence of stress within teaching, many teachers, being disheartened with an ever-changing and ever-demanding workplace, are either leaving the profession permanently or seeking posts in 'cushy' private and overseas schools.

A large amount of survey data has certainly indicated that teaching is a highly stressful profession and currently figures range from between 25 % to 50 % of teachers who report teaching as either very or extremely stressful (Burns, 2003; Dunham & Varma, 1998; Kyriacou, 1998; Travers & Cooper, 1996). Most studies into teacher stress have for the most part been consistent with their findings. The most frequently citied sources of stress include teaching poorly motivated students, maintaining classroom discipline, time pressures and work overload, coping with educational reform, being evaluated by others, peer interaction, poor working conditions, role ambiguity, administration, and lack of status (Travers & Cooper, 1996; Kyriacou & Sutcliffe, 1979; Pithers & Soden, 1998). This list is not intended to be comprehensive and it is important to recognise that because of the cognitive appraisal processes and other individual differences, as explained in earlier chapters,

the perceived source of stress and its impact on health and well-being will vary from teacher to teacher. Thus researchers must consider the effects of these individual differences in the experience of work-related stress. Also, although studies have attempted to describe the cross-cultural differences and similarities in the incidence of teacher stress, researchers must consider the different educational systems that exist within different schools and countries (e.g. secular, religious, independent, government controlled), and the social and cultural norms within which teachers teach.

Given its effect on the development of health problems and reduced work performance, and employment drop-out, negative organisational experiences within the teaching profession are important issues to consider. Quick and Quick (1984) demonstrated that teacher stress can lead to poorer teaching performance, lowered self-esteem, low job satisfaction, and increased absenteeism. Though as Weinstein (1979) suggests it is only natural that the teaching profession should be so stressful for, *"Nowhere but schools are large groups of individuals packed so closely together for so long yet expected to perform at peak efficiency on different learning tasks, and to interact harmoniously"* (p. 54).

A significant number of characteristics relating to schools and the teaching profession are related to perceived stress and ill-health amongst school teachers. Many of these characteristics are similar to those areas defined in the opening chapter on organisational stress and climate within a general context. Likewise, the influence of an individual's own characteristics appears to be highly related to stressful appraisals and supports a transactional approach such as the Organisational Health Research Framework (Hart, 2000; Hart & Cooper, 2001). There are clearly a number of significant physical and psychological states that can be attributed, at least in part, to the effects of stressful environmental conditions like the workplace.

One recent study has attempted to identify various aspects of occupational well-being in a teacher sample, based on notions of eudaimonic well-being, a concept discussed in the previous chapter. Van Horn, Taris, Schaufeli, and Schreurs (2004), incorporated a model of PWB similar to that proposed by Ryff (1989a, 1989b) and

Ryff and Keyes (1995) (Chapter 3 of this thesis). Whereas the Ryff model focused on well-being in general, Van Horn et al.'s (2004) used a work-context specific model of PWB, developed by Warr (1987, 1992). Following from his Vitamin Model discussed in Chapter 2, Warr identified four primary dimensions which included affective well-being, aspiration, autonomy and competence, as well as a secondary dimension, integrative functioning. Whilst Warr's model relates specifically within an organisational context, identifying the impact work has on cognitive dimensions of well-being, Ryff's (1989) conceptualisation is somewhat more life-oriented. It is surprising that even in acknowledging this, Van Horn et al. (2004) decided against solely using Ryff's Psychological Well-Being Questionnaire, but used it concurrently with Warr's measure. The authors make rather bold and grand statements claiming that the Warr and Ryff's constructs substantially overlap, however these claims are not based on any empirical investigation to ascertain to what extent these models of well-being are related. Despite being the only single teacher-focused study which indicated an awareness of PWB models, this study fell far short of clearly investigating the full extent of occupational climate on teacher well-being using well-validated measure. Additionally, the study did not use traditional measure of affective states in order to establish any differences in the impact of organisational climate on different models of well-being.

Scope of this study

The opening chapters have provided an in-depth background to the topic under investigation in this thesis. Whilst the topic is primarily concerned with the two main approaches to how we conceptualise well-being, investigations will be undertaken within an organisational context. Chapter two summarised the ways in which external stressors, such as workplace demands, organisational stress and climate, can impact on individual well-being. As well, an overview of transactional models of stress suggest that employee well-being states reflect a continual process of interchange between environmental factors (e.g. demand and resources), and individual characteristics (e.g. personality), and consequently explain variability between individuals in their response behaviours. Chapter 3 also detailed the relationship between two models of well-being, Psychological (PWB) and Subjective Well-Being (SWB), and the associations between well-being and a number of individual characteristics, like personality, biological markers, and sociological

effects. Whilst the review indicated several significant findings in relation to these areas, it is clear that the use of Ryff's model of PWB within organisational paradigms is limited. Therefore the investigation in this thesis should contribute significantly to both the well-being and organisational climate literature.

In line with a transactional and Organisational Health Research Framework, this thesis will investigate the reciprocal relationship between organisational and individual characteristics. In particular, the importance of the emergence of psychological well-being, is an important advancement of our understanding of the psychological effects of workplace climate. The importance of controlling for personality has determined the inclusion of a personality measure in this study. If results between the areas under investigation correspond to established findings, the results pertaining to the investigation of PWB should be further validated. The model to be to be tested in the main organisational study in this thesis is indicated in Figure 4.1. Individual and Organisational characteristics are said to be associated to some extent. That is, the model allows for individual characteristics to influence perceptions of organisational climate. Converse effects may also exist. Importantly, the model delineates between both positive and negative individual and organisational factors, which impact on individual and organisational outcomes. Stronger effects will be expected within domains (e.g. individual characteristics predict individual well-being) than in cross-over effects between domains (e.g. organisational characteristics predicting individual well-being). Stronger effects within the positive and negative domains will also be expected. That is, PWB will be more strongly related to positive affect, and neuroticism with negative affect.

There are many consequences that may be derived from this study. Firstly, it may highlight the need to include measures of PWB in future organisational research, as PWB is identified as an integral part of individual well-being. It might be that increased levels of PWB provide individuals with the life skills and outlook necessary to cope with work and life challenges, whilst SWB on the other hand may be more reactive to life pressures. Secondly, PWB and SWB might be identified as important determinates of Organisational Climate. Also, biographical characteristics, including age, gender and personality may be identified as important determinants of Organisational Climate, PWB, and SWB.

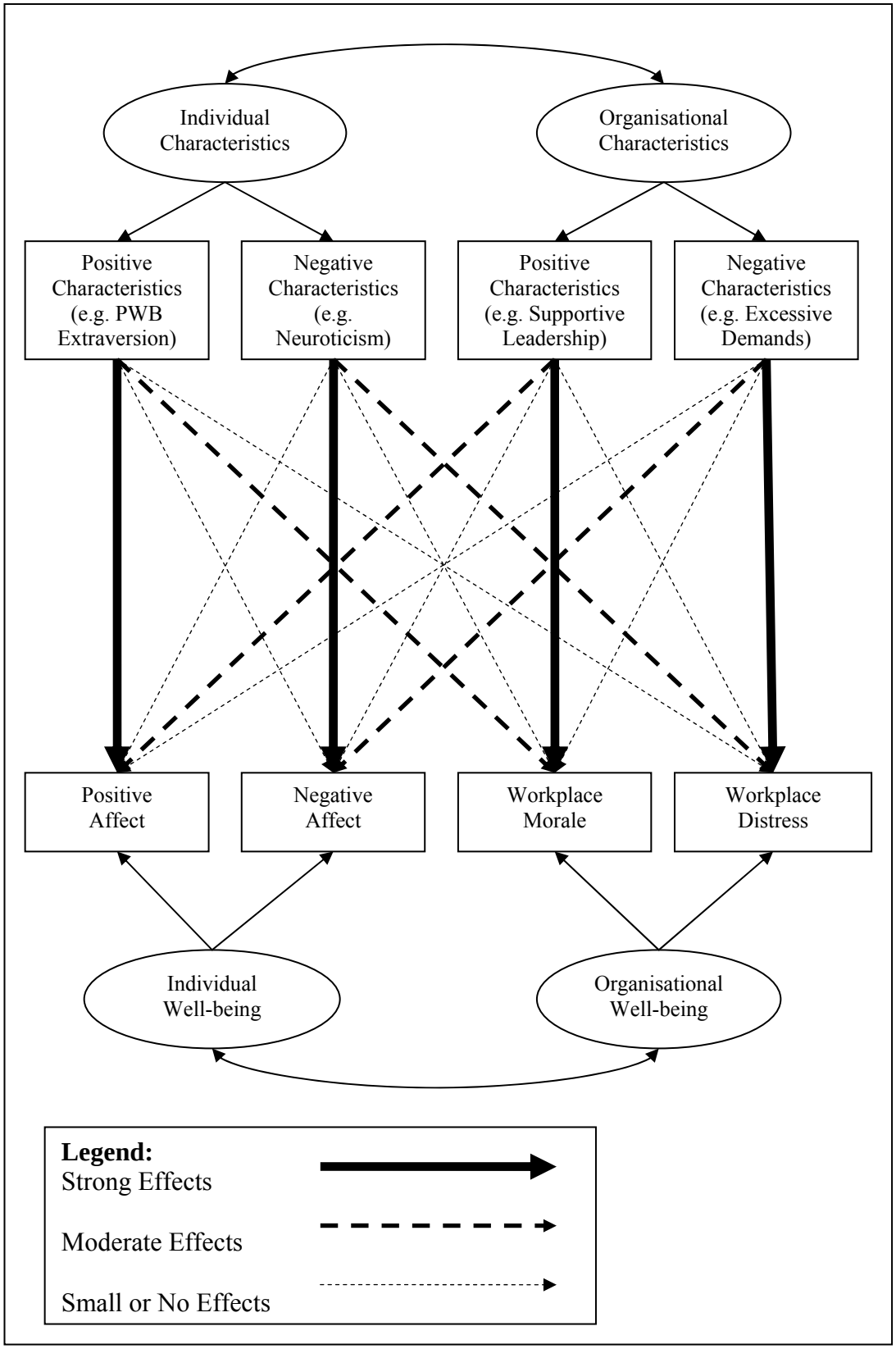

Figure 4.1 Organisational Health Research Framework of individual and organisational factors and their hypothesised impact on employee and organisational well-being as tested in this dissertation

There exists a possibility of providing Employee Assistance Programmes (EAPs) that focus on developing employee PWB, as is currently being proposed in Well-Being therapy by Ryff (2002) and Fava (1999). Although relatively new and little validated, has many similarities between itself and more established counselling services such as CBT and the Person-Centred approaches. It might be argued that one way of increasing level and stability of affect may be to 'teach' individual's ways of approaching and appraising their lives in more positive and constructive ways, typical of high PWB, since research (Keyes, Ryff, and Shmotkin, 2002) has identified that less than 5% of a non-clinical population will experience low levels of SWB when reporting high levels of PWB.

Participants and Design

Data from two studies were used for the analyses in this thesis and were developed to investigate the relationship between individual and environmental characteristics and their effect on individual well-being.

Before undertaking the larger organisational study, a smaller preliminary study was first designed in order to test the first set of research questions relating to the validity of the PWB scales, PWB's relationship to SWB, and indeed whether PWB predicts SWB after controlling for demographic effects and negative life events. Positive results from this study would support its inclusion in a larger organisational study.

Study 1

A Life Events Study ($N = 401$) comprised students from the Department of Psychology at the University of Southern Queensland (USQ). Participation in departmental projects is a requirement of enrolment in some psychology courses. Participants were predominantly female (83%), and unlike most university student populations, studied part-time (55%) with equal age distribution from late teens to late forties, however participation was open to all USQ students, not just those in prescribed psychology classes. These sampling characteristics can be attributed to the provision of unique educational services by several universities in Australia, like USQ, which recognise that many do not necessarily follow the traditional route of entering university within a year or so of having completed their high school qualification. With the impediments (e.g. family and work responsibilities) associated with entering higher education later in life, USQ provides opportunities

for students to undertake most of their courses on a part-time and external basis, in addition to the traditional full-time and on-campus modes.

Table 4.1 Frequency distribution of participants in life events study by demographic variable

Demographic Variable	N	%
Gender		
1 Female	333	83.0
2 Male	68	17.0
Age		
1 Under 20 years	100	24.9
2 20 to 25 years	80	20.0
3 26 to 29 years	47	11.7
4 30 to 39 years	110	27.4
5 40 to 49 years	47	11.7
6 50 years and over	17	4.2
Past level of tertiary Study		
None	171	42.6
1 Certificate	91	22.7
2 Diploma	67	16.7
3 Bachelor Degree	48	12.0
4 Post-Graduate Diploma	10	2.5
5 Masters	12	3.0
6 Doctorate	2	.5
Current Level of Study		
1 Certificate	8	2.0
2 Diploma	5	1.2
3 Bachelor Degree	361	89.9
4 Post-Graduate Diploma	24	6.0
5 Masters	2	.5
6 Doctorate	1	.4
English, the language of instruction, is your mother tongue		
1 Yes	369	92.0
2 No	32	8.0
Study Load		
1 Full-Time	179	44.6
2 Part-Time	222	55.4
Mode of Study		
1 On-Campus	134	33.4
2 Distance	233	58.1
3 On-Line	2	.5
4 A combination	32	8.0
Residence		
1 Hall of Residence	18	4.5
2 Rental Property	134	33.4
3 Parental Home	110	27.4
4 Own Home	139	34.7

Complete demographic information is provided in Table 4.1. Most participants were studying their first tertiary degree (n = 171; 42.6%), the most frequent type being a Bachelor Degree (n = 361; 89.9%). Over half of participants were part-time students, most students studying in their mother tongue (n = 369; 92%), were undertaking their studies by distance education (n = 233; 58.1%), and either rented (n = 134; 33.4%) or lived in their own homes (n = 139; 34.7%).

Study 2

The main study from which data were drawn for this thesis was an organisational climate study (N = 679) that comprised three samples of schoolteachers, from privately-funded schools in the Australian Capital Territory, Australia (n = 253), school teacher members of the Norwegian teacher union (n = 250), and from schools worldwide which designated themselves as being International Schools (n = 176). For the Australian cohort, several private schools in the ACT were approached by the candidate and questionnaires were left at each school that agreed to provide access to their staff. Participants from this cohort simply answered the questionnaire and returned their responses in reply-paid envelopes. Participants were invited to leave their contact details so that they could be included a subsequent follow-up wave. The Norwegian Teacher Union was approached by the candidate whilst he was living and working in Norway and that the union agreed to send out 1000 email invitations to teacher members to participate. Respondents emailed back their responses and questionnaire to the participant. The International School cohort was procured through the International Baccalaureate website which provides contact details for over 3000 schools worldwide. Only complete high school and co-educational providers were invited to participate with an online questionnaire that was secured on the Department of Psychology's homepage and has been described previously.

Predominantly female (63%), most participants (46.2%) were aged between 30 to 55 years of age, although 63.2% of the Norwegian sample was aged 45 years and older. Participants in the Australian and Norwegian samples were invited to participate in a follow-up wave 6 months following the first wave. Complete demographic information of participants that participated in wave 1 and 2, and those that did not respond for the second wave is provided in Table 4.2.

Further descriptives are provided and detail frequency distribution by cohort (Table 4.3). Clearly, the International and Australian cohorts were younger. Level of qualification certainly revealed nation differences since in Norway, qualified teacher do not require a four-year bachelor degree like most Western countries.

Table 4.2. Frequency distribution of participants in the organisational climate study by demographic and teaching variables, by wave

	Wave 1		Wave 2 – Respondent		Wave 2 – Non respondent	
	N	%	N	%	N	%
STUDY						
International School	176	25.9	-	-	-	-
Australian Schools	253	37.3	116	45.0	137	55.9
Norwegian Schools	250	36.8	142	55.0	108	44.1
Gender						
Male	252	37.1	104	40.3	79	32.2
Female	427	62.9	154	59.7	166	67.8
Highest Qualification						
Certificate	16	2.4	7	2.7	7	2.9
Diploma	164	24.2	91	35.3	73	29.8
Bachelor Degree	140	20.6	52	20.2	50	20.4
Post-Graduate Diploma	108	15.9	43	16.7	29	11.8
Masters	236	34.8	60	23.3	80	32.7
PhD	9	1.3	1	.4	4	1.6
Age						
Under 30 Years	64	9.4	16	6.2	30	12.2
30 to 44 Years	314	46.2	116	45.0	98	40.0
45 to 54 Years	217	32.0	75	29.1	84	34.3
55 Years and Over	84	12.4	51	19.8	33	13.5
Number of Pupils in School						
1 - 99 students	37	5.4	12	4.7	19	7.8
100 - 249 students	95	14.0	39	15.1	40	16.3
250 - 499 students	159	23.4	71	27.5	58	23.7
500 - 749 students	121	17.8	47	18.2	44	18.0
750 - 999 students	75	11.0	29	11.2	26	10.6
more than 1000 students	168	24.7	55	21.3	49	20.0
Number of Teachers in School						
0 - 25 teachers	121	17.8	49	19.0	52	21.2
26 - 50 teachers	162	23.9	71	27.5	59	24.1
51 - 100 teachers	230	33.9	83	32.2	73	29.8
101 - 200 teachers	102	15.0	35	13.6	39	15.9
201+ teachers	56	8.2	19	7.4	19	7.8
Teach in Mother Tongue						
1 Yes	342	50.4	92	35.7	110	44.9
2 No	87	12.8	24	9.3	27	11.0
Years of Experience						
1 0 - 4 years of experience	72	10.6	22	8.5	32	13.1
2 5 - 10 years of experience	146	21.5	55	21.3	47	19.2
3 11 – 20 years of experience	217	32.0	74	28.7	77	31.4
4 21+ years of experience	244	35.9	107	41.5	89	36.3

	Wave 1		Wave 2 – Respondent		Wave 2 – Non respondent	
	N	%	N	%	N	%
Time spent teaching per week						
0 - 9 hours	97	14.3	26	10.1	43	17.6
10 - 15 hours	224	33.0	82	31.8	78	31.8
16 - 20 hours	310	45.7	119	46.1	107	43.7
21 hours and more	48	7.1	31	12.0	17	6.9
Time spent marking per week						
0 - 9 hours	329	48.5	114	44.2	125	51.0
10 - 15 hours	272	40.1	105	40.7	97	39.6
16 - 20 hours	66	9.7	30	11.6	20	8.2
21 hours and more	12	1.8	9	3.5	3	1.2
Time spent doing administration						
0 - 9 hours	464	68.3	179	69.4	175	71.4
10 - 15 hours	104	15.3	46	17.8	28	11.4
16 - 20 hours	91	13.4	23	8.9	32	13.1
21 hours and more	20	2.9	10	3.9	10	4.1
Time spent doing other duties						
0 - 9 hours	220	32.4	123	47.7	97	39.6
10 - 15 hours	16	2.4	8	3.1	8	3.3
16 - 20 hours	8	1.2	7	2.7	1	.4
21 hours and more	6	.9	4	1.6	2	.8

Procedure

Both studies were undertaken between June 2006 and June 2007. A high number of participants in both studies did not live in the immediate vicinity of the university, so therefore participants accessed the survey through a secure web facility which is run and monitored by the technical services staff within the Department of Psychology. The University's Human Research Ethics Committee provided approval for both studies. Analyses were undertaken separately for both studies and then compared.

Measures

Well-Being

Two measures of well-being were used in both the Life Events Study and the Organisational Climate Study.

Psychological Well-being

Psychological Well-Being was measured using Ryff's (1989b) PWB scales that was discussed in detail in Chapter Three. The six domains of Ryff's PWB scale include autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life, and self-acceptance. Four versions of the PWB scales exist, with either 20-, 14-, 9- or 3-items for each of the six PWB variables.

Table 4.3 Frequency distribution of participants in the organisational climate study by Cohort

	International School Cohort		Australian Cohort		Norwegian Cohort	
	N	%	N	%	N	%
Gender						
Male	69	39.2	104	41.1	79	31.6
Female	107	60.8	149	58.9	171	68.4
Highest Qualification						
Certificate	2	1.1	**0**	**0**	14	5.6
Diploma	**0**	**0**	**0**	**0**	164	65.6
Bachelor Degree	38	21.6	52	20.6	50	20.0
Post-Graduate Diploma	36	20.5	56	22.1	16	6.4
Masters	96	54.5	140	55.3	0	0
PhD	4	2.3	5	2.0	0	0
Age						
Under 30 Years	18	10.2	26	10.3	20	8.0
30 to 44 Years	100	56.8	142	56.1	72	28.8
45 to 54 Years	58	33.0	85	33.6	74	29.6
55 Years and Over	0	0	0	0	84	33.6
Number of Pupils in School						
1 - 99 students	6	3.4	11	4.3	20	8.0
100 - 249 students	16	9.1	19	7.5	60	24.0
250 - 499 students	30	17.0	47	18.6	82	32.8
500 - 749 students	30	17.0	49	19.4	42	16.8
750 - 999 students	20	11.4	27	10.7	28	11.2
more than 1000 students	64	36.4	88	34.8	16	6.4
Number of Teachers in School						
0 - 25 teachers	20	11.4	23	9.1	78	31.2
26 - 50 teachers	32	18.2	44	17.4	86	34.4
51 - 100 teachers	74	42.0	112	44.3	44	17.6
101 - 200 teachers	28	15.9	44	17.4	30	12.0
201+ teachers	18	10.2	26	10.3	12	4.8
Years of Experience						
1 0 - 4 years of experience	18	10.2	22	8.7	32	12.8
2 5 - 10 years of experience	44	25.0	58	22.9	44	17.6
3 11 – 20 years of experience	66	37.5	103	40.7	48	19.2
4 21+ years of experience	48	27.3	70	27.7	126	50.4
Time spent teaching per week						
0 - 9 hours	28	15.9	35	13.8	34	13.6
10 - 15 hours	64	36.4	104	41.1	56	22.4
16 or more hours	84	47.7	114	45.1	160	64.0
Time spent marking per week						
0 - 9 hours	90	51.1	125	49.4	114	45.6
10 - 15 hours	70	39.8	106	41.9	96	38.4
16 or more hours	16	9.1	22	8.7	40	16.0
Time spent doing administration						
0 - 9 hours	110	62.5	166	65.6	188	75.2
10 - 15 hours	30	17.0	38	15.0	36	14.4
16 or more hours	36	20.5	49	19.4	26	10.4

Ryff herself discourages use of the 3-item scales (personnel correspondence), however Ryff has suggested that the 9-item scales have similar psychometric strengths to the 14-item scales. An 84-item version of the PWB scale (Appendix A) was used in the life event study and a 54-item scale (Appendix B) was used in the organisational climate study. Unlike shorter versions of the PWB, all the items of the 54-item scale are included in the larger 84-item scale, so the items from the 54-item scale were extracted from the 84-item scale used in the life events study to allow for comparison with the organisational climate study. Individuals indicated their response on a 6-point Likert scale, with higher scores on each scale indicating greater well-being on that dimension.

Subjective Well-being

The Positive and Negative Affect Schedule (PANAS) is a 20 item self-report measure of positive and negative affect (Appendix C), and was developed by Watson, Clark and Tellegen (1988), to reflect dispositional affect dimensions, with high-NA indicative of reports of subjective distress and non-pleasurable engagement whilst PA represents the extent to which an individual experiences pleasurable engagement. PANAS identifies levels of subjective well-being, with 10 items related to positive affect and 10 items to negative affect and was assessed in both studies. Individuals indicated their response on a 5-point Likert scale, with higher scores on each scale indicating greater well-being on that dimension.

Life Events Study

The Life Events study included measures of demographic characteristics (Appendix D), subjective well-being (Appendix C), psychological well-being (Appendix A) and a list of Significant Life Events (Appendix E).

Student demographic and general study-related questions (Appendix D)

Demographic questions related to gender, age, highest level of study to date, current level of study, study load, mode of study, residence.

Significant Life Events Measure (Appendix E)

The first study included survey questions relating to the incidence of Significant Life Events and required participants to answer whether they had experienced any of 12 life events in the preceding 6 months (Brugha, Bebbington, Tennant, & Hurry, 1985).

In addition, for each event that occurred, participants were asked to rate the impact of each event on a 5-point Likert scale that ranged from 'did not affect my life at all' to 'did affect my life extremely'. This way, a measure of an event's impact could be created in addition to the number of events.

Organisational Climate Study

The second study included measures of demographic and teaching characteristics (Appendix F) a five factor model of personality (Appendix G), perceptions of school organisational climate (Appendix H), subjective well-being (Appendix C), and psychological well-being (Appendix B).

Employee and General Organisational Features (Appendix F)

Demographic questions related to gender, age, level of qualification, years of experience, country of school, age of students taught, different job roles, number of pupils in school, number of colleagues, location of school, teaching in mother-tongue/first language, approximate class hours teaching, approximate hours spent on marking and class preparation, and approximate hours spent on administration duties

5 Five Factor Model of Personality (Appendix G)

A 50 item personality measure was downloaded from the International Personality Item Pool website (IPIP; Goldberg: http://ipip.ori.org/). Scales of the 'Five Factor' Model of personality will be used to assess employee personality characteristics. Coefficient Alpha levels and Correlation with the NEO (Costa and McRae) suggest that the IPIP scales are well-validated measures of the Five Factor personality structure (reported on Goldberg's website http://ipip.ori.org/). A recent comparative analysis of eleven personality inventories suggests that the IPIP scales are well-validated measures of the Five-Factor personality structure and are equally predictive of important outcomes (Grucza & Goldberg, 2007).

The Five factor structure is based on five broad domains: neuroticism, extraversion, agreeableness, openness to experience, and conscientiousness. Subscales for these domains do exist, and many organisational researchers have begun to question the validity of investigating the broad domains of personality over more specific

personality subscales. The researcher concurs with the need for further investigation to identify the link between the various facets of the domains of personality and well-being and perceptions of organisational climate. However, this is not a focus for this study.

School Organisational Climate (Appendix H)

Organisational research has shifted focus away from notions of stress, rather attempting to identify those aspects of the individual and organisation which influence perceptions of the workplace. Within a transactional and Organisational Health Research Framework, Hart et al (2000) developed the *School Organisational Health Questionnaire* (SOHQ) to assess both organisational morale and organisational climate. Those aspects to organisational climate measured in the SOHQ included in this study include supportive leadership, participative decision-making, role clarity, professional interaction, appraisal and recognition, professional growth, goal congruence, effective discipline policy, curriculum co-ordination, excessive work demands, and student orientation. Scales for both school and individual morale and distress are also included although these scales do reflect similar SWB measures. For the purpose of this study, school morale and distress will be included as features to organisational climate and involve employee's judgement of how colleagues react to the organisation, whilst individual morale and distress will be measured using the PANAS.

Since the School Organisational Health Model was first published, amendments to the model have been made including items relating to student misbehaviour and classroom misbehaviour, amongst others, but initial reports suggest that the original factors are most important in determining employee well-being and as such it is the initial instrument which will be used in the proposed study.

Issues relating to Study Two – Organisational Climate and Employee Well-Being

A number of issues arose in the design and implementation of study two. Clearly, topics relating to employee stress and well-being are quite sensitive for both parties. The author had undertaken a similar study into sources and symptoms of teacher stress and the coping behaviours reported for his Masters thesis, and had found

support for this study from schools, teachers and even education organisations like the International Baccalaureate Organisation (IBO). However, following increasing media scrutiny of the current state of teacher under-recruitment, a consequence of stress and teacher ill-health, those with vested interests (e.g. governments, education departments, teacher unions, schools, principals and teachers) have been careful to not to concede their positions. The author found himself in such a position with concerns relating to a study into organisational climate and teacher health. Whilst unions were concerned about findings that might identify the role of individual characteristics, like personality, in accounting for employee well-being, education departments, schools and principals were concerned that the identification of organisation effects in impacting on employee health. This was a common response from all unions/education departments/schools, regardless of country or state. Eventually, some parties' fears were allayed through thorough discussion, but the IBO, who had been considerably supportive during the candidate's Master's thesis, decided not to support or promote the investigation amongst its member schools. Officially, their response was that they were only interested in research that was related to Internationalism in Education issues. Consequently, generating a large sample of international school teachers was limited, and proved impossible for a second wave, unlike the Australian and Norwegian teacher cohorts.

Despite offering an incentive to win one of several Amazon.com gift vouchers, participant response was slow due to a number of technical issues and possible teacher apathy. Technical issues included: the link to the website not working for all email recipients; the online questionnaire could only be accessed using the latest Internet Explorer which subsequently meant that FireFox, Mozilla, and Netscape users could not access the website; Mac users could not access the website; many PC users with the latest Internet Explorer software had their pop-up blocker enabled thus preventing them access to the website; some participants wanted an assurance that the study was 'bona fida' and expressed concerns about virus/hacker security. This was in addition to the expected disinterest.

Ethics and Consent

Given the international scope of this project the questionnaire was only available to participants in an online format, maintained at the Department of Psychology, USQ.

Participants required internet access and a valid email for the duration of their involvement in the study. In order to satisfy the need for participant consent, an online consent form (Appendix I) was created and asked participants to verify that they gave their consent to participate in the study. Participants were informed of their right to withdraw from the study by simply closing the questionnaire window. Approval for both studies was granted by the University of Southern Queensland's Human Research Ethics Committee (reference number: H05STU511).

Aims

Following the literature review, there is some question as to the validity of the structure of well-being. Also, to what extent are the affective (SWB) and cognitive (PWB) components related? The literature review indicates serious questions about Ryff's PWB scales as valid measures of a 6 factor structure model of PWB?

If Ryff's scales are indeed valid measures of PWB, to what extent is PWB related to SWB? Following the literature review into Dynamic Equilibrium Theory, it may well be proposed that SWB is an outcome of PWB. This relationship can be tested in both the life events and organisational climate studies. However, given the effects of environmental conditions on bringing about affective reactivity, it will be necessary to control for other individual characteristics and environmental effects that impact on SWB. Although the aim of the preliminary study will be to test the validity of Ryff's 6-factor scales and the associations between PWB and SWB, it will be also possible to control for basic demographic (e.g. age and gender) and environmental (e.g. significant negative life events) effects. Positive findings in this study would support the inclusion of PWB in a much larger study of organisational climate.

The organisational climate study will allow for several areas of investigation. Firstly the study will allow for a comparison of the effects of a JDCS model with a climate model, the assumption being that assessment of climate will explain more variance in individual and organisational well-being. Secondly, this study will allow for an exploratory investigation into the role of PWB within an organisational paradigm. The inclusion of a measure of the five-factor model of personality recognises that perceptions of organisational climate and well-being are frequently related to

personality (e.g. extraversion and neuroticism). Therefore analyses will be able to determine whether PWB contributes to SWB after controlling for, demographic, organisational and personality effects. In addition, since the literature indicates some degree of association between variables (e.g. personality and PWB) analyses will determine the extent of association between all predictor variables. Extending the organisational climate study across two waves will also allow some investigation into these associations across time. It may be levels of, or changes in, individual characteristics and organisational characteristics predict level of future SWB, or change in SWB.

Several key questions are described below and relate to four areas of interest which will be covered in Chapters 5, 6, 7 and 8. Chapter 5 relates to the structural validity of Ryff's PWB scales and will test their independence of affect measures of SWB.

Key Question 5.1

Testing the Structural Validity of Ryff's Psychological Well-Being (PWB) Scales.

Key Question 5.1

Investigating the relationship between PWB and SWB.

Chapter 6 will further investigate the association between PWB and SWB within a Life Events study in order to determine whether PWB is a significant predictor of SWB after controlling for demographics and life events.

Key Question 6.1

Testing the Relationship between PWB and SWB Within an Life Events Study - Is PWB related to SWB after controlling for demographic effects and significant negative life events?

Chapter 7 will assess the strength of PWB-SWB relationship with Job Demands-Control-Support (JDCS) model. Subsequent analysis will extend the research into workplace effect on employee wellbeing by incorporating other aspects of the workplace in order to assess whether an organisational climate measure is more strongly related to employee well-being than just the JDCS variables. Furthermore, this area of interest will extend the findings of the second area to identify whether

PWB is related to SWB after controlling for organisational and individual characteristics like personality. Analyses will be undertaken on Wave 1 data only.

Key Question 7.1

Following the organisational literature, in what ways are Job Demands, Control and Support/Resources related to SWB?

Key Question 7.2

Testing the structure of School Organisational Health Questionnaire (SOHQ).

Key Question 7.3

Exploring the relationship between measures of organisational climate, personality, PWB and SWB.

Key Question 7.4

Testing the addition of interactions between personality, PWB and organisational climate to models that predict SWB.

Key Question 7.5

Testing mediation effects of PWB and personality and organisational climate on SWB.

Key Question 7.6

Do measures of PWB, personality and organisational climate predict both individual and organisational well-being equally?

Key Question 7.7

Reverse Causation: do individual characteristics predict organisational climate?

Finally, Chapter 8 will extend the analyses undertaken within section 4 to identify the relationship between individual characteristics and organisational climate across two waves of data.

Key Question 8.1

Identifying significant differences between respondents and non-respondents at wave 2 on wave 1 demographic, personality, organisational climate, PWB and SWB variables.

Key Question 8.2

Testing the effect of the JDCS variables on Positive and Negative Affect standardized residual change scores.

Key Question 8.3

Predicting change in employee SWB using a measure of organisational climate.

Key Question 8.4

Assessing the effects of level and change in predictors on level of SWB.

Key Question 8.5

Mixed Models Analyses: Identifying within and between person variance across two waves.

CHAPTER 5

RESULTS

Psychological and Subjective Well-Being

Key Question 5.1 Testing the Structural Validity of Ryff's Psychological Well-Being (PWB) Scales

Considerable evidence relates positive workplace conditions with increased employee morale, whilst a satisfied and happy workforce has a positive association with organisational productivity. A range of well-being measures have been employed to assess these relationships. Examples include Watson, Clark & Tellegen's (1988) Positive and Negative Affect Scale (PANAS) and Goldberg's (1978) General Health Questionnaire (GHQ), and reflect a Subjective Well-Being (SWB) approach that distinguishes between satisfaction, and positive and negative components of affect. In contrast, Ryff's (1989) 6-dimensional model of Psychological Well-Being (PWB), consisting of Autonomy, Positive Relations, Environmental Mastery, Personal Growth, Purpose In Life, and Self-Acceptance, focuses on those dimensions of well-being that are associated with healthy human functioning. PWB's importance may lie in determining the extent of individuals' SWB reactivity to external stressors (Ryan & Deci, 2001).

Whilst associations between the separate PWB constructs and various health measures have been reported (e.g. Keyes, Shmotkin, Ryff, 2002) and discussed in this thesis, Springer and Hauser (2006) have argued that Ryff's six factor operationalisation of PWB is inadequate and that the PWB dimensions tap simply one underlying construct. Abbott et al. (2006) identified a super first-order factor comprising items from Environmental Mastery, Personal Growth, Purpose in Life, and Self-Acceptance (EGPS) constructs, whilst the Autonomy and Positive Relations factors remained distinct. Burns and Machin (2007, 2008) found support for this refined PWB structure, identifying a related, yet distinct association between PWB and SWB, where factor analysis delineated the items that constitute the SWB and PWB variables, yet with moderate correlations between the variables. Burns and Machin also demonstrated that PWB explained considerable variance in SWB where Positive Relations (20%), Autonomy (7%) and EGPS (6%) explained most of the

effect in Negative Affect, and EGPS (43%) predicted Positive Affect. Therefore, this introductory section will confirm: (1) the structure of PWB and (2) the related, but distinct relationship between PWB and SWB.

Before undertaking any analysis with the PWB scales, Exploratory and Confirmatory Factor Analysis of the PWB scales was undertaken. The purpose of this section is to identify the structure of PWB as measured with Ryff's PWB scales with the two of the larger PWB scale versions (84- and 54-item scales), on both of the studies developed for this thesis: a life events study with an Australian university student sample ($N = 401$), and a cross-national organisational climate study with teachers ($N = 679$). This section will identify the structure underlying Ryff's (1989b) model of PWB using Exploratory Factor Analysis (EFA) and to determine whether this structure is consistent across both studies. In addition, the availability of a SWB measure in each of the studies allows for tests of association between measures of PWB and SWB across studies. Finally, using just those items identified in the EFA, a Confirmatory Factor Analysis (CFA) will compare a range of Goodness of Fit Indices (GFI) on four models: (1) the a priori 6-factor correlated model (Ryff, 1989b), (2) a 1-factor model (Kafka & Korma, 2002), (3) the structure identified in the EFA, and (4) a model that combines four of the PWB variables: Environmental Mastery, Personal Growth, Purpose in Life, and Self Acceptance as a second-order factor (Abbott et al., 2006). These models will also be tested with two adjustments previously tested in the PWB literature: the inclusion of two method variables (Abbott et al., 2006), and the inclusion of correlated error terms (Springer & Hauser, 2006).

Principal axis factoring with an oblique rotation attempted to differentiate between PWB items. Parallel analysis (O'Connor, 2000) was first used to identify the number of factors to be extracted for factoring. For each study, the parallel analyses indicated extracting between 6 and 9 factors, however extracting 6 to 9 factors failed to converge. Extracting 4 to 5 factors led to a number of items loading across more than one factor, so items were deleted from the analysis if they loaded above .30 on more than one factor, or failed to achieve this level on one factor. Subsequently, for both studies, items now loaded onto three factors: Autonomy; Positive Relations; and a first–order factor (EGPS), comprising items relating to Environmental Mastery,

Personal Growth, Purpose in Life, and Self-Acceptance. This supports Abbott et al.'s (2006) findings of a higher order factor, EGPS, however, in this instance, our EGPS variable reflected a first-order factor. The items, their content and their respective factor loadings are displayed for each study in Table 5.1. Inspection of the item loadings reveal mostly moderate loadings and indicate a fair degree of consistency in the items that load onto their respective factor between the two studies Some differences in the size of loading scores and in those items identified as significant indicators, are reported, but support a consistent 3 factor structure to PWB.

Confirmatory Factor Analysis (CFA, Table 5.1) of the items identified in the initial Exploratory Factor Analysis (EFA, Table 5.2) was undertaken to assess whether the PWB model identified in the EFA reported better Goodness of Fit Indices (GFI) than the 'a priori' 6-factor model, and a number of alternative models previously reported in the literature. To summarise, four main models were tested: Model 1 tested the 'a priori' correlated 6-factor model (Ryff, 1989b); Model 2 tested a general 1-factor model (Kafka & Korma, 2002); Model 3 tested for results identified in the EFA reported earlier in this paper whereby a first-order factor (EGPS) comprised items relating to Environmental Mastery, Personal Growth, Purpose in Life, Self-Acceptance; and Model 4 replicated previous findings (Abbott et al., 2006) which identified EGPS as a second-order factor. CFA analyses were performed using the items identified for each study from the original EFA. In addition to these four main models, additional adjustments which have also been identified in the literature were tested. For example, Springer and Hauser (2006) and Abbott et al. introduced several adjustments to test for methodological effects. Springer and Hauser introduced a latent variable to account for reverse-scored items, which they found significantly improved fit. Abbott et al. found strong support for the introduction of two method factors reflecting positive (non-reversed scores) and negative (reversed scores) method factors.

Table 5.1 A comparison of the item loadings of the 54 item PWB scale by study

PWB Factor & Item #		Item[$]	Life Events Study	Teacher Study*
Environmental Mastery	02	In general, I feel I am in charge of the situation in which I live.	**.446**	-
	07	*The demands of everyday life often get me down.*	-	-
	12	*I do not fit very well with the people and the community around me.*	-	-
	17	I am quite good at managing the many responsibilities of my daily life.	**.706**	**.640**
	20	*I often feel overwhelmed by my responsibilities.*	-	-
	29	I generally do a good job of taking care of my personal finances and affairs.	**.540**	**.408**
	36	I am good at juggling my time so that I can fit everything in that needs to be done.	**.643**	**.477**
	49	*I have difficulty arranging my life in a way that is satisfying to me*	-	-
	53	I have been able to build a home and a lifestyle for myself that is much to my liking.	-	**.520**
Personal Growth	03	*I am not interested in activities that will expand my horizons.*	-	-
	18	*I feel like many of the people I know have gotten more out of life than I have*	-	-
	21	I think it is important to have new experiences that challenge how you think about yourself and the world.	**.487**	**.322**
	26	*When I think about it, I haven't really improved much as a person over the years.*	-	-
	37	I have a sense that I have developed a lot as a person over time.	**.776**	**.581**
	41	*I do not enjoy being in new situations that require me to change my old familiar ways of doing things.*	-	-
	45	For me, life has been a continuous process of learning, changing, and growth.	**.669**	**.458**
	50	I gave up trying to make big improvements or changes in my life a long time ago.	**.546**	**.419**
	54	*There is truth to the saying that you can't teach an old dog new tricks.*	-	-
Purpose In Life	8	I live life one day at a time and don't really think about the future.	-	-
	13	*I tend to focus on the present, because the future nearly always brings me problems.*	**.373**	-
	22	*My daily activities often seem trivial and unimportant to me.*	-	-
	27	*I don't have a good sense of what it is I'm trying to accomplish in life.*	**.444**	-
	30	*I used to set goals for myself, but that now seems like a waste of time.*	**.604**	-
	33	I enjoy making plans for the future and working to make them a reality.	**.806**	**.511**
	38	I am an active person in carrying out the plans I set for myself.	**.838**	**.693**
	42	Some people wander aimlessly through life, but I am not one of them.	**.630**	**.483**
	46	*I sometimes feel as if I've done all there is to life.*	-	-

PWB Factor & Item #		Item[$]	Life Events Study	Teacher Study*
Self-Acceptance	4	When I look at the story of my life, I am pleased with how things have turned out.	-	-
	9	In general, I feel confident and positive about myself.	-	-
	14	*I feel like many of the people I know have gotten more out of life than I have.*	-	-
	23	I like most aspects of my personality.	**.395**	**.411**
	28	I made some mistakes in the past, but I feel that all in all everything has worked out for the best.	-	**.368**
	31	*In many ways, I feel disappointed about my achievements in life.*	-	-
	43	*My attitude about myself is probably not as positive as most people feel about themselves.*	-	-
	48	The past had its ups and downs, but in general, I wouldn't want to change it.	-	-
	51	When I compare myself to friends and acquaintances, it makes me feel good about who I am.	**.460**	**.486**
Positive Relations	1	Most people see my as loving and affectionate	-	-
	5	*Maintaining close relationships has been difficult and frustrating for me.*	**.649**	**.527**
	10	*I often feel lonely because I have few close friends with whom to share my concerns.*	**.747**	**.707**
	15	I enjoy personal and mutual conversations with family members or friends.	-	-
	24	*I don't have many people who want to listen when I need to talk.*	**.620**	**.754**
	32	*It seems to me that most other people have more friends than I do.*	**.739**	**.595**
	34	People would describe me as a giving person, willing to share my time with others.	-	-
	39	*I have not experienced many warm and trusting relationships with others.*	**.728**	**.501**
	47	I know that I can trust my friends, and they know they can trust me.	**.527**	-
Autonomy	6	I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.	-	**.402**
	11	My decisions are not usually influenced by what everyone else is doing.	**.618**	**.309**
	16	*I tend to worry about what other people think of me.*	**.520**	**.480**
	19	Being happy with myself is more important to me than having others approve of me.	-	-
	25	*I tend to be influenced by people with strong opinions.*	**.638**	**.469**
	35	I have confidence in my opinions, even if they are contrary to the general consensus.	-	-
	40	*It's difficult for me to voice my own opinions on controversial matters.*	**.501**	**.671**
	44	*I often change my mind about decisions if my friends or family disagree.*	**.658**	**.434**
	52	I judge myself by what I think is important, not by the values of what others think is important.	**.426**	-

*****Teacher study was assessed using Wave 1 data only. - Item either cross-loaded onto more than one factor or loaded weakly (<.30) onto one factor. [$]*Italics* indicate negatively worded items.

Table 5.2. Confirmatory Factor Analysis by study testing several structural models of PWB using the items identified by Exploratory Factor Analysis

Model	Study	Cmin[a]	Df	GFI	CFI	RMSEA (95% CI)
Model 1	Life Events Study	708.32	284	.877	.889	.061(.055 - .067)
	Teacher Study	1010.14	260	.891	.808	.065(.061- .070)
Model 2	Life Events Study	1721.70	300	.690	.630	.109(.104 - .114)
	Teacher Study	1980.81	275	.778	.570	.095(.091 - .099)
Model 3	Life Events Study	897.41	296	.842	.843	.071(.066 - .077)
	Teacher Study	1088.19	272	.882	.792	.067(.062-.071)
Model 4	Life Events Study	769.65	292	.867	.876	.064(.058 - .069)
	Teacher Study	1036.65	268	.898	.804	.065(.061 - .069)
Model 5	Life Events Study	477.77	257	.918	.943	.046(.040 - .053)
	Teacher Study	820.70	237	.913	.851	.060(.056 - .065)
Model 6	Life Events Study	924.38	272	.829	.830	.077(.072 - .083)
	Teacher Study	1085.57	249	.884	.786	.070(.066 - .075)
Model 7	Life Events Study	644.04	269	.883	.902	.059 (.053 - .065)
	Teacher Study	905.90	248	.902	.832	.063(.058 - .067)
Model 8	Life Events Study	548.34	265	.905	.926	.052(.046 - .058)
	Teacher Study	876.00	245	.906	.839	.062(.057 - .066)
Model 9	Life Events Study	471.49	258	.920	.944	045(.039 - .052)
	Teacher Study	547.30	222	.940	.917	.046(.042 - .051)
Model 10	Life Events Study	444.87	241	.923	.947	.046(.039 - .053)
	Teacher Study	489.27	216	.946	.930	.043(038 - .048)
Model 11	Life Events Study	511.27	263	.913	.935	.049(.042- .055)
	Teacher Study	536.79	232	.942	.922	.044(.031 - .049)
Model 12	Life Events Study	496.50	265	.916	.940	.047(.040- 053)
	Teacher Study	559.637	232	.939	.916	.046(.041 - .050)

Model 1: 'a priori' 6 Correlated factors; Model 2: 1 PWB Factor; Model 3: EGPS 1st order factor correlated with Autonomy and Positive Relations; Model 4: EGPS 2nd order factor correlated with A and PR. Model 5 = Model 1 with correlated method variables; Model 6 = Model 2 with correlated method variables; Model 7 = Model 3 with correlated method variables; Model 8 = Model 4 with correlated method variables. Model 9 = Model 1 with significant correlated error terms; Model 10 = Model 2 with significant correlated error terms; Model 11 = Model 3 with significant correlated error terms; Model 12 = Model 4 with significant correlated error terms. [a] all chi square statistics were significant p = .000.

Springer and Hauser (2006) found further support for methodological effects by correlating the error terms of adjacent items and items with similar content. The inclusion of these paths is not usually recommended unless there is a strong theoretical basis for doing so, such as when item content is similar, when there is a likelihood of social response bias/desirability, where a model omits the inclusion of

an exogenous variable, and in repeated measures designs where items are measured on two or more occasions (Aish & Jöreskog, 1990; Byrne, 2001). Based on these findings, the effect of including two method factors (Models 5 – 8), as well as significant error covariances (Models 9 – 12) was tested. Testing for correlated adjacent items (Springer & Hauser, 2006) did not appear warranted since the structure of the PWB scale includes intermittent use of items that require reverse scoring, negatively and positively phrased items, as well the systematic ordering of items so that no item from the same variable is placed adjacent to each other. Our rationale for including significant correlated error terms assumes that Springer and Hauser's (op. cit) findings reflect other artifact such as response bias, which is common in attitude surveys and when items are similar in content. These additional effects were tested in Models 5 - 8 (two method factors) and Models 9 – 12 (significant error covariances).

In models 1 – 4, the pattern of findings was identical across both studies for all models (Table 5.2). The six-factor model (Model 1) was clearly a better fitting model than the single factor model and those models with the first and second order EGPS factor, however GFI were far from acceptable. Models 5 – 8, which included the two latent method variables, performed better than Model 1, though the six-factor model with the additional two method factors (Model 5), performed better than either of the other models. Models 9 – 12 tested the effect of including significant covariances between correlated error terms. Positive covariances were included if they reported Modification Index values above 4, and if the association was significant ($p = .05$).

All four of these models performed better than previous models though differences in GFI between models 9 to 12 were less apparent. Many of the models that tested the method variables consisted of paths, between the method variables and items that failed to achieve significance (p = .05), whilst the models with error covariances only included significant associations. The significant correlated error terms included in the analyses varied between the studies and this may reflect differences between participants, where socio-demographic characteristics might be related to different PWB items.

Table 5.3 A comparison of the item loadings of PWB by gender and by study of the items extracted from the original EFA

		Teacher Study (N = 679)						Life Events Study (N = 401)					
	Item	Male (n = 252)			Female (n = 427)			Male (n = 68)			Female (n = 333)		
PWB Variable	#	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Environmental	02	-	-	-	-	-	-	.531	-	-	.440	-	-
Mastery	17	.690	-	-	.629	-	-	.672	-	-	.634	-	-
	29	.586	-	-	.304	-	-	.453	-	-	.545	-	-
	36	.432	-	-	.418	-	-	.594	-	-	.557	-	-
	53	.595	.335	-	.522	-	-	.540	.378	-	.432	-	-
Personal	21	-	-	.412	.317	-	-	.557	-	-	.436	-	-
Growth	26	-	-	-	-	-	-	.319	-	-	.402	-	-
	37	.588	-	-	.586	-	-	.837	-	-	.741	-	-
	45	.626	-	-	.314	-	-	.726	-	-	.613	-	-
	50	.535	-	-	.338	-	-	.455	-	.402	.557	-	-
Purpose In Life	13	-	-	-	-	-	-	-	.412	.430	.520	-	-
	27	-	-	-	-	-	-	-	-	.380	.466	-	-
	30	-	-	-	-	-	-	.343	-	.473	.695	-	-
	33	.413	.379	-	.424	-	-	.742	-	-	.777	-	-
	38	.768	-	-	.613	-	-	-	-	-	-	-	-
	42	.420	-	-	.469	-	-	.592	-	-	.586	-	-
	46	-	-	-	-	-	-	-	-	.306	-	-	-
Self	23	.414	-	-	.374	-	-	.599	-	-	.341	-	.311
Acceptance	28	.436	-	-	.416	-	-	.536	-	-	.373	-	-
	51	.400	-	.492	.491	-	-	.529	-	-	.468	-	-
Positive	05	-	.575	-	-	-.478	-	-	.836	-	-	.604	-
Relations	10	-	.694	-	-	-.766	-	-	.734	-	-	.753	-
	24	-	.643	-	-	-.768	-	-	.623	-	-	.604	-
	32	-	.311	.414	-	-.659	-	-	.693	-	-	.747	-
	39	-	-	-	-	-.547	-	-	.596	-	-	.742	-
	47	-	-	-	-	-	-	.487	.493	-.312	-	.523	-

		Teacher Study (N = 679)						Life Events Study (N = 401)					
	Item	Male (n = 252)			Female (n = 427)			Male (n = 68)			Female (n = 333)		
PWB Variable	#	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Autonomy	06	-.344	.346	.785	-	-	.394	.444	-	-	-	-	.551
	11	-	-	-	-	-	.387	-	-.302	.452	-	-	.662
	16	-	.445	-	-	-	.504	-	.323	.317	-	-	.540
	25	-	.502	-	-	-	.467	-	-	.770	-	-	.569
	40	-	.301	-	-	-	.720	-	-	.545	-	-	.490
	44	-	.325	-	-	-	.447	-	-	.772	-	-	.587
	52	-	-	-	-	-	-	-	-	.475	-	-	.423

- Item either cross-loaded onto more than one factor or loaded weakly (<.30) onto one factor.

Table 5.4 A comparison of the item loadings of PWB by teacher cohort of the items extracted from the original EFA

		Teacher Study (N = 679)								
		International Teacher Cohort (n = 176)			Norwegian Teacher Cohort (n = 250)			Australian Teacher Cohort (n = 253)		
PWB Variable	Item #	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Environmental	17	.672	-	-	.448	.303	-	.704	-	-
Mastery	29	.646	-	-	-	-	-	.528	-	-
	36	.593	-	-	-	-	-	.422	-	-
	53	.549	-	-	.553	-	-	.563	-	-
Personal Growth	21	.448	-	-	-	-	-	.390	-	-
	37	.674	-	-	.333	-	-	.478	-	-
	45	.556	-	-	.435	-	-	.360	-	-
	50	.370	-	.314	.355	-	-.385	.450		.330
Purpose In Life	33	.571	.334	-	.453	-	-	.334	.361	-
	38	.807	-	-	.545	.413	-	.551	-	-
	42	.559	-	-	-	-	-	.441	-	-
Self-Acceptance	23	.585	-	-	.468	-	-	.353	-	-
	28	.539	-	-	-	-	-	.407	-	-
	51	.557	-	-	.538	-	-	.534	-	-
Positive	05	-	.583	-	.374	-	-	-	.605	-
Relations	10	-	.717	-	.587	-.447	-	-	.657	-
	24	-	.691	-	.606	-.563	-	-	.657	-
	32	-	.587	-	.544	-.401	-	-	.505	-
	39	-	.486	-	.533	-.376	-	-	.406	-
Autonomy	06	-	-	.359	.304	-	.348	-	-	.414
	11	-	-	.345	-	-	-	-	-	.493
	16	-	-	.496	.409	-	-	-	-	.526
	25	-	-	.446	-	-	.370	-	-	.440
	40	-	-	.796	.351	-	.328	-	-	.780
	44	-	-	.350	-	-	.311	-	-	.437

- Item either cross-loaded onto more than one factor or loaded weakly (<.30) onto one factor.

It was surprising that the model with the first order EGPS did not report the best fit considering this was the factor identified in the EFA and that only those items identified in the EFA for each sample were included in the CFA. The author has discussed at length in earlier chapters about differences between a number of demographic and other sampling characteristics, in particular age and gender, that are related to PWB and may influence its. Unfortunately, any post-hoc analysis of the factor structure by a number of socio-demographic variables was limited by the design of the studies and by the variables that were operationalised for the original purpose of each study. This precluded post-hoc analyses of a number of socio-demographic effects on PWB, such as age. For example, age groupings were not comparable between the Life Events study and the Organisational Climate study as they had been designed to reflect the age range of the targeted study participants. Furthermore, there was a preponderance of young to middle aged adults in the life events study, and middle-aged to late middle-aged adults in the organisational climate study which precluded a sub-groups analysis of PWB by age within each study. However, a sub-groups analysis of the original items (Table 5.1) by gender (Table 5.3) for both studies, and by cohort in the organisational climate study (Table 5.4), was possible. Both of these analyses found some support for the PWB structure reported in the initial EFA findings. In particular, the results for the Australian and International teacher cohorts were considerably similar to the findings of the original EFA . However, analysis by the different teacher cohort is still likely to demonstrate the effect of participant characteristics that may be dominant in particular cohorts and these findings need to be considered in this light.

Not all items were consistently reported with equal loading by gender and cohort, and several items cross-loaded onto other factors. This may explain why the factor structure with a first-order EGPS variable did not outperform the final alternative and 'a priori' models. Whilst females reported items with factor loadings that more closely mirrored the overall results for both samples, this is quite likely a consequence of the greater proportion of females in both studies. However, consistent differences between males and females for several items (e.g. Environmental Mastery item 53, and Autonomy item 16) between studies, does support the notion that perhaps there are differences between gender on items that comprise PWB.

Although some items differed and reported cross-loadings, the subgroups analyses mostly provided support for a revised 3-factor model of the Ryff PWB scales. Therefore the amended PWB model with the super-ordinate factor EGPS will be tested for all future analyses in this thesis, unless otherwise stated.

Summary 5.1

It appears that an alternative structure underlies Ryff's model of PWB. The results of the two studies in this thesis consistently reported a three factor model whereby items relating to four of the PWB constitute one factor, report a better fit than the 'a priori' 6 factor model. However, once correlated error terms were included in the analyses, differences between structural models was less apparent. The reasons for this will be expanded upon in the concluding chapter.

Key Question 5.2 Investigating the relationship between PWB and SWB

Further analyses sought to differentiate between PWB and SWB. Therefore, the aforementioned analyses were extended to include 20 items from the PANAS scale. Principal Axis Factoring and oblique rotation (direct oblimin) clearly delineated between the three PWB factors and two SWB factors: PA and NA, for both studies. Some cross-loading of the SWB items on PWB factors did occur, but remained below the .30 criterion cut-off.

Although Factor Analysis differentiated between PWB and SWB items, bi-variate correlations (Table 5.5) indicate mostly moderate to strong correlations between all the well-being factors, with findings generally consistent between the studies. Some differences between studies relate to the size of relationship but all correlations are significant ($p < .001$).

Table 5.5 A comparison of the correlations* between PWB and SWB variables by Study

		1	2	3	4	5
		Life Events Study				
1. Positive Affect	Combined School Sample	1	-.243	.638	.317	.433
2. Negative Affect		-.224	1	-.405	-.453	-.362
3. EGPS^{+}		.589	-.237	1	.361	.527
4. Positive Relations		.182	-.386	.314	1	.306
5. Autonomy		.250	-.293	.305	.247	1

*All correlations significant at $p < .001$, $^{+}$EGPS comprises items relating to Environmental Mastery, Personal Growth, Purpose In Life, and Self-Acceptance.

Summary 5.2

Whilst Factor Analysis differentiated between PWB and SWB items, correlations indicate correlated factors, supporting the use of oblique rotation.

CHAPTER 6

RESULTS

Psychological and Subjective Well-Being in a Life Events Paradigm

Key Question 6.1 Testing the Relationship between PWB and SWB Within an Life Events Study - Is PWB related to SWB after controlling for demographic and significant negative life events?

The following sets of analyses will test whether PWB predicts SWB after controlling for Demographics and Negative Life Events. Two life events variables were created. The typical use of Brugha et al.'s (1985) life event schedule, involves a total score for the number of events reported by each participant. In addition, the author decided to amend the measure to assess the perceived degree of impact reported for each life event. If a participant reported a life event, they were also asked to choose to what extent it had impacted on their life using a five point Likert scale that ranged from '1' 'occurred but no impact' to '5' occurred with a major significant impact'. The impact score involved the summation of the degree of impact of all events reported for each participant, divided by the number of life events. As an example, consider participant 'A' who reported 2 life events, both of which reported little impact (score of 1 for each). Therefore the summation of these impact scores (1 + 1) and were then divided by the number of life events (2) and the final score of 1 represents the average impact of life events for this participant. In contrast, participant 'B' reports only 1 life events but reports this event as a significant impact (score = 5). Using the same procedure previously described, this participant's impact score (5) is considerably higher than that for participant 'A', although participant 'A' reported more life events, the traditional indicator of impact of life events.

There are a significant number of weak to moderate correlations between demographic, life events and well-being variables (Table 6.1). ANOVA reveals significant differences on SWB and PWB variables between a number of demographic variables including age (Table 6.2), gender (Table 6.3), previous education (Table 6.4), and current study load (Table 6.5).

Differences were found between age levels on Positive Affect, EGPS and Autonomy, whilst it appears that Negative Affect and Positive Relations are unrelated to age. The Levene statistic indicated that variances were not statistically significant between age levels, except for Positive Affect (Levene Statistic = 2.547; Sig. = .028). However, a Welch statistic of 6.602 (p. = .000) and a Brown-Forsythe statistic of 5.046 (p = .000) still indicated differences between age levels on Positive Affect.

Post-hoc analysis on Positive Affect indicated a possible linear relationship between increasing age and increasing Positive Affect. Significant differences between those in the youngest and oldest age groups were reported, but between the middle age group, aged between 25 and 30, and the young and old. The pattern of findings reported for Positive Affect were also reported for EGPS and Autonomy.

The Levene statistic indicated that variances were not statistically significant between gender levels (Table 6.3) except for EGPS (Levene Statistic = 5.695; Sig. = .017). However, Welch and Brown-Forsythe statistics of 14.701 (p. = .000) indicate differences between gender on EGPS. Whilst differences were found between gender on EGPS and Positive Relations, Positive Affect, Negative Affect and Autonomy were unrelated to gender. In both instances, Females reported higher levels of both EGPS and Positive Relations. However, there was greater variance amongst males and an unequal gender distribution which may account for these gender differences.

Table 6.1 Correlations between Demographics, Life Event measures, SWB and PWB within the Life Events Study

	1	2	3	4	5	6	7	8	9
1. Gender	1								
2. Age[+]	-.051	1							
3. Part-time Study	-.075	**.438(**)**	1						
4. Positive Affect	-.031	**.218(**)**	.095	1					
5. Negative Affect	-.029	-.074	**-.101(*)**	**-.243(**)**	1				
6. Total # of Events	**.150(**)**	.081	-.040	-.067	**.231(**)**	1			
7. EGPS	**-.216(**)**	**.260(**)**	**.112(*)**	**.650(**)**	**-.391(**)**	**-.204(**)**	1		
8. Positive Relations	**-.116(*)**	.063	.073	**.305(**)**	**-.446(**)**	**-.205(**)**	**.298(**)**	1	
9. Autonomy	.080	**.167(**)**	.029	**.225(**)**	**-.354(**)**	-.020	**.306(**)**	**.175(**)**	1
10. Impact of Life Event	-.075	.005	-.056	.016	**.294(**)**	**.338(**)**	.034	**-.124(*)**	-.063

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). [+]Although age was assessed by age groupings, Spearman Correlations reported similar levels of correlations and significance to the Pearson Correlations reported here.

Table 6.2 Differences in Age levels on Well-being Outcomes

		N	Mean	Std. Dev.	Std. Error	F	Sig.
Positive Affect	Under 20 years	100	3.32	.78	.08	5.214	.000
	20 to 25 years	80	3.47	.88	.00		
	26 to 29 years	47	3.36	.85	.12		
	30 to 39 years	110	3.73	.84	.08		
	40 to 49 years	47	3.91	.59	.09		
	50 years and over	17	3.65	.96	.23		
	Total	401	3.55	.83	.04		
Negative Affect	Under 20 years	100	2.43	.79	.08	1.025	.403
	20 to 25 years	80	2.32	.71	.08		
	26 to 29 years	47	2.52	.87	.13		
	30 to 39 years	110	2.33	.85	.08		
	40 to 49 years	47	2.21	.78	.11		
	50 years and over	17	2.22	.81	.20		
	Total	401	2.36	.80	.04		
EGPS	Under 20 years	100	-.39	1.07	.11	6.478	.000
	20 to 25 years	80	-.08	.90	.10		
	26 to 29 years	47	-.06	1.00	.15		
	30 to 39 years	110	.21	.92	.09		
	40 to 49 years	47	.44	.74	.11		
	50 years and over	17	.21	1.34	.32		
	Total	401	.00	1.00	.05		
Positive Relations	Under 20 years	100	.00	.93	.09	.965	.439
	20 to 25 years	80	-.13	.95	.11		
	26 to 29 years	47	-.17	1.10	.16		
	30 to 39 years	110	.12	1.04	.10		
	40 to 49 years	47	.08	1.06	.15		
	50 years and over	17	.13	.89	.22		
	Total	401	.00	1.00	.05		
Autonomy	Under 20 years	100	-.28	1.00	.10	3.459	.005
	20 to 25 years	80	.10	1.08	.12		
	26 to 29 years	47	-.15	.97	.14		
	30 to 39 years	110	.055	.94	.09		
	40 to 49 years	47	.28	.83	.12		
	50 years and over	17	.43	1.12	.27		
	Total	401	.00	1.00	.05		

Table 6.3 Differences in Gender levels on Well-being Outcomes

		N	Mean	Std. Dev.	Std. Error	F	*p*
Positive Affect	Female	333	3.56	.82	.04	.390	.533
	Male	68	3.49	.89	.11		
	Total	401	3.55	.83	.04		
Negative Affect	Female	333	2.37	.81	.04	.327	.568
	Male	68	2.31	.77	.09		
	Total	401	2.36	.80	.04		
EGPS	Female	333	.10	.94	.05	19.478	.000
	Male	68	-.48	1.16	.14		
	Total	401	.00	1.00	.05		
Positive Relations	Female	333	.052	.99	.05	5.407	.021
	Male	68	-.26	1.01	.12		
	Total	401	.00	1.00	.05		
Autonomy	Female	333	-.036	1.00	.05	2.544	.112
	Male	68	.18	1.01	.12		
	Total	401	.00	1.00	.05		

The Levene statistic indicated that variances were not statistically significant between all levels of education (Table 6.4). Whilst the results of the ANOVA indicated differences between education groups on EGPS, post-hoc analysis failed to identify differences between groups. Most likely this is due to the unequal sample sizes between groups, particularly for those few participants with a higher tertiary degree, whose effects were detected in the overall ANOVA. Similar non-significant findings were reported for the education variable. Significant differences between those who were studying in their mother tongue (English) and those who were studying in English as a foreign tongue, were not found. Therefore these non-significant findings have not been tabulated. The Levene statistic indicated that variances were not statistically significant between all levels of study load. Significant differences between study loads were reported with those who studied full-time, reporting increased Negative Affect and lower EGPS (Table 6.5).

Table 6.4 Differences in Past Education levels on Well-being Outcomes

		N	Mean	Std. Dev	Std. Error	F	*p*
Positive Affect	Certificate	91	3.49	.79	.08		
	Diploma	67	3.71	.88	.11		
	Bachelor Degree	48	3.52	.89	.13		
	Post-Graduate Diploma	10	3.55	.89	.28	1.106	.358
	Masters	12	3.78	.73	.21		
	Doctorate	2	2.60	.85	.60		
	None	171	3.52	.82	.06		
	Total	401	3.55	.83	.04		
Negative Affect	Certificate	91	2.45	.77	.08		
	Diploma	67	2.14	.70	.09		
	Bachelor Degree	48	2.23	.80	.12		
	Post-Graduate Diploma	10	2.59	.67	.21	1.764	.105
	Masters	12	2.22	.83	.24		
	Doctorate	2	1.95	.07	.05		
	None	171	2.43	.85	.06		
	Total	401	2.36	.80	.04		
EGPS	Certificate	91	-.03	1.03	.11		
	Diploma	67	.22	.97	.12		
	Bachelor Degree	48	.27	.85	.12		
	Post-Graduate Diploma	10	-.04	.70	.22	2.765	.012
	Masters	12	.32	.88	.25		
	Doctorate	2	-1.45	2.44	1.73		
	None	171	-.15	1.01	.08		
	Total	401	.00	1.00	.05		
Positive Relations	Certificate	91	-.12	1.10	.12		
	Diploma	67	.28	.96	.12		
	Bachelor Degree	48	.16	.90	.13		
	Post-Graduate Diploma	10	.08	.88	.28	1.675	.126
	Masters	12	.16	.71	.20		
	Doctorate	2	-.10	.25	.18		
	None	171	-.10	1.00	.08		
	Total	401	.00	1.00	.05		
Autonomy	Certificate	91	.04	.98	.10		
	Diploma	67	.31	1.05	.13		
	Bachelor Degree	48	.09	.93	.13		
	Post-Graduate Diploma	10	-.15	1.06	.34	1.956	.071
	Masters	12	-.09	.83	.24		
	Doctorate	2	.10	.03	.02		
	None	171	-.16	1.00	.08		
	Total	401	.00	1.00	.05		

Since several demographic effects were reported, two hierarchical regressions on Positive (Table 6.6) and Negative (Table 6.7) Affect tested whether the strong associations between the PWB and SWB variables, reported earlier in this chapter, continued after controlling for the influence of demographics and life event variables. Correlational analyses of the ordinal variables using Spearman Rho revealed similar sized associations as the Pearson Correlation. Also, post-hoc

comparisons of the age variable after ANOVA revealed support for a linear relationship with SWB and so were included in future regression analyses. The results of these regression analyses are described below (Table 6.6 & Table 6.7).

Table 6.5 Differences in levels of Study load on Well-being Outcomes

		N	Mean	Std. Dev.	Std. Error	F	*p*
Positive Affect	Full-Time	179	3.46	.84	.06	3.620	.058
	Part-Time	222	3.62	.82	.06		
	Total	401	3.55	.83	.04		
Negative Affect	Full-Time	179	2.45	.82	.06	4.137	.043
	Part-Time	222	2.28	.78	.05		
	Total	401	2.36	.80	.04		
EGPS	Full-Time	179	-.12	1.05	.08	5.057	.025
	Part-Time	222	.10	.94	.06		
	Total	401	.00	1.00	.05		
Positive Relations	Full-Time	179	-.08	.98	.07	2.137	.145
	Part-Time	222	.07	1.01	.07		
	Total	401	.00	1.00	.05		
Autonomy	Full-Time	179	-.03	1.04	.08	.339	.561
	Part-Time	222	.03	.97	.06		
	Total	401	.00	1.00	.05		

On the first step of the hierarchical regression analysis of Positive Affect (Table 6.6), increasing age appeared to be the only demographic that was associated with increasing Positive Affect. The inclusion of negative life event variables reported no association with Positive Affect. A final model tested whether the inclusion of the PWB variables would still indicate associations with Positive Affect. Clearly, PWB reported the strongest effects on SWB and explained considerably more of the variance in PA (47%). Increasing age was now no longer a significant effect, although gender became a significant effect with the inclusion of the PWB variables. Since differences between Gender were not reported in the ANOVA findings this indicates a suppression effect and possibly indicates differences between gender levels on the PWB variables, particularly the EGPS and Positive Relations variables as indicated in findings of the earlier ANOVA.

Table 6.6 Hierarchical Regression Analysis of Positive Affect

	Model 1 (R^2 = .050)		Model 2 (R^2 = .058)		Model 3 (R^2 = .465)	
	Beta	*p*	Beta	Sig.	Beta	*p*
Gender	-.018	.719	.001	.986	.120	.002
Age[+]	.227	.000	.237	.000	.058	.189
Study Load (full/part-time)	-.001	.985	-.006	.916	.010	.801
Number of Life Events			-.100	.061	.080	.057
Impact of Life Events			.050	.347	-.004	.931
EGPS					.643	.000
Positive Relations					.143	.000
Autonomy					-.003	.943

[+]Although age was assessed by age groupings, Spearman Correlations reported similar levels of correlations and significance to the Pearson Correlations. ANOVA revealed significant difference between youngest and oldest indicating a linear relationship and so was included in the regression.

Table 6.7 Hierarchical Regression Analysis of Negative Affect

	Model 1 (R^2 = .001)		Model 2 (R^2 = .104)		Model 3 (R^2 = .378)	
	Beta	*p*	Beta	*p*	Beta	*p*
Gender	-.035	.486	-.040	.409	-.096	.021
Age[+]	-.030	.601	-.055	.314	.067	.156
Study Load (full/part-time)	-.086	.124	-.054	.310	-.067	.131
Number of Life Events			.164	.002	.038	.392
Impact of Life Events			.234	.000	.228	.000
EGPS					-.268	.000
Positive Relations					-.305	.000
Autonomy					-.206	.000

[+]Although age was assessed by age groupings, Spearman Correlations reported similar levels of correlations and significance to the Pearson Correlations. ANOVA revealed significant difference between youngest and oldest indicating a linear relationship and so was included in the regression.

Unlike their effect on Positive Affect, Life events were a significant predictor of Negative Affect (R^2 = .104), but still the inclusion of the PWB variables explained most of the variance in Negative Affect (R^2 = .378). Interestingly, in the final model (Table 6.7), the number of life events was no longer significantly associated with Negative Affect; whilst the perceived impact of events still reported a significant positive association with Negative Affect (Figure 6.1). Again a significant gender co-efficient in the third model indicates a suppression effect with the PWB variables.

Further analyses repeated the analysis of the main effects reported in the hierarchical analyses above, but with the addition of moderation and mediation effects (Table 6.8). Moderation of PWB and perceived impact of life events was tested on Negative Affect. Since the association between perceived impact and PWB variables was mostly not significant, mediation analyses tested whether perceived impact of life events mediated PWB or vice versa. Coefficients and the amount of variance explained are comparable to the hierarchical analyses for both Positive and Negative Affect.

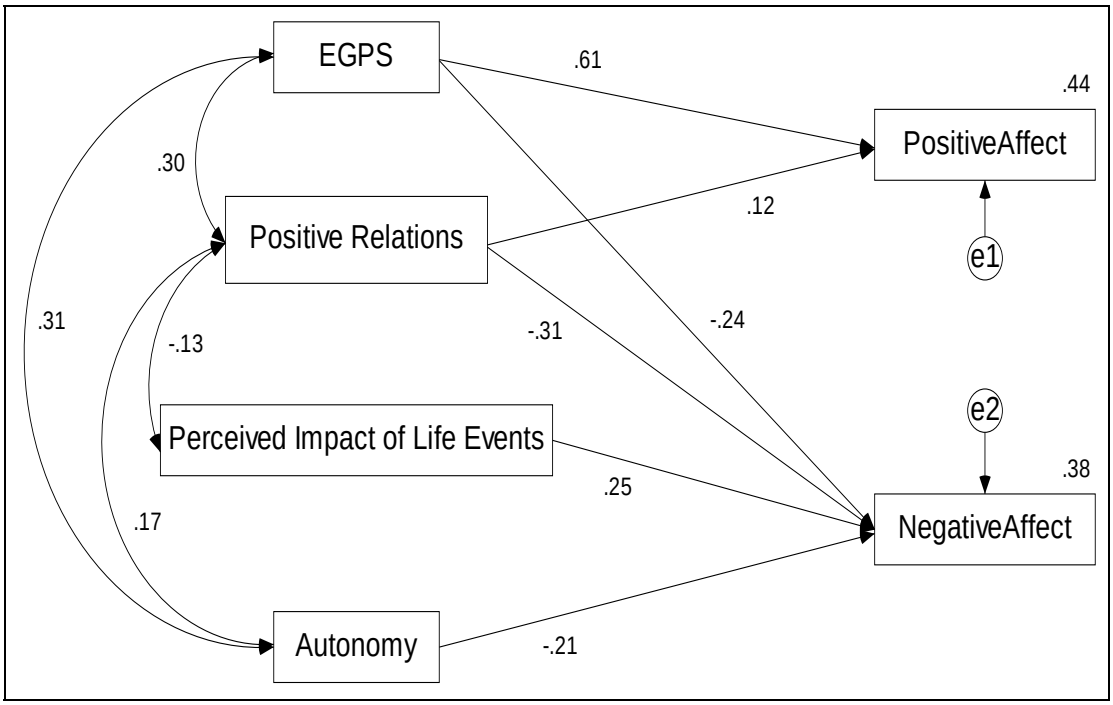

Figure 6.1 Path Analysis of the direct effects

Table 6.8 Summary of Main Effects, Moderation and Mediation models

	DV	IV	Estimate	Std Err.	Std Co-eff	*p*	R^2
Main Effects and Moderation Model[+]	Negative Affect	Positive Relations	-.245	.034	-.306	.000	.379
		EGPS	-.195	.034	-.244	.000	
		Autonomy	-.169	.033	-.210	.000	
		Impact of Life Events	.152	.024	.251	.000	
	Positive Affect	EGPS	.510	.033	.613	.000	.436
		Positive Relations	.101	.033	.122	.002	
Mediating Model 1 (Impact of Life Events as Mediator)	Impact Of Life Events	Positive Relations	-.163	.065	-.124	.013	.015
	Negative Affect	Positive Relations	-.245	.033	-.305	.000	.383
		EGPS	-.195	.034	-.243	.000	
		Autonomy	-.169	.033	-.210	.000	
		Impact of Life Events	.152	.024	.250	.000	
	Positive Affect	EGPS	.510	.033	.613	.000	.436
		Positive Relations	.101	.033	.122	.002	
Mediating Model 2 (PWB as Mediator)	Positive Relations	Impact of Life Events	-.097	.036	-.128	.007	.016
	Negative Affect	Positive Relations	-.245	.034	-.306	.000	.379
		EGPS	-.195	.034	-.244	.000	
		Autonomy	-.169	.033	-.210	.000	
		Impact of Life Events	.152	.024	.251	.000	
	Positive Affect	EGPS	.510	.033	.613	.000	.436
		Positive Relations	.101	.033	.122	.002	

[+] Moderation effects were not found.

No moderation effect on Negative Affect was reported. Sobel tests revealed a significant mediation path (PWB variables as mediators) where Positive Relations mediated the effect of the Impact of life events on Negative Affect (Sobel test = 2.523; p = .011). Secondly, Life Events were tested as mediators between PWB and SWB. Sobel tests revealed that only one of the mediation paths (Impact of Life Event as mediator) was significant where Impact of Life Events mediated the effect of Positive Relations on Negative Affect (Sobel test = -1.996, p = .045). A comparison of the explained variance (Table 6.8) reveal that the mediating effects did not contribute significantly more variance except where Impact of Life Events mediates the effect of Positive Relations on Negative Affect (R^2 = .383). Comparison of the

main effects models with the two mediation models (Table 6.9) reveals comparable GFI for all models.

Table 6.9 Goodness of Fit

	CMIN	DF	*p*	GFI	AGFI	CFI	RMSEA
Main Effects model*	6.289	5	.279	.995	.978	.997	.025 (.000 - .077)
Mediating Effects model 1$	7.386	5	.193	.994	.974	.995	.035 (.000 - .083)
Mediating Effects model 2+	9.050	8	.338	.994	.975	.999	.018 (.000 - .063)

*interaction terms (impact of life event*PWB variables) reported no effect on SWB outcomes ,
$Impact of Life Event as mediator, +PWB variables as mediators.

Summary 6.1

Testing the relationship between PWB and SWB within a life events study clearly demonstrates a strong association between PWB and SWB. More specifically, PWB relates positively to Positive Affect and negatively with Negative Affect. Whilst no moderation effects were reported, a partial mediation model was supported with better GFI reported where Positive Relations mediated the impact of life events on Negative Affect (Table 6.8).

CHAPTER 7

RESULTS

Psychological and Subjective Well-Being in an Organisational Climate Paradigm

Organisational Effects on Subjective Well-Being

Clearly, Chapter 6 demonstrates PWB to be a significant predictor of SWB after controlling for demographics and negative life events. However, as indicated in the literature review, there is some question of the extent to which PWB reflects personality traits such as Neuroticism and Extraversion and whether these PWB-SWB associations reflect personality effects. Therefore, analyses of the larger organisational study will attempt to replicate these findings from the life event study by testing the effect on SWB within an organisational context, and using a measure of both PWB and personality. Also, unlike the life events study that included only a measure of negative environmental conditions, the organisational climate study will include assessment of both positive and negative organisational factors in order to assess both positive and negative environmental effects on PWB and SWB.

Key Question 7.1 Following the organisational literature, in what ways are Job Demands, Control and Support/Resources related to SWB?

In order to analyse the role of PWB within the larger organisational climate study, this section will attempt to identify the validity of the organisational study by first undertaking analyses on the Job Demand-Control-Support (JDCS) variables on SWB, before including personality and PWB variables. Analysis will use wave 1 data from the second study of this thesis, the organisational climate study. The School Organisational Health Questionnaire (Hart, Wearing, Conn, Carter, & Dingle, 2000) comprised 13 variables relating to different aspects of organisational climate. A review of the items comprising three of these variables: Work Demands (e.g. 'There is constant pressure for teachers to keep working'); Participative Decision-Making (e.g. 'There is opportunity for staff to participate in school policy and decision-making'); and Supportive Leadership (e.g. 'The administration in this school can be relied upon when things get tough'), indicated these constructs were similar to the JDCS variables and so were used for this analysis.

In line with previous research, Table 7.1 clearly outlines a number of significant associations between demographic, JDCS and SWB variables. Increased Demands are associated with increased Negative Affect, and increased Support and Control are associated with increased Positive Affect and decreased Negative Affect. Significant associations between cohorts and work and well-being variables were also reported.

Whilst cohort effects were not found for Positive Affect, demographic effects were (Table 7.2). Increasing years of experience and lower age were associated with higher Positive Affect. As with the Life Events study, ANOVA and post-hoc comparisons revealed a possible linear association between these ordinal variables and SWB, with significant differences between young and old, and experienced and inexperienced only. Therefore, these variables were included in future regression analyses. These demographic effects remained even after including the Demand, Support and Control variables. Although a high bi-variate correlation between age and experience suggests collinearity, contrasting directional effects on Positive Affect are reported (Table 7.1 and 7.2). A significant age effect on Positive Affect contrasts with its non-significant bi-variate coefficient.

Table 7.1 Pearson Correlations between Demographic, Job Demands, Control and Support, and SWB variables

	1	2	3	4	5	6	7	8	9	10	11
1. Positive Affect	1										
2. Negative Affect	**-.224(**)**	1									
3. Age[+]	-.045	**-.255(**)**	1								
4. Gender	.008	.021	**-.176(**)**	1							
5. Experience	.048	**-.230(**)**	**.704(**)**	**-.193(**)**	1						
6. International Cohort	.002	**.097(*)**	**-.175(*)**	-.026	-.068	1					
7. Australian Cohort	.027	**.155(**)**	**-.223(**)**	-.064	-.045	-.456(**)	1				
8. Norwegian Cohort	-.029	**-.243(**)**	**.383(**)**	**.087(*)**	**.107(**)**	**-.452(**)**	**-.588(**)**	1			
9. Control	**.256(**)**	**-.213(**)**	.047	.073	**-.102(**)**	**-.114(**)**	**-.211(**)**	**.315(**)**	1		
10. Support	**.244(**)**	**-.209(**)**	.026	**.124(**)**	**-.103(**)**	-.067	**-.135(**)**	**.196(**)**	**.841(**)**	1	
11. Demands	-.054	**.178(**)**	**-.096(*)**	.033	.040	**.095(*)**	**.113(**)**	**-.200(**)**	**-.362(**)**	**-.384(**)**	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). [+]Although age was assessed by age groupings, Spearman Correlations reported similar levels of correlations and significance to the Pearson Correlations reported here.

The inclusion of the JDCS variables indicates that Control was the only variable associated with Positive Affect, although Support had reported a significant bi-variate correlation. Two moderation effects involving Control were reported with increased control most important for those with moderate and low-level demand jobs (Figure 7.1) and with high and moderate levels of support (Figure 7.2). This suggests that the relationship between control and Positive Affect is reduced under high Demands conditions, but that increased Control does increase positive affect when Demands are moderate or less. Conversely, Control is only related to Positive Affect when Support is moderate or higher.

Table 7.2 Hierarchical Regression Analysis of Positive Affect

Model		Unstd. Coeffi		Std Coeff	
		B	Std. Error	Beta	*p*
Model 1	International Teacher Cohort	-.313	.719	-.020	.664
(R^2 = .015)	Norwegian Teacher Cohort	-.153	.667	-.011	.819
	Gender	.135	.554	.010	.807
	Age	-1.348	.493	-.165	.006
	Experience	1.112	.379	.164	.003
Model 2	International Teacher Cohort	.808	.715	.052	.259
(R^2 = .104)	Norwegian Teacher Cohort	1.121	.672	.080	.096
	Gender	-.087	.536	-.006	.872
	Age	-1.482	.474	-.181	.002
	Experience	1.456	.366	.214	.000
	Demands	.222	.298	.030	.456
	Support	.604	.452	.094	.182
	Control	1.686	.495	.242	.001
Model 3	International Teacher Cohort	.409	.702	.026	.560
(R^2 = .169)	Norwegian Teacher Cohort	.567	.659	.040	.390
	Gender	-.440	.521	-.031	.399
	Age	-1.770	.462	-.216	.000
	Experience	1.474	.356	.217	.000
	Demands	.151	.302	.020	.618
	Support	.884	.468	.137	.059
	Control	1.297	.506	.186	.011
	Demand*Control	-.924	.469	-.124	.049
	Demand*Support	-.595	.486	-.078	.221
	Control*Support	.806	.251	.126	.001

A number of cohort and demographic effects on Negative Affect were reported. Increased Demands were associated with increased Negative Affect, and no significant interaction effects were reported (Table 7.3). Despite a positive bivariate correlation with Positive Affect (r = .244) and a negative bivariate correlation with Negative Affect (r = -.209), Support was not identified as a predictor of either Positive or Negative Affect. No moderation effects were found for Negative Affect

(Table 7.3). Collinearity was not a concern for the regression analyses on Positive and Negative Affect (highest Variance Inflation Factor = 4.235; Condition Index = 14.053).

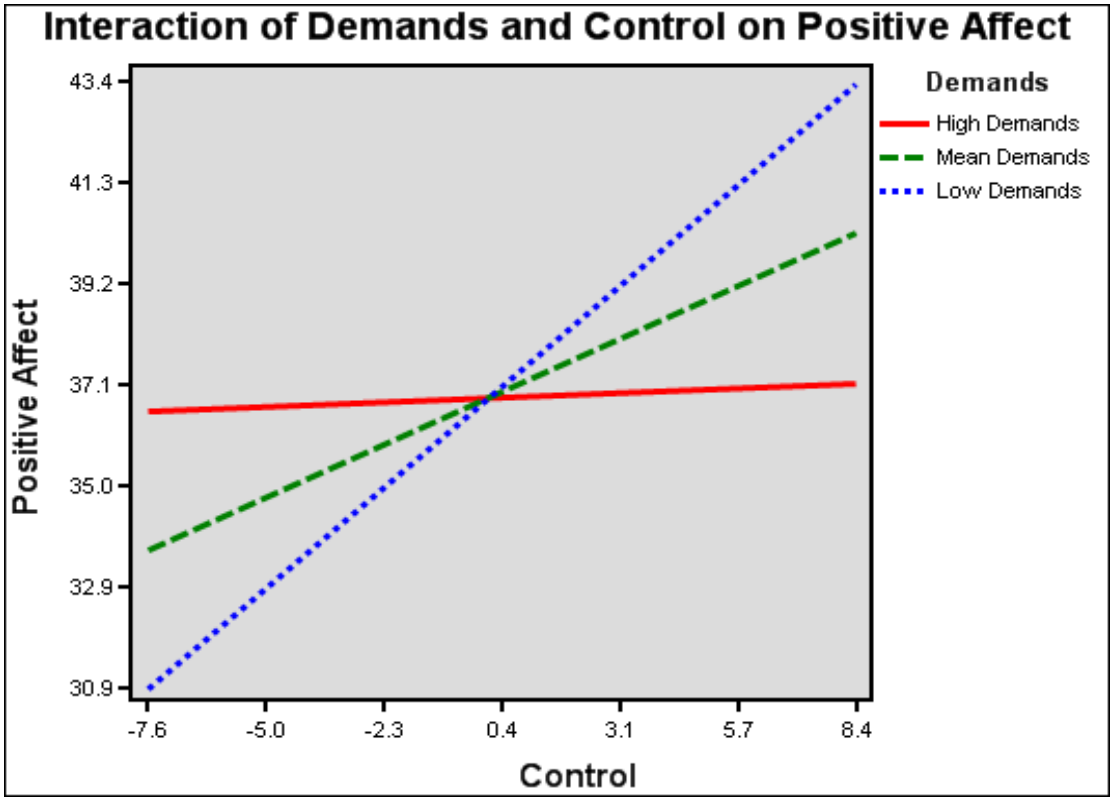

Figure 7.1 Interaction of Demands and Control on Positive Affect

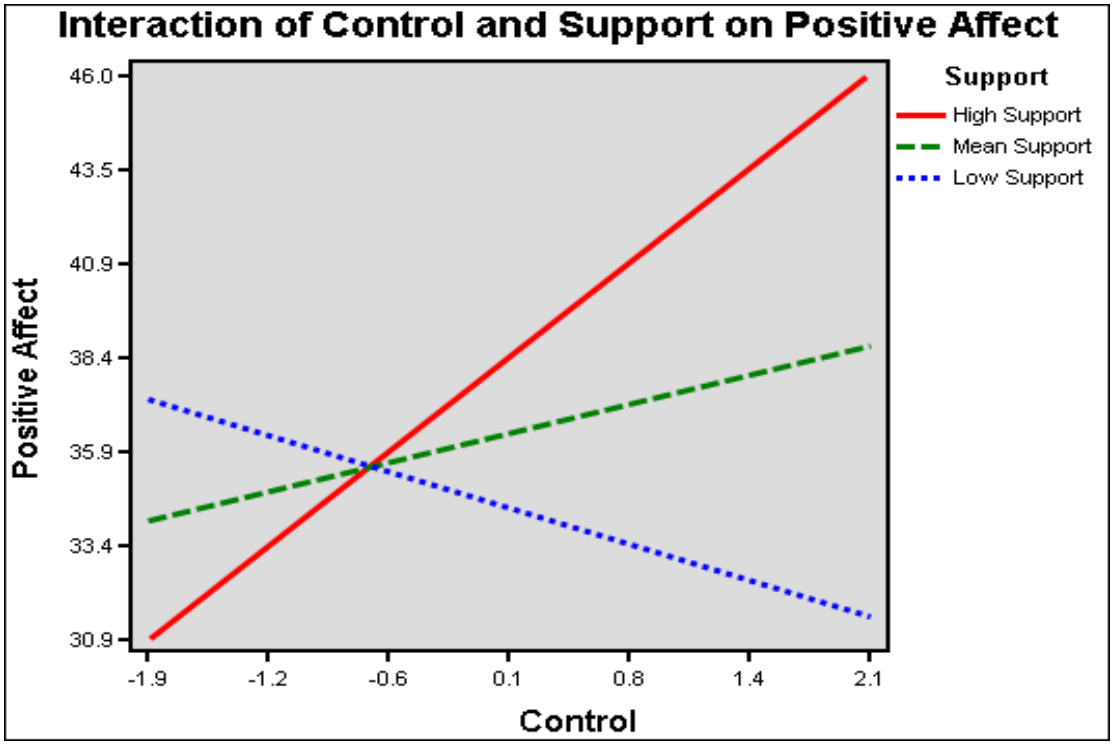

Figure 7.2 Interaction of Control and Support on Positive Affect

Table 7.3 Hierarchical Regression Analysis of Negative Affect

		Unstd. Coeffi		Std Coeff	
		B	Std. Error	Beta	*p*
Model 1	International Teacher Cohort	2.835	.735	.171	.000
(R^2 = .103)	Norwegian Teacher Cohort	3.165	.681	.211	.000
	Gender	-.065	.566	-.004	.909
	Age	-.539	.504	-.062	.285
	Experience	-1.210	.387	-.166	.002
Model 2	International Teacher Cohort	2.110	.747	.128	.005
(R^2 = .146)	Norwegian Teacher Cohort	2.383	.702	.159	.001
	Gender	.059	.561	.004	.916
	Age	-.304	.496	-.035	.540
	Demands	-1.530	.382	-.210	.000
	Support	.687	.311	.087	.028
	Control	-.890	.473	-.129	.060
	Experience	-.335	.518	-.045	.518
Model 3	International Teacher Cohort	2.041	.761	.123	.007
(R^2 = .149)	Norwegian Teacher Cohort	2.287	.714	.153	.001
	Gender	.011	.565	.001	.985
	Age	-.336	.501	-.038	.502
	Experience	-1.547	.386	-.213	.000
	Demands	.705	.328	.089	.032
	Support	-.853	.507	-.123	.093
	Control	-.362	.548	-.049	.509
	Demand*Control	-.209	.508	-.026	.681
	Demand*Support	.033	.526	.004	.950
	Control*Support	.250	.272	.037	.357

Summary 7.1

JDCS appear related to both Positive and Negative Affect although their effects on Negative Affect were not as strong as some demographic effects like cohort and years of experience. Control was a significant effect on Positive Affect and Demands on Negative Affect. Since only one JDCS variable related to either positive or Negative Affect, mediation analyses was not possible. The JDCS clearly contributes little to employee SWB.

Organisational Climate, PWB, Personality and SWB

The previous analyses of the JDCS variables reveal a considerable amount of variance in employee SWB is unaccounted for. Also, it appeared that teacher and school characteristics were more important than the JDCS variables for predicting employee Negative Affect. Therefore, the analyses that follow will expand these previous analyses to test a measure of Organisational Climate within an Organisational Health Research Framework, using the School Organisational Health Questionnaire (SOHQ; Hart et al. 2000) to determine whether an organisational measure that encompasses several areas of the organisation, explains more variance in employee SWB.

Key Question 7.2 Testing the Structure of School Organisational Health Questionnaire (SOHQ)

Since the SOHQ comprises 13 variables, factor analysis was undertaken to identify latent constructs which could be used in subsequent analyses. Principal Axis Factoring with an oblique direct oblimin rotation with Kaiser normalisation, identified two latent factors with Eigenvalues above 1, and which explained 69.11% of the variance. By restricting loadings to >.50, two clear factors are demonstrated (Table 7.4).

Table 7.4 Pattern Matrix indicating loadings of Organisational Climate Variables onto their respective Factor

	Factor	
	Factor 1 (Positive Organisational Climate)	Factor 2 (Negative Organisational Climate)
School Morale	.912	
Goal Congruence	.855	
Role Clarity	.819	
Student Orientation	.818	
Professional Interaction	.778	
Curriculum Coordination	.662	
Effective Discipline Policy	.658	
Participative Decision Making	.652	
Professional Growth	.646	
Supportive Leadership	.613	
Appraisal and Recognition	.579	
Excessive Work Demands		.782
School Distress		.702

Summary 7.2

Further analysis of organisational climate studies was therefore undertaken using these two Latent climate Factors: Positive Organisational Climate and Negative Organisational Climate.

Key Question 7.3 Exploring the relationship between measures of Organisational Climate, Personality, PWB and SWB

Correlations between the well-being, climate and personality variables reveal several significant associations (Table 7.5) and the size of association between climate and SWB variables appears stronger than the JDCS variables reported earlier. As with the JDCS analyses, significant main effects for demographic variables were found (Table 7.6). As with the previous analyses in the Life Events Study, linear relations between age and experience were identified and dummy codes created for other categorical variables.

Internal reliabilities of the derived variables were mostly all satisfactory and include the super-ordinate PWB factor comprising: environmental mastery (E), personal growth (G), purpose in life (P), self-acceptance (S), (EGPS; $\alpha = .785$); autonomy (A; $\alpha = .613$); and positive relations (PR; $\alpha = .777$), SWB components of positive ($\alpha = .877$) and negative affect ($\alpha = .885$).and a Five-Factor personality structure, based on five broad domains: neuroticism ($\alpha = .871$), extraversion ($\alpha = .789$), agreeableness ($\alpha = .771$), openness to experience ($\alpha = .737$), and conscientiousness ($\alpha = .839$).

Hierarchical regression of SWB on personality initially controlled for demographics, followed by the organisational climate and PWB variables in turn (Table 7.7 & Table 7.8). Apart from years of teaching experience, once the organisational climate, PWB and personality variables were entered, cohort effects were mostly not demonstrated though some demographic effects were still reported. Separate predictors for Positive Affect and Negative Affect were identified. Whilst Positive Affect appears to be primarily driven by EGPS and Positive Organisational Climate (Table 7.7), Negative Affect appears highly related to personality, particularly Neuroticism, Negative Organisational Climate, and years of teaching experience (Table 7.8). It is clear that the Positive and Negative Climate variables contribute slightly more explained variance in Positive Affect (24%) and Negative Affect (17.6%) than the JDCS

variables. The inclusion of PWB and Personality doubled the amount of explained variance in both Positive Affect (46.1%) and Negative Affect (51%). Suppression effects were evident (e.g. the positive coefficient for EGPS on NA). After removing these suppression variables in line with the literature (Tabachnick & Fidell, 2007), stepwise regression (Table 7.9) identified the predictors of SWB and reported a significant amount of explained variance in both PA (44.9%) and NA (50.5%).

Table 7.5 Correlations between Organisational Climate, PWB, Personality and SWB variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Positive Affect	1											
2. Negative Affect	**-.22***	1										
3. Extraversion	**.37***	**-.21***	1									
4. Neuroticism	**-.44***	**.63***	**-.42***	1								
5. Openness to Experience	**.15***	**.14***	**.23***	-.059	1							
6. Agreeableness	**.41***	**-.37***	**.21***	**-.54***	**.18***	1						
7. Conscientiousness	**.46***	**-.34***	**.31***	**-.55***	.04	**.42***	1					
8. Negative Organisational Climate	-.04	**.25***	-.03	**.14***	.04	.03	-.02	1				
9. Positive Organisational Climate	**.46***	**-.29***	**.17***	**-.40***	.00	**.37***	**.33***	**-.44***	1			
10. EGPS	**.59***	**-.24***	**.46***	**-.55***	**.20***	**.46***	**.54***	-.01	**.33***	1		
11. Positive Relations	**.18***	**-.39***	**.38***	**-.48***	-.03	**.27***	**.24***	**-.16***	**.16***	**.31***	1	
12. Autonomy	**.25***	**-.29***	**.34***	**-.50***	**.17***	**.28***	**.41***	.00	.06	**.31***	**.25***	1

* All significant correlations were significant at the 0.001 level (2-tailed).

Table 7.6 Differences between demographic variables on organisational climate, PWB, personality and SWB

	Cohort		**Gender**		**Age**		**Experience**	
	F	***p***	**F**	***p***	**F**	***p***	**F**	***p***
Positive Affect	.339	.712	.047	.828	2.004	.112	**7.943**	**.000**
Negative Affect	**21.361**	**.000**	.293	.589	**16.120**	**.000**	**12.888**	**.000**
Extraversion	.516	.597	2.231	.136	2.548	.055	1.722	.161
Neuroticism	**16.804**	**.000**	.190	.663	**13.185**	**.000**	3.661	.012
Openness to Experience	3.755	.024	.378	.539	2.058	.105	**7.620**	**.000**
Agreeableness	.099	.906	**9.466**	**.002**	1.126	.338	**7.008**	**.000**
Conscientiousness	**21.441**	**.000**	**4.334**	**.038**	**5.565**	**.001**	.931	.425
Negative Organisational Climate	**23.874**	**.000**	.513	.474	**3.697**	**.012**	**3.152**	**.024**
Positive Organisational Climate	**9.235**	**.000**	**4.312**	**.038**	.553	.647	1.302	.273
EGPS	1.702	.183	**15.482**	**.000**	**2.727**	**.043**	**7.883**	**.000**
Positive Relations	**24.096**	**.000**	2.940	.087	**2.835**	**.037**	**6.082**	**.000**
Autonomy	.355	.701	6.026	.014	**6.720**	**.000**	3.097	.026

Table 7.7 Hierarchical Regression of Positive Affect on Personality controlling for Demographics, Organisational Climate, and PWB

	Model 1 (adj R^2 = .000)		Model 2 (adj R^2 = .240)		Model 3 (adj R^2 =.443)		Model 4 (adj R^2 = .461)	
	Std. Co-eff.	*p*	Std. Co-eff.	*p*	Std. Co-eff.	*p*	Std. Co-eff.	*p*
Model 1								
Cohort 1	-.020	ns	.016	ns	-.017	ns	.024	ns
Cohort 2	-.011	ns	.040	ns	-.017	ns	.032	ns
Gender	.010	ns	-.024	ns	**-.073**	**.014**	**-.063**	**.033**
Age	**-.165**	**.006**	**-.151**	**.004**	**-.153**	**.001**	**-.141**	**.002**
Experience	**.164**	**.003**	**.153**	**.002**	**.178**	**.000**	**.188**	**.000**
Model 2								
POC	-	-	**.546**	**.000**	**.353**	**.000**	**.295**	**.000**
NOC			**.167**	**.000**	**.096**	**.004**	.057	ns
Model 3								
EGPS	-	-	-	-	**.469**	**.000**	**.345**	**.000**
PR					-.015	ns	-.046	ns
A					**.740**	**.016**	-.003	ns
Model 4								
E							**.110**	**.002**
N	-	-	-	-	-	-	-.011	ns
O							.017	ns
Ag							**.074**	**.043**
C							**.147**	**.000**

Table 7.8 Hierarchical Regression of Negative Affect on Personality controlling for Demographics, Organisational Climate, and PWB

	Model 1 (adj R^2 =.097)		Model 2 (adj R^2 =.176)		Model 3 (adj R^2 =.307)		Model 4 (adj R^2 =.510)	
	Std. Co-eff.	*p*	Std. Co-eff.	*p*	Std. Co-eff.	*p*	Std. Co-eff.	*p*
Model 1								
Cohort 1	**.171**	**.000**	**.119**	**.006**	.067	ns	.004	ns
Cohort 2	**.211**	**.000**	**.145**	**.002**	**.094**	**.026**	.009	ns
Gender	-.004	ns	.007	ns	.012	ns	.001	ns
Age	-.062	ns	-.036	ns	-.054	ns	.012	ns
Experience	**-.166**	**.002**	**-.208**	**.000**	**-.185**	**.000**	**-.218**	**.000**
Model 2								
POC	-	-	**-.209**	**.000**	**-.136**	**.000**	.065	ns
NOC			**.137**	**.001**	**.140**	**.001**	**.207**	**.000**
Model 3								
EGPS	-	-	-	-	**-.092**	**.017**	**.119**	**.003**
PR					**-.243**	**.000**	**-.075**	**.023**
A					**-.171**	**.000**	.019	ns
Model 4								
E							-.011	ns
N	-	-	-	-	-	-	**.528**	**.000**
O							**.164**	**.000**
Ag							**-.177**	**.000**
C							-.057	ns

Key for Tables 7.7 and 7.8: Cohort 1: Australian cohort, Cohort 2: Norwegian Cohort, POC : Positive Organisational Climate, NOC: Negative Organisational Climate, EGPS: Higher order PWB variables consisting of Environmental Mastery, Personal Growth, Purpose in Life, and Self Acceptance, PR: Positive Relations with Others, A: Autonomy, E: Extraversion, N: Neuroticism, O: Openness to Experience, Ag: Agreeableness, C: Conscientiousness

Collinearity was a concern given the moderate associations between PWB and personality (Table 7.5). However, variance inflation factor (VIF) scores ranged from 1.067 to 2.590 for both hierarchical and stepwise regression analyses, well below the suggested cut-off (VIF >=4) (Garson, n.d.). However, a number of Condition Indices (CI's) in the hierarchical analyses were between 15 and 30, indicating possible collinearity. Two dimensions reported CI's above 30 suggesting serious collinearity. These issues were not reported for the Stepwise analysis (Table 7.9) (Highest VIF = 1.674; CI = 15.564), which supported the findings of the hierarchical analyses.

Table 7.9 Stepwise regression of PA and NA on Demographic, PWB, Personality and organisational climate variables

Dependent Variable	Independent Variables	Std. Co-eff.	*p*	Adj. R^2
Positive Affect	EGPS	.349	.000	.346
	Positive Organisational Climate	.250	.000	.421
	Conscientiousness	.125	.000	.435
	Extraversion	.118	.000	.445
	Agreeableness	.078	.021	.449
Negative Affect	Neuroticism	.484	.000	.399
	Experience	-.219	.000	.430
	Negative Organisational Climate	.185	.000	.462
	Openness To Experience	.179	.000	..487
	Agreeableness	-.145	.000	.501
	Positive Relations	-.075	.015	.505

Summary 7.3

Positive and Negative Organisational Climate are independently related to two separate dimensions of SWB, Positive and Negative Affect. These effects are stronger than those reported by the JDCS variables, and supported by the amount of explained variance in SWB. PWB was still strongly related to SWB after controlling for organisational climate. After the inclusion of personality effects, only Positive Relations was significantly related to Negative Affect, and EGPS to Positive Affect. EGPS reported a positive effect on Negative Affect indicating a suppression effect, though this will be investigated in detail later. In summary, different predictors for different SWB components were identified. EGPS and Positive Organisational Climate reported the strongest effects on Positive Affect, with small personality and demographics effects. Neuroticism and Negative Organisational Climate reported the

strongest effects on Negative Affect, with Openness to Experience and Conscientiousness also reporting small effects. Positive Relations and years of experience reported moderate negative effects on Negative Affect.

Key Question 7.4 Testing the addition of interactions between personality, psychological well-being and organisational climate to models that predict SWB

Whilst main effects for climate, personality and PWB explained a considerable amount of variance in both Positive and Negative Affect, a number of moderation effects were further tested. The correlations between all possible moderation terms and SWB are reported in Table 7.10. The inclusion of moderation effects results in a considerable increase in explained variance of Positive (63%) and Negative Affect (65%) than was explained by the main effects model reported previously. However, inspection of the regression analyses of both Positive Affect (Table 7.11) and Negative Affect (Table 7.12) reveal several confounding results.

With regards Positive Affect (Table 7.11), main effects were no longer presented for Agreeableness and Conscientiousness as they were in the main effects only analyses (Table 7.7). Also, Negative Organisational Climate now reported a small but significant negative effect on Positive Affect when the interactions were included. In comparison to their bivariate correlations, a number of interactions revealed opposite significant associations with Positive Affect (e.g. Openness to Experience*EGPS was now positive), or significant associations that were not reported as significant in the bivariate analyses (e.g. Openness to Experience*Positive Relations), were now reported. Similar findings were found for the regression analysis on Negative Affect (Table 7.12). Clearly a number of suppression effects are being reported, and whilst the addition of interaction effects contribute more explained variance in SWB this appears to be at the loss of a parsimonious model of the predictors of employee SWB. The three largest moderation effects on Positive and Negative Affect are summarised in Tables 7.13 and 7.14.

Table 7.10 Correlations between SWB and Interactions between Personality, PWB and Organisational Climate variables

	Positive Affect	Negative Affect
Positive Affect	1	-.224(**)
Negative Affect	-.224(**)	1
Extraversion*EGPS	-.213(**)	.208(**)
Extraversion*Autonomy	-.091(*)	.139(**)
Extraversion*Positive Relations	.001	.074
Neuroticism*EGPS	.201(**)	-.108(**)
Neuroticism*Autonomy	.180(**)	-.151(**)
Neuroticism*Positive Relations	-.042	-.175(**)
Openness To Experience*EGPS	-.076(*)	-.067
Openness To Experience*Positive Relations	.049	-.122(**)
Openness To Experience*Autonomy	-.156(**)	.135(**)
Agreeableness*EGPS	-.189(**)	.021
Agreeableness*Positive Relations	-.022	.166(**)
Agreeableness*Autonomy	-.092(*)	.080(*)
Conscientiousness*EGPS	-.197(**)	.210(**)
Conscientiousness*Positive Relations	-.007	.050
Conscientiousness*Autonomy	-.123(**)	.092(*)
Positive Climate* Negative Climate	-.261(**)	-.074
Positive Climate *EGPS	-.124(**)	-.013
Positive Climate * Autonomy	-.155(**)	-.035
Positive Climate *Positive Relations	-.013	.134(**)
Negative Climate *Positive Relations	.070	-.071
Negative Climate *Autonomy	.109(**)	.059
Negative Climate *EGPS	-.173(**)	-.027
Positive Climate *Extraversion	-.001	-.008
Positive Climate *Neuroticism	.160(**)	-.117(**)
Positive Climate *Agreeableness	-.134(**)	.077(*)
Positive Climate *Openness To Experience	-.027	-.271(**)
Positive Climate *Conscientiousness	-.198(**)	.140(**)
Negative Climate *Extraversion	-.063	-.013
Negative Climate *Neuroticism	-.064	.098(*)
Negative Climate*Openness To Experience	-.172(**)	.119(**)
Negative Climate *Agreeableness	-.007	-.098(*)
Negative Climate *Conscientiousness	.048	.011

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

Table 7.11 Multiple Regression of Positive Affect on Personality, PWB and Organisational Climate variables

R^2 = .629	Unstandardized Coefficients		Standardized Coefficients	*p*
	B	Std. Error	Beta	
Extraversion	**.143**	**.040**	**.121**	**.000**
Neuroticism	-.064	.046	-.065	.167
Openness To Experience	**.115**	**.039**	**.093**	**.003**
Agreeableness	**-.158**	**.053**	**-.119**	**.003**
Conscientiousness	.047	.042	.040	.266
Negative Organisational Climate	**.955**	**.259**	**.129**	**.000**
Positive Organisational Climate	**2.937**	**.270**	**.422**	**.000**
EGPS	**2.976**	**.289**	**.418**	**.000**
Positive Relations	-.102	.247	-.014	.679
Autonomy	.044	.266	.006	.870
Openness To Experience*EGPS	**.163**	**.044**	**.134**	**.000**
Openness To Experience*Positive Relations	**-.118**	**.044**	**-.088**	**.007**
Openness To Experience*Autonomy	**.107**	**.049**	**.079**	**.031**
Agreeableness*EGPS	-.116	.063	-.096	.065
Agreeableness*Positive Relations	**.285**	**.067**	**.154**	**.000**
Agreeableness*Autonomy	.017	.060	.014	.770
Conscientiousness*EGPS	.104	.054	.097	.056
Conscientiousness*Positive Relations	.000	.047	.000	.997
Conscientiousness*Autonomy	.022	.053	.020	.682
Extraversion*EGPS	**-.265**	**.055**	**-.233**	**.000**
Extraversion*Autonomy	**.144**	**.052**	**.100**	**.006**
Extraversion*Positive Relations	.049	.051	.036	.344
Neuroticism*EGPS	-.080	.052	-.083	.125
Neuroticism*Autonomy	**.141**	**.057**	**.140**	**.014**
Neuroticism*Positive Relations	-.046	.049	-.041	.352
Positive Climate*Negative Climate	**-1.247**	**.296**	**-.175**	**.000**
Positive Climate*EGPS	**1.671**	**.298**	**.306**	**.000**
Positive Climate*Autonomy	.039	.387	.005	.920
Positive Climate*Positive Relations	**-.885**	**.330**	**-.120**	**.008**
Negative Climate*Positive Relations	-.382	.322	-.051	.237
Negative Climate*Autonomy	.354	.352	.043	.315
Negative Climate*EGPS	**-.931**	**.341**	**-.127**	**.006**
Positive Climate*Extraversion	**.155**	**.055**	**.123**	**.005**
Positive Climate*Neuroticism	**.129**	**.060**	**.146**	**.032**
Positive Climate*Agreeableness	**.195**	**.058**	**.200**	**.001**
Positive Climate*Openness To Experience	**-.204**	**.053**	**-.182**	**.000**
Positive Climate*Conscientiousness	**-.420**	**.061**	**-.357**	**.000**
Negative Climate*Extraversion	**.166**	**.053**	**.130**	**.002**
Negative Climate*Neuroticism	.016	.056	.018	.770
Negative Climate*Openness To Experience	**-.228**	**.041**	**-.205**	**.000**
Negative Climate*Agreeableness	**.385**	**.064**	**.305**	**.000**
Negative Climate*Conscientiousness	-.101	.055	-.083	.069

Table 7.12 Multiple Regression of Negative Affect on Personality, PWB and Organisational Climate variables

R^2 = .652	Unstandardized Coefficients		Standardized Coefficients	
	B	Std. Error	Beta	*p*
Extraversion	-.006	.041	-.005	.888
Neuroticism	**.685**	**.048**	**.648**	**.000**
Openness To Experience	**.099**	**.040**	**.075**	**.014**
Agreeableness	**-.259**	**.055**	**-.183**	**.000**
Conscientiousness	.069	.044	.056	.114
Negative Organisational Climate	**.976**	**.268**	**.124**	**.000**
Positive Organisational Climate	.028	.280	.004	.919
EGPS	**1.193**	**.299**	**.156**	**.000**
Positive Relations	**-.604**	**.256**	**-.076**	**.019**
Autonomy	-.077	.276	-.009	.781
Openness To Experience*EGPS	.047	.046	.036	.299
Openness To Experience*Positive Relations	-.021	.046	-.015	.639
Openness To Experience*Autonomy	-.016	.051	-.011	.761
Agreeableness*EGPS	**-.227**	**.065**	**-.175**	**.001**
Agreeableness*Positive Relations	**.261**	**.070**	**.132**	**.000**
Agreeableness*Autonomy	.085	.062	.062	.170
Conscientiousness*EGPS	**.262**	**.056**	**.230**	**.000**
Conscientiousness*Positive Relations	-.023	.049	-.017	.642
Conscientiousness*Autonomy	-.076	.055	-.066	.168
Extraversion*EGPS	**.136**	**.057**	**.111**	**.018**
Extraversion*Autonomy	.036	.054	.023	.510
Extraversion*Positive Relations	**-.132**	**.053**	**-.092**	**.013**
Neuroticism*EGPS	**.147**	**.054**	**.143**	**.006**
Neuroticism*Autonomy	-.001	.060	-.001	.985
Neuroticism*Positive Relations	.036	.051	.030	.481
Positive Climate*Negative Climate	**-1.096**	**.307**	**-.143**	**.000**
Positive Climate*EGPS	**-.746**	**.309**	**-.127**	**.016**
Positive Climate*Autonomy	**-.992**	**.401**	**-.113**	**.014**
Positive Climate*Positive Relations	.214	.343	.027	.533
Negative Climate*Positive Relations	.347	.334	.044	.299
Negative Climate*Autonomy	-.500	.365	-.057	.171
Negative Climate*EGPS	.539	.354	.069	.128
Positive Climate*Extraversion	**.183**	**.057**	**.136**	**.001**
Positive Climate*Neuroticism	.023	.063	.024	.712
Positive Climate*Agreeableness	**.189**	**.060**	**.181**	**.002**
Positive Climate*Openness To Experience	**-.259**	**.055**	**-.216**	**.000**
Positive Climate*Conscientiousness	**.129**	**.063**	**.102**	**.041**
Negative Climate*Extraversion	-.024	.055	-.018	.659
Negative Climate*Neuroticism	-.013	.058	-.013	.825
Negative Climate*Openness To Experience	4.52E-005	.043	.000	.999
Negative Climate*Agreeableness	-.036	.067	-.027	.588
Negative Climate*Conscientiousness	.067	.057	.052	.242

Table 7.13 The largest interaction effects on Positive Affect

Interaction Variables	Moderator	B	Std Error	*p*	R^2 of Interaction Term	Effect Size	Power
Positive Climate* Conscientiousness	High Conscientiousness	1.131	.289	.000	.041	.557	1.000
	Mean Conscientiousness	2.535	.229	.000			
	Low Conscientiousness	3.939	.323	.000			
Positive Climate * EGPS	High EGPS	2.209	.256	.000	.001	.736	1.000
	Mean EGPS	2.016	.216	.000			
	Low EGPS	1.823	.274	.000			
Extraversion * EGPS	High EGPS	.129	.053	.014	.001	.564	1.000
	Mean EGPS	.155	.040	.000			
	Low EGPS	.182	.051	.000			

Table 7.14 The largest interaction effects on Negative Affect

Interaction Variables	Moderator	B	Std Error	*p*	R^2 of Interaction. Term	Effect Size	Power
Conscientiousness * EGPS	High EGPS	.095	.095	.274	.012	.151	.999
	Mean EGPS	.053	.053	.000			
	Low EGPS	.089	.089	.000			
Positive Climate * Openness To Experience	High Openness	-3.481	.337	.000	.052	.180	.999
	Mean Openness	-1.951	.266	.000			
	Low Openness	-.427	.374	.255			
Positive Climate * Agreeableness	High Positive Climate	-.614	.108	.000	.004	.199	.999
	Mean Positive Climate	-.468	.057	.000			
	Low Positive Climate	-.323	.077	.000			

Only the Positive Organisational Climate*Conscientiousness interaction (Figure 7.3) appeared to report a significant effect on Positive Affect. For those reporting high or moderate levels of Conscientiousness, levels of positive affect was generally consistent across levels of Positive Organisational Climate. Instead the findings suggest that Positive Organisational Climate has a stronger effect on Positive Affect for those low in Conscientiousness. The Positive Organisational Climate*Openness To Experience interaction (Figure 7.4) appeared to be the only interaction effect to explain significant variance in Negative Affect, indicating that Positive Organisational Climate had a stronger effect on those high in Openness To Experience.

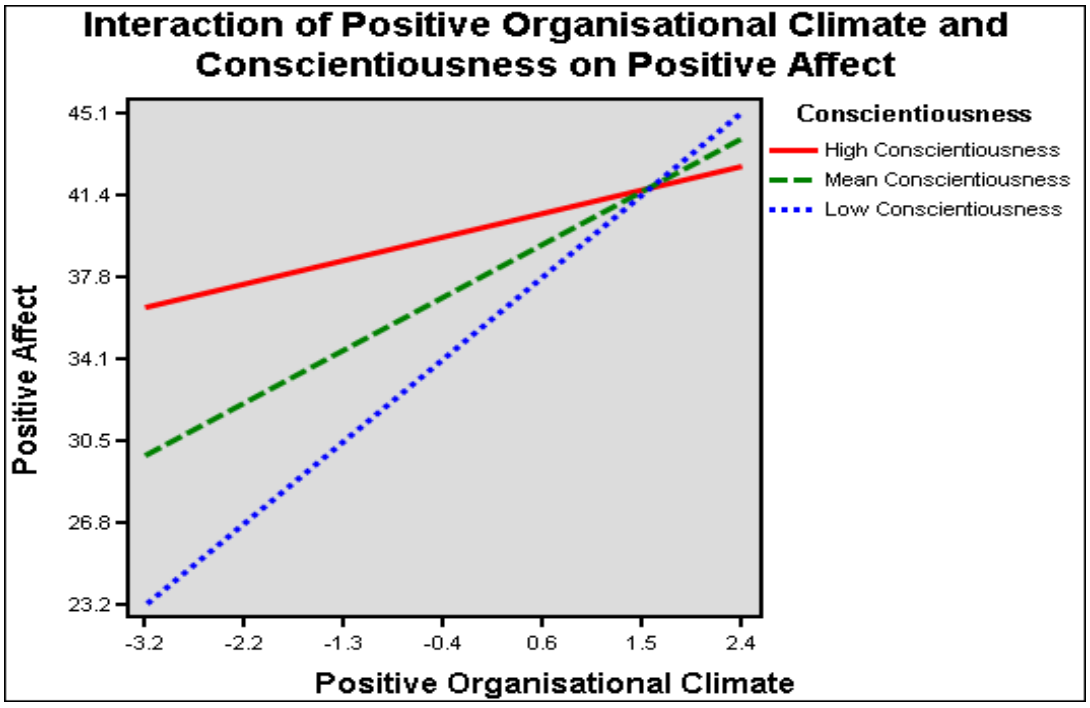

Figure 7.3 Interaction of Positive Organisational Climate and Conscientiousness on Positive Affect

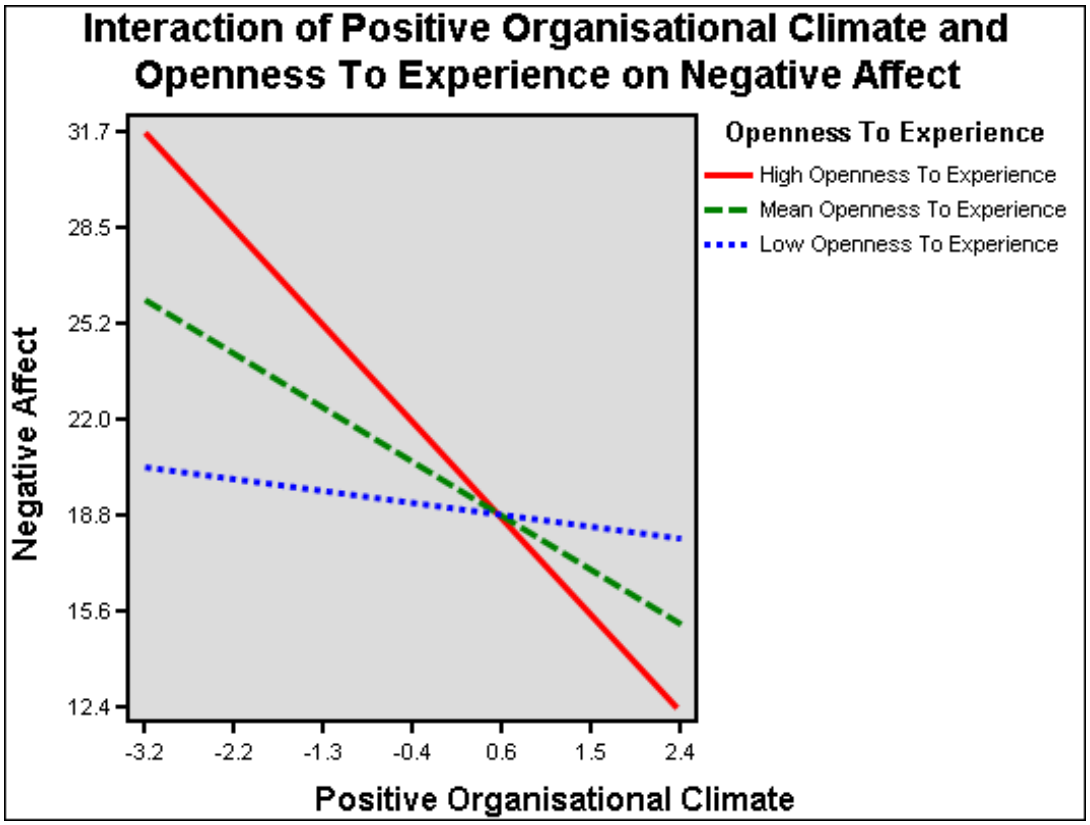

Figure 7.4 Interaction of Positive Organisational Climate and Openness To Experience on Negative Affect

Summary 7.4

Although some interaction effects between individual and organisational climate were reported and result in an increase in explained variance in both components of SWB, the main effects still appear to be the strongest predictors as indicated by the R^2 value of the interaction terms.

Key Question 7.5 Testing Mediation Effects of PWB and Personality and Organisational Climate on SWB.

Additional analyses tested mediation analyses of the main effects on SWB. An initial mediation model tested the effect of Positive and Negative Organisational Climate as mediating the direct effects of PWB and Personality. These results are presented in Table 7.15. Several significant paths indicated possible partial mediation and are supported by the results of Sobel tests (Table 7.16). Three partial mediations were identified where Positive Organisational Climate mediates the effect of EGPS and Conscientiousness on Positive Affect, whilst Negative Organisational Climate mediates the effect of Neuroticism on Negative Affect.

Table 7.15 Results of a mediation model where Organisational Climate mediates the direct effects of PWB and Personality on SWB

Dependent Variable	Independent Variable	B	S.E.	Beta	*p*
Positive Organisational Climate (R^2 = .244)	EGPS	.105	.039	.103	.007
	Neuroticism	-.035	.007	-.247	.000
	Agreeableness	.033	.008	.175	.000
	Conscientiousness	.026	.006	.155	.000
	Autonomy	-.194	.039	-.171	.000
Negative Organisational Climate (R^2 = .057)	Positive Relations	-.148	.038	-.147	.000
	Agreeableness	.026	.008	.144	.001
	Neuroticism	.020	.006	.146	.002
Negative Affect (R^2 = .481)	Neuroticism	.625	.041	.590	.000
	Negative Organisational Climate	1.189	.224	.150	.000
	Openness To Experience	.200	.038	.151	.000
	Agreeableness	-.184	.049	-.129	.000
	Positive Relations	-.671	.255	-.084	.008
	EGPS	1.134	.267	.147	.000
Positive Affect (R^2 = .457)	EGPS	2.560	.262	.358	.000
	Extraversion	.141	.038	.120	.000
	Negative Organisational Climate	.865	.234	.118	.000
	Positive Organisational Climate	2.263	.240	.326	.000
	Conscientiousness	.148	.040	.129	.000

Table 7.16 Results of Sobel Testing the effects of Organisational Climate Mediation

IV	Mediator	DV	Sobel	*P*
EGPS	Positive Organisational Climate	Positive Affect	6.785	.001
Conscientiousness			3.444	.001
Positive Relations	Negative Organisational Climate	Negative Affect	-2.358	.990
Agreeableness			-3.066	.999
Neuroticism			5.013	.001

Table 7.17 Results of a mediation model where PWB and Personality mediate the direct effects of Organisational Climate on SWB

Dependent Variable	Independent Variable	B	S.E.	Beta	*p*
Agreeableness (R^2 = .174)	Negative Organisational Climate	1.164	.188	.210	.000
	Positive Organisational Climate	2.427	.196	.464	.000
Conscientiousness (R^2 = .124)	Negative Organisational Climate	.835	.222	.131	.000
	Positive Organisational Climate	2.336	.234	.389	.000
Positive Relations (R^2 = .039)	Negative Organisational Climate	-.138	.036	-.139	.000
	Positive Organisational Climate	.088	.038	.094	.021
EGPS (R^2 = .124)	Positive Organisational Climate	.377	.037	.389	.000
Neuroticism (R^2 = .157)	Positive Organisational Climate	-2.790	.249	-.396	.000
Extraversion Total (R^2 = .028)	Positive Organisational Climate	.977	.217	.166	.000
Positive Affect (R^2 = .454)	Positive Organisational Climate	2.263	.238	.327	.000
	Extraversion	.141	.038	.120	.000
	Conscientiousness	.148	.040	.129	.000
	EGPS	2.560	.262	.358	.000
Negative Affect (R^2 = .484)	Positive Relations	-.671	.254	-.084	.008
	Negative Organisational Climate	1.189	.226	.150	.000
	Openness To Experience	.200	.038	.150	.000
	Agreeableness	-.184	.049	-.128	.000
	Neuroticism	.625	.041	.588	.000

A second set of mediation analyses tested whether PWB and personality mediate the effects of Positive and Negative Organisational Climate on SWB. Significant effects

are reported (Table 7.17) and the results of Sobel tests support 4 partial mediation paths (Table 7.18). EGPS mediates Positive Organisational Climate on Positive Affect, whilst Conscientiousness mediates Positive and Negative Organisational Climate on Positive Affect, and Extraversion mediates Positive Organisational Climate on Positive Affect. GFI for both mediation models were highly acceptable (Table 7.19).

Table 7.18 Results of Sobel Testing the effects of Organisational Climate Mediation

IV	Mediator	DV	Sobel	*p*
Negative Organisational Climate	Agreeableness	Negative Affect	-3.056	.999
	EGPS		3.305	.001
	Positive Relations		-2.361	.999
Positive Organisational Climate	Extraversion	Positive Affect	3.457	.001
	Conscientiousness		3.448	.001
	EGPS		6.814	.001
Negative Organisational Climate	Conscientiousness	Positive Affect	2.615	.009
	EGPS		3.457	.001

Table 7.19 Summary of Goodness of Fit Indices of Mediation Models

	CMIN	DF	*p*	GFI	AGFI	CFI	RMSEA (95% CI)
Mediation Model 1 (Organisational Climate as mediator)	28.461	21	.128	.993	.974	.997	.023 (.000 - .042)
Mediation Model 2 (PWB and Personality as mediator)	18.229	15	.251	.995	.978	.999	.018 (.000 - .042)
Moderation Model	125.269	76	.000	.984	.942	.993	.031 (.021 - .040)

Summary 7.5

Since mediation implies some degree of temporal separation between the variables, these mediation analyses are limited by the cross-sectional nature of the data.

However, in comparison to the moderation effects, these results reveal far fewer significant effects which explain less of the variance in SWB. Comparison of GFI reveal that the mediation models report better fit than the moderation model.

Key Question 7.6

Do Measures of PWB, Personality and Organisational Climate Predict Both Individual and Organisational Well-Being Equally?

The initial hierarchical analyses of the organisational climate measure indicate a range of individual and organisational effects on SWB. The following section will undertake separate sets of analyses to compare the effects of individual and organisational characteristics on both individual and organisational outcomes. Organisational well-being is reflected in two variables from the Hart et al. (2000) questionnaire that includes two organisational well-being measures: School Morale and School Distress. Significant associations between personality (Table 7.20), PWB (Table 7.21), Organisational Climate (Table 7.22) and both SWB and organisational well-being were reported. The results from several stepwise regression analyses demonstrated that personality (Table 7.23) and PWB (Table 7.24) characteristics are more related to individual well-being than organisational well-being, whilst organisational characteristics (Table 7.25) are more highly related to organisational well-being than individual well-being.

Personality and PWB both accounted for more of the variance relating to Positive Affect (32.4% and 34.9% respectively) and Negative Affect (44.1% and 18.8% respectively) than School Morale (18.9% and 6.1%) and School Distress (8% and 2.7%). Organisational characteristics accounted for a considerable amount of variance related to School well-being (School Morale: 75.6%; School Distress: 67.7%) and a moderate amount of variance in Individual Well-Being (Positive Affect: 31.8%; Negative Affect: 20%).

Table 7.20 Correlations between Organisational and Individual Well-being and Personality

	1	2	3	4	5	6	7	8	9
1. Positive Affect	1								
2. Negative Affect	**-.224(**)**	1							
3. School Morale	**.461(**)**	**-.256(**)**	1						
4. School Distress	**-.157(**)**	**.413(**)**	**-.484(**)**	1	-.034				
5. Extraversion	**.373(**)**	**-.207(**)**	**.185(**)**	-.034	1				
6. Neuroticism	**-.442(**)**	**.633(**)**	**-.385(**)**	**.257(**)**	**-.422(**)**	1			
7. Openness To Experience	**.148(**)**	**.137(**)**	.028	**.108(**)**	**.234(**)**	-.049	1		
8. Agreeableness	**.408(**)**	**-.368(**)**	**.352(**)**	-.044	**.213(**)**	**-.535(**)**	**.182(**)**	1	
9. Conscientiousness	**.463(**)**	**-.340(**)**	**.247(**)**	-.074	**.305(**)**	**-.546(**)**	.043	**.408(**)**	1

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

Table 7.21 Correlations between Organisational and Individual Well-being and PWB

	1	2	3	4	5	6	7
1. Positive Affect	1						
2. Negative Affect	**-.224(**)**	1					
3. School Morale	**.461(**)**	**-.256(**)**	1				
4. School Distress	**-.157(**)**	**.413(**)**	**-.484(**)**	1			
5. EGPS	**.589(**)**	**-.237(**)**	**.261(**)**	**-.085(*)**	1		
6. Positive Relations	**.182(**)**	**-.386(**)**	**.143(**)**	**-.199(**)**	**.314(**)**	1	
7. Autonomy	**.250(**)**	**-.293(**)**	**.076(*)**	-.043	**.305(**)**	**.247(**)**	1

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

Table 7.22 Correlations between Organisational and Individual Well-being and Organisational Climate

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	1														
2.	-.224**	1													
3.	.461**	-.256**	1												
4.	-.157**	.413**	-.484**	1											
5.	.238**	-.094*	.572**	-.533**	1										
6.	.223**	-.112**	.616**	-.420**	.527**	1									
7.	.220**	-.261**	.615**	-.511**	.545**	.502**	1								
8.	-.054	.178**	-.131**	.676**	-.331**	-.179**	-.248**	1							
9.	.390**	-.235**	.729**	-.466**	.515**	.567**	.680**	-.122**	1						
10.	.256**	-.213**	.662**	-.646**	.715**	.608**	.629**	-.362**	.607**	1					
11.	.338**	-.201**	.578**	-.472**	.691**	.508**	.478**	-.248**	.536**	.684**	1				
12.	.473**	-.324**	.768**	-.439**	.534**	.617**	.510**	-.183**	.580**	.570**	.565**	1			
13.	.447**	-.328**	.659**	-.321**	.458**	.464**	.525**	-.022	.643**	.528**	.553**	.602**	1		
14.	.440**	-.219**	.697**	-.365**	.448**	.464**	.504**	-.045	.706**	.512**	.505**	.580**	.602**	1	
15.	.244**	-.209**	.644**	-.673**	.736**	.557**	.608**	-.384**	.623**	.841**	.656**	.521**	.481**	.523**	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). 1. Positive Affect; 2. Negative Affect; 3. School Morale; 4. School Distress; 5. Appraisal and Recognition; 6. Curriculum Coordination; 7. Effective Discipline Policy; 8. Excessive Work Demands; 9. Goal Congruence; 10. Participative Decision Making; 11. Professional Growth; 12. Professional Interaction; 13. Role Clarity; 14. Student Orientation; 15. Supportive Leadership;

Table 7.23 Personality predicting Individual and Organisational Well-being

DV	IV	R^2	Estimate	S.E.	Std. Coeff	*p*
Positive Affect	Extraversion	.324	.214	.040	.181	.000
	Neuroticism		-.112	.042	-.114	.008
	Openness To Experience		.076	.038	.062	.048
	Agreeableness		.267	.050	.202	.000
	Conscientiousness		.298	.042	.258	.000
Negative Affect	Neuroticism	.441	.616	.036	.578	.000
	Openness To Experience		.246	.039	.185	.000
	Agreeableness		-.157	.047	-.109	.000
School Morale	Neuroticism	.189	-.139	.022	-.248	.000
	Agreeableness		.189	.027	.250	.000
School Distress	Neuroticism	.080	.177	.025	.263	.000
	Openness To Experience		.090	.027	.107	.001

A review of the individual personality factors that relate to individual and organisational well-being, appear to demonstrate estimates in the correct direction. For instance, all the personality variables are positively associated with Positive Affect and School Morale, except for Neuroticism which is negatively related. Neuroticism is positively related to School Distress, and most markedly is its positive relationship with Negative Affect. Of note are the positive associations between Openness to Experience with both Positive and Negative Affect. This is consistent with the literature and implies that individuals who are open to day-to-day experiences will report higher levels of both positive and Negative Affect. PWB was positively related to positive individual and organisational well-being, and negatively related to negative individual and organisational well-being (Table 7.24). Whilst EGPS reported the strongest associations with positive well-being, its effect on negative well-being were weak in comparison with Autonomy and Positive Relations. Positive Relations was strongly related to both individual and organisational negative well-being, but did not report an association with positive well-being outcomes.

Table 7.24 PWB Predicting Individual and Organisational well-being

DV	IV	R^2	Estimate	S.E.	Std. Coeff	*p*
Positive Affect	EGPS	.349	3.997	.228	.562	.000
	Autonomy		.623	.234	.079	.008
Negative Affect	EGPS	.188	-.538	.264	-.071	.041
	Positive Relations		-2.415	.285	-.305	.000
	Autonomy		-1.646	.285	-.196	.000
School Morale	EGPS	.061	.989	.133	.246	.000
School Distress	Positive Relations	.027	-.832	.169	-.165	.000

Table 7.25 Organisational climate Predicting Individual and Organisational well-being

DV	IV	R^2	Estimate	S.E.	Std Coeff	*p*
Positive Affect	Effective Discipline Policy	.318	-.304	.082	-.163	.000
	Curriculum Coordination		-.642	.155	-.176	.000
	Goal Congruence		.244	.102	.134	.016
	Professional Interaction		.498	.065	.359	.000
	Role Clarity		.439	.099	.200	.000
	Student Orientation		.493	.127	.182	.000
Negative Affect	Appraisal and Recognition	.200	.275	.058	.208	.000
	Effective Discipline Policy		-.206	.084	-.104	.015
	Role Clarity		-.634	.102	-.271	.000
	Curriculum Coordination		.647	.168	.167	.000
	Excessive Work Demands		.379	.073	.193	.000
	Professional Interaction		-.423	.072	-.287	.000
School Morale	Participative Decision Making	.756	.111	.036	.113	.002
	Professional Interaction		.308	.021	.394	.000
	Role Clarity		.098	.034	.079	.004
	Student Orientation		.242	.044	.160	.000
	Supportive Leadership		.091	.027	.125	.000
	Excessive Work Demands		.069	.022	.067	.002
	Goal Congruence		.204	.032	.198	.000
School Distress	Supportive Leadership	.677	-.198	.034	-.225	.000
	Excessive Work Demands		.645	.030	.517	.000
	Goal Congruence		-.170	.036	-.138	.000
	Professional Interaction		-.063	.026	-.067	.016
	Participative Decision Making		-.171	.046	-.144	.000

The independent effects of organisational climate factors (Table 7.25) reveal a number of estimates that appear contradictory to their bi-variate correlations. For instance, Effective Discipline Policy and Curriculum Co-ordination were negatively related to Positive Affect, whilst Appraisal and Recognition, and Curriculum Co-ordination were positively related to Negative Affect, contrary to their bi-variate correlations. It may be that non-linear associations between some of the organisational climate variables are to be expected. It makes sense that a factor like curriculum co-ordination exhibits non-linear associations, since too little would indicate a school with poor working structures, whilst too much may indicate a school which is too controlling. It may be a variable where moderate degrees are of more importance. Otherwise, the estimates reported for organisational well-being are in line with their bi-variate correlations and account for a considerable amount of variance in organisational well-being.

Table 7.26 PWB and Personality Predicting Individual and Organisational well-being

DV	IV	R_2	Estimate	S.E.	Std Coeff	*p*
Positive Affect	Extraversion	.402	.155	.039	.131	.000
	Agreeableness		.202	.044	.152	.000
	Conscientiousness		.172	.039	.148	.000
	EGPS		2.713	.265	.379	.000
Negative Affect	Neuroticism	.461	.633	.041	.596	.000
	Openness To Experience		.210	.038	.159	.000
	Agreeableness		-.192	.047	-.135	.000
	EGPS		1.103	.254	.143	.000
	Positive Relations		-.806	.258	-.101	.002
School Morale	Extraversion	.203	.065	.022	.097	.004
	Neuroticism		-.145	.023	-.258	.000
	Agreeableness		.195	.027	.259	.000
	Autonomy		-.542	.148	-.121	.000
School Distress	Neuroticism	.090	.133	.027	.197	.000
	Openness To Experience		.081	.027	.096	.003
	Positive Relations		-.656	.188	-.129	.000

Testing the combined effects of PWB and personality, on both individual and organisational well-being, certainly increases the amount of explained variance (Table 7.26). Still, the relationship between PWB and personality, and individual

well-being is stronger than the relationship with organisational well-being. Of the individual personality constructs, EGPS is the strongest predictor of Positive Affect, though its influence on School Morale was not demonstrated, suggesting limited cross-over effects of individual characteristics on organisational well-being.

Interestingly, EGPS reports a considerable positive effect on Negative Affect, despite a negative bi-variate correlation, though as with other results presented in this thesis, this appears to exist when other factors, such as Neuroticism, are included in the model. Further investigation of this relationship will be examined at the end of the results chapter. Aside from this, Neuroticism was the personality construct that was most related to Negative Affect. Positive Relations was a significant negative effect on Negative Affect and School Distress, whilst Autonomy was negatively related to School Morale. In most instances, estimates were smaller when both personality constructs were included into the model, suggesting a degree of collinearity between these constructs.

The inclusion of both organisational climate and personality variables (Table 7.27) resulted in a considerable amount of explained variance of individual and organisational well-being, though there was slightly less variance in School Morale explained. When organisational climate variables were tested separately, a number of variables reported estimates in opposite direction to their bi-variate correlations (e.g. Curriculum Co-ordination with a negative estimate on Positive Affect). Interestingly, the organisational climate variables reported stronger effects than personality on both individual and organisational well-being. An exception to this was the strong effect of Neuroticism on Negative Affect. Other significant effects of note include the positive associations between Student Orientation with Positive Affect, and Excessive Work Demands with School Distress.

The inclusion of PWB, instead of Personality, (Table 7.28) with organisational climate, explained slightly less individual well-being, comparable variance of School Distress, and slightly more variance of School Morale. EGPS was clearly the most significant predictor of Positive Affect, but again, Curriculum Co-ordination reported an estimate opposite to its bi-variate correlation on both Positive and Negative Affect. The PWB variables of Autonomy and Positive Relations were clearly the

strongest predictors of Negative Affect with strong negative associations. Organisational Climate variables were the strongest contributors to organisational well-being. Apart from the strong predictors already identified, modest effects were reported for the other PWB and organisational climate variables.

Table 7.27 Organisational Climate and Personality Predicting Individual and Organisational well-being

DV	IV	R^2	Estimate	S.E.	Std Coeff	*p*
Positive Affect	Extraversion		.233	.038	.189	.000
	Openness To Experience		.108	.036	.084	.003
	Agreeableness		.118	.043	.086	.006
	Conscientiousness		.318	.037	.265	.000
	Curriculum Coordination	.518	-.506	.134	-.133	.000
	Effective Discipline Policy		-.339	.068	-.175	.000
	Goal Congruence		.272	.088	.123	.002
	Professional Interaction		.333	.059	.208	.000
	Student Orientation		.706	.103	.251	.000
	Excessive Work Demands		-.161	.054	-.084	.003
Negative Affect	Neuroticism		.567	.035	.529	.000
	Openness To Experience		.237	.038	.176	.000
	Agreeableness		-.231	.044	-.160	.000
	Appraisal and Recognition	.488	.259	.050	.191	.000
	Effective Discipline Policy		-.142	.069	-.070	.040
	Excessive Work Demands		.242	.062	.120	.000
	Supportive Leadership		-.141	.061	-.093	.021
School Morale	Conscientiousness		-.037	.015	-.066	.011
	Effective Discipline Policy		.059	.027	.065	.030
	Excessive Work Demands		.080	.022	.089	.000
	Goal Congruence		.172	.034	.167	.000
	Participative Decision Making	.678	.103	.036	.112	.005
	Professional Interaction		.300	.020	.402	.000
	Role Clarity		.141	.035	.132	.000
	Student Orientation		.227	.040	.173	.000
	Supportive Leadership		.097	.027	.144	.000
School Distress	Neuroticism		.035	.015	.054	.017
	Openness To Experience		.067	.018	.082	.000
	Effective Discipline Policy		-.068	.034	-.056	.045
	Excessive Work Demands	.674	.614	.030	.502	.000
	Goal Congruence		-.144	.035	-.102	.000
	Participative Decision Making		-.167	.045	-.133	.000
	Supportive Leadership		-.224	.035	-.243	.000

Table 7.28 Organisational Climate and PWB Predicting Individual and Organisational well-being

DV	IV	R^2	Estimate	S.E.	Std Coeff	*p*
Positive Affect	Autonomy		.476	.227	.061	.035
	EGPS		3.103	.222	.436	.000
	Curriculum Coordination		-.401	.135	-.110	.003
	Effective Discipline Policy	.474	-.286	.071	-.154	.000
	Goal Congruence		.295	.086	.163	.000
	Professional Interaction		.386	.056	.279	.000
	Student Orientation		.442	.110	.165	.000
Negative Affect	Autonomy		-1.517	.254	-.183	.000
	Positive Relations		-2.224	.268	-.286	.000
	Appraisal and Recognition		.342	.061	.261	.000
	Curriculum Coordination		.628	.157	.163	.000
	Effective Discipline Policy	.309	-.196	.080	-.100	.014
	Excessive Work Demands		.211	.070	.108	.003
	Professional Interaction		-.274	.064	-.187	.000
	Role Clarity		-.478	.095	-.205	.000
	Supportive Leadership		-.240	.071	-.176	.000
School Morale	EGPS		-.229	.083	-.057	.006
	Excessive Work Demands		.084	.022	.080	.000
	Goal Congruence		.206	.032	.201	.000
	Participative Decision Making	.756	.110	.036	.111	.002
	Professional Interaction		.316	.021	.404	.000
	Role Clarity		.111	.034	.089	.001
	Student Orientation		.238	.043	.157	.000
	Supportive Leadership		.098	.026	.134	.000
School Distress	Positive Relations		-.341	.110	-.068	.002
	Excessive Work Demands		.621	.030	.496	.000
	Goal Congruence	.679	-.181	.034	-.147	.000
	Participative Decision Making		-.183	.046	-.154	.000
	Supportive Leadership		-.229	.036	-.261	.000

Table 7.29 Organisational Climate, Personality and PWB predicting Individual and Organisational well-being

DV	IV	R^2	Estimate	S.E.	Std Coeff	*p*
Positive Affect	Extraversion	.458	.129	.037	.115	.000
	Conscientiousness		.200	.036	.189	.000
	Curriculum Coordination		-.423	.134	-.115	.002
	Effective Discipline Policy		-.304	.069	-.161	.000
	Goal Congruence		.277	.084	.142	.000
	Student Orientation		.544	.093	.212	.000
	EGPS		2.272	.252	.326	.000
	Professional Interaction		.333	.055	.231	.000
Negative Affect	Neuroticism	.474	.568	.038	.532	.000
	Openness To Experience		.158	.034	.121	.000
	Agreeableness		-.249	.044	-.172	.000
	EGPS		1.089	.250	.140	.000
	PR		-.954	.253	-.122	.000
	Appraisal and Recognition		.287	.055	.206	.000
	Excessive Work Demands		.179	.062	.091	.004
	Professional Growth		.277	.084	-.096	.000
	Supportive Leadership		-.171	.060	-.116	.004
School Morale	Excessive Work Demands	.692	.088	.022	.095	.000
	Goal Congruence		.198	.032	.194	.000
	Participative Decision Making		.112	.036	.119	.002
	Professional Interaction		.313	.021	.414	.000
	Role Clarity		.129	.029	.117	.000
	Student Orientation		.234	.038	.174	.000
	Supportive Leadership		.100	.026	.144	.000
	EGPS		-.241	.083	-.066	.004
School Distress	Excessive Work Demands	.664	.622	.030	.509	.000
	Goal Congruence		-.187	.034	-.138	.000
	Supportive Leadership		-.222	.035	-.243	.000
	Participative Decision Making		-.188	.045	-.151	.000
	PR		-.334	.111	-.068	.003

Testing the combined effects of PWB, personality and organisational climate on both individual and organisational well-being (Table 7.29) explained a significant amount of variance in individual and organisational well-being. However, the amount of variance was less in comparison to the models that included organisational climate factors with either PWB or personality on all well-being outcomes except for Negative Affect. The most significant findings replicated findings from earlier in this thesis where EGPS was significantly related to Positive Affect, Positive Relations and Neuroticism to Negative Affect, and Excessive Work Demands to School Distress. As with previous findings, the direction of the estimate for Curriculum Co-

ordination on Positive Affect was contrary to its bi-variate correlations. Also, EGPS became positively associated with Negative Affect which was also evident in the model that tested the effects of both personality and PWB. Furthermore, the association between EGPS and School Morale was negative despite a significant positive bi-variate correlation. As previously stated the causes of this relationship, which on preliminary investigation appears to be related to personality, will be investigated further in Chapter 8.

Table 7.30 Model Fit Summary of PWB, personality and organisational climate variables predicting individual and organisational well-being

	CMIN	DF	GFI	AGFI	CFI	RMSEA	AIC
Personality	22.918	12*	.993	.972	.994	.037 (.012 - .059)	88.918
PWB	5.785	5	.998	.986	.999	.015 (.000 - .057)	51.785
Organisational Climate	31.233	21	.993	.967	.998	.027 (000 - .045)	199.233
PWB and Personality	39.554	21**	.990	.965	.994	.036 (.018 - .053)	153.554
Organisational Climate and Personality	528.613	61***	.939	.810	.944	.106 (.098 - .115)***	786.613
Organisational Climate and PWB	74.556	39***	.987	.951	.995	.037 (.024 - .049)	302.556
Organisational Climate, Personality and PWB	508.448	72***	.945	.805	.956	.095 (.087 - .102)***	870.448

*** Chi Square is significant at the 0.001 level, ** Chi Square is significant at the 0.01 level, * Chi Square is significant at the 0.05 level

All the above regression analyses were tested for GFI (Table 7.30). Model fit for all models were mostly all within acceptable ranges, exceptions were for those factor that included organisational climate and Personality. Higher RMSEA, and AIC scores suggest that these models do not necessarily describe the best fit of the data.

Summary 7.6

Following the analyses in the previous sections it is clear that the organisational climate variables contribute more to SWB than the JDCS variables. It seems that individual characteristics are more related to individual well-being whilst organisational climate is more strongly related to organisational well-being. That is, here is little cross-over of individual well-being being influenced by organizational climate or organizational well-being being influenced by individual variables.

Key Question 7.7 Individual Characteristics predict Organisational Climate:

One question that must be considered is the extent to which perceptions of organisational climate are related to an employee's personality or PWB. It may be that employees high in Neuroticism are more likely to under report positive climate, and over report demands and distress in the workplace. Therefore, a path analysis was tested in AMOS to determine whether employee's personality and PWB predict organisational climate (Table 7.31). Results indicate a number of significant associations, with Agreeableness and Neuroticism positively related to Negative Organisational Climate, whilst Positive Relations is negatively related. Although Neuroticism would quite naturally be expected to be related to negative perceptions of the environment, the amount of explained variance in Negative Organisational Climate indicates that individual characteristics explain only marginal variance, rather it would seem that factors within the organisation itself best predicts perceptions of negative climate.

In contrast, considerable variance of Positive Organisational Climate was significantly related to individual characteristics, but still there was more unexplained variance. Neuroticism was negatively related to perceived Positive Organisational Climate, whilst Agreeableness was positively related. GFI revealed excellent fit indices.

Table 7.31 Individual Characteristics predict Negative and Positive Organisational Climate

DV	IV	B	S.E.	Beta	*p*
Negative Organisational Climate (R^2 = .049)	Agreeableness	.026	.008	.145	.001
	Positive Relations	-.140	.038	-.139	.000
	Neuroticism	.020	.006	.150	.002
Positive Organisational Climate (R^2 = .294)	Neuroticism	-.031	.006	-.222	.000
	Agreeableness	.026	.007	.137	.000
	Conscientiousness	.017	.006	.102	.005
	Positive Affect	.043	.005	.297	.000
	Autonomy	-.193	.037	-.171	.000
X^2 = 6.554, DF = 4, *p* = .161; GFI = .998; AGFI = .978; CFI = .998; RMSEA = .031 (.000 - .071)					

Summary 7.7

Clearly, cross-sectional analyses do not provide strong support for a 'reverse-causation' hypothesis whereby individual characteristics predict organisational climate, although such conclusion is stronger for Negative Organisational Climate. Around 30% of Positive Organisational Climate could be accounted by individual characteristics. Rather results from Section 4 demonstrate significant effects of both individual and organisational characteristics on individual and organisational well-being. Whilst cross-domain effects (e.g. organisational climate predicting employee well-being) were reported, primarily, stronger effects are found within domains (e.g. organisational climate predicting organisational well-being).

CHAPTER 8

RESULTS

Predicting Change in SWB: Assessing the effects of Individual and Environmental factors on change in employee SWB across two waves

An area of further interest lies in the potential to extend these analyses across time. Two teacher cohorts (n = 503) were available for assessment 4-6 months after the first wave. However, only 51.3% responded (n = 238) and may inhibit any conclusions to be drawn since this constituted only 38% of the original wave 1 data comprising all three cohorts.

Data imputation

Since two of the teacher samples were able to provide data on two occasions, it was decided to test the relationship between JDCS variables and SWB over time. The question then was to determine whether it was worth considering imputing missing data for participants in the cohort that was not available for the second wave, or at the very least, to impute missing data for those participants in the two cohorts that were available for the two waves, but did not respond and classified as non-respondents. Imputation of missing data, is increasingly promoted (e.g. Rubin, 1996; Schafer, 1997) as a viable method when participants are classified as either 'Missing Completely at Random' or 'Missing at Random'. 'Missing Not Completely at Random' often relates to some effect of the outcome variable that precludes the participant from not participating in follow-up waves. In gerontological studies of mortality for instance, participants may drop out because of disease that subsequently leads to death. Their 'missingness' can have tremendous impact on subsequent analyses. However, in the studies being undertaken, it was not assumed that SWB would be related to drop-out rate. This assumption was tested using binary Logistic Regression and Chi-Square analysis to determine whether Respondent and Non-Respondent status were related to any of the predictor or outcome variables.

Key Question 8.1 Identifying significant differences between respondents and non-respondents at wave 2 on wave 1 demographic, personality, organisational climate, PWB and SWB variables.

Chi Square analyses of categorical variables revealed no statistically significant differences in response status. Significant associations with Response status at time 2 were found with cohort (dummy coded) and Openness to Experience (Table 8.1).

Table 8.1 Summary Table of Significant Correlations with Response status at Wave 2

	Wave 2 Respondent	Australian Cohort	Openness To Experience
Wave 2 Respondent	1		
Australian Cohort	-.110(*)	1	
Openness To Experience	-.096(*)	.087(*)	1

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

Table 8.2 Effect of Cohort and Openness to Experience after controlling for other variables

					95.0% C.I.for EXP(B)	
	B	S.E.	*p*	Exp(B)	Lower	Upper
Australian Cohort	.194	.223	.383	1.214	.785	1.879
Openness To Experience	.030	.019	.107	1.030	.994	1.069
Male	.346	.200	.083	1.414	.955	2.093
Positive Affect	-.011	.019	.546	.989	.952	1.026
Negative Affect	-.006	.018	.756	.994	.960	1.030
Extraversion	-.014	.020	.492	.986	.948	1.026
Neuroticism	.016	.024	.520	1.016	.968	1.066
Agreeableness	.009	.024	.707	1.009	.962	1.058
Conscientiousness	-.051	.023	.027	.951	.909	.994
Negative Organisational Climate	.103	.128	.421	1.108	.863	1.424
Positive Organisational Climate	.102	.134	.449	1.107	.851	1.439
EGPS	.307	.164	.062	1.359	.985	1.875
Positive Relations	-.021	.126	.870	.980	.765	1.254
Autonomy	.123	.135	.362	1.131	.868	1.475

Clearly, the strength of the relationship is weak at best. Logistic Regression analyses tested revealed that these associations were no longer to related respondent status at wave two after controlling for the other variables (Table 8.2). A small effect for Conscientiousness was now reported, but reflects a suppression effect

There appeared to be little difference in either the predictor or outcome variables at wave 1 that were related to participant response status at wave 2 and so the imputation of missing data was considered. However, after deliberation with the principal supervisor, it was decided not to include such procedures in the final results section of the thesis since the use of such methodologies are still relatively new practices in applied psychological fields compared to gerontological and economic models. Discussion between the author and supervisor concluded that their questionable inclusion might detract from other important analyses and therefore alternative methods of capturing change in SWB across two waves were considered.

Analysis of Change

With the collection of a second set of data for two of the teacher samples, the analysis of change in the dependent variables has become another focus for this thesis. It would be possible to investigate the effects of the factors and covariates at two moments in time, and, in addition, to assess their time-variant impact on the dependent variables,

Typically, the organisational psychology literature has employed multiple regression analyses whereby Wave 2 outcomes are regressed on Wave 1 predictors. Twisk (2003) has delineated a number of alternative ways in which to assess change for continuous and ordinal outcomes. In this case, continuous variables could be assessed using one of three methods. These include a difference score (T2 – T1), ANCOVA, and a standardised residual change score. The latter two have received more credence (Forbes & Carlin, 2005; Twisk & Proper, 2004) with preference to the ANCOVA approach. However, it is clear that the ANCOVA approach fails the assumption of independence of measures (Twisk & Proper, 2004).

The residual change score involves regressing Wave 2 outcomes on Wave 1 outcomes, and then standardising the residual difference between the predicted and

actual scores. Twisk (2003) suggested that such an approach is less sensitive to regression to the mean and unlike the ANCOVA approach, does not fail the assumption of independence of scores. However, as a measure of change, the use of a standardised residual as an outcome is slightly different from approaches that assess levels of an outcome at Wave 2.

Alternatively, longitudinal approaches attempt to delineate changes in slope and intercept. Generalized Estimating Equations (GEE) and Mixed Models approaches represent a whole new approach to studying change. GEE models allow for a relaxation of the assumptions required for repeated measure General Linear Model approaches. Assessing repeated measures with Mixed Models allows specification of random effects. However, both methods are limited with repeated measures when only two time measures are used, and prohibit the analysis of longitudinal change. For example, whilst Mixed Models can certainly model random intercept, two waves of data only, precludes the analysis of random slopes. However, benefits include the ability to handle missing data, if data can be assumed to missing at random. Although either of these options may provide attractive analysis of the data, their additional contribution may be of limited worth given the provision of only two waves of data.

For the purposes of this thesis, analyses will consider level of outcomes at Wave 2, but also the standardised residual change score as an indicator of change. This is an important issue to consider since it is quite possible that a predictor may be related to change in an outcome but not related to its level at either wave. In essence, level of or change in an outcome variable are two separate issues which are rarely confronted in the organisational psychology literature. However, it is not just the change in outcome variables that can be modelled. The same approach can be used with the predictor variables, so that an outcome can be regressed on the changes in a predictor.

Standardised residual scores were created for all variables to assess change in the well-being and organisational variables. Using SPSS v.15, a residual variable was created by entering a Wave 1 variable as a predictor, and its Wave 2 equivalent as the dependent variable. SPSS computed a residualised score by subtracting the expected

Wave 2 score from the actual Wave 2 score, which were then standardised with a mean of zero and a standard deviation of 1.

Key Question 8.2: Testing the Use of a Standardized Residual Change Score using the JDCS variables

By incorporating two waves of data from the Australian and Norwegian samples, it was possible to assess whether levels of, and changes in, JDCS variables and their interactions, on two separate time occasions, predicted change in teacher well-being. Several significant associations between cohorts and demographics and the JDCS variables were reported (Table 8.3). However, none of the cohort or other demographic variables were significantly related to the well-being change variables.

Hierarchical regression analysed three models to test the direct effects of the JDCS variables and all possible JDCS interactions, on residual change in Positive and Negative Affect. Model 1 comprised Wave 1 JDCS variables (Table 8.4), Model 2 the Wave 2 JDCS variables (Table 8.5), and Model 3 the residual JDCS change scores (Table 8.6).

Table 8.3 Correlations between both well-being and demographic and the JDCS variables

	PA Residual Change	NA Residual Change	Gender	Age	Yrs. Of Exp.	Austra-lian cohort
SWB						
Positive Affect Residual Change	1					
Negative Affect Residual Change	**-.255****	1				
Demographics						
Gender	-.074	.095	1			
Age	-.019	-.022	-.101	1		
Years of Experience	-.049	-.076	**-.239****	**.699****	1	
Australian Cohort	.019	-.120	**-.131***	**-.416****	-.108	1
Norwegian Cohort	-.019	.120	**.131***	**.416****	.108	-
Wave 1						
Demands	-.116	**.217****	.052	-.062	.082	**.196****
Control	**.144****	-.027	.122	.098	-.072	**-.364****
Support	**.127****	-.031	**.167****	.095	-.083	**-.276****
Wave 2						
Demands	-.116	**.340****	.028	.094	.066	-.081
Control	**.399****	**-.311****	.016	-.066	-.036	.028
Support	**.407****	**-.329****	.093	-.071	-.030	-.056
Residual Changes						
Support	**.390****	**-.348****	.025	-.122	.006	.066
Control	**.373****	**-.318****	-.022	-.100	-.015	**.143***
Demands	-.074	**.274****	.007	**.132***	.035	**-.180****
Wave 1 Interactions						
Demands*Control	-.115	.085	-.119	-.065	.070	.080
Demands*Support	**-.134***	.097	-.027	-.066	.039	-.006
Control*Support	.098	-.065	**-.136***	.071	**.143***	**.146***
Demands*Control *Support	**-.128***	**.166****	.109	.062	.076	.108
Wave 2 Interactions						
Demands*Control	.029	-.032	.014	-.043	.015	**.128***
Demands*Support	-.022	-.005	.015	-.110	-.038	**.130***
Control*Support	-.115	**.262****	-.025	.114	-.009	**-.268****
Demands*Control*Support	-.014	**.216****	.004	.060	-.005	-.072

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

Table 8.4 Wave 1 JDCS variables on PA and NA residual change

	Model 1 ($adjR^2$ = .000)				Model 2 ($adjR^2$ = .016)				Model 3 ($adjR^2$ = .020)			
Positive Affect	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*
Gender	-.525	.375	-.091	.163	-.511	.379	-.089	.179	-.467	.384	-.081	.225
Age	.176	.323	.054	.587	.122	.323	.038	.706	.076	.330	.024	.817
Experience	-.306	.266	-.107	.251	-.200	.267	-.070	.456	-.197	.271	-.069	.468
Norwegian Cohort	-.100	.410	-.018	.806	-.499	.433	-.088	.250	-.354	.443	-.062	.425
Demands					-.249	.212	-.079	.241	-.092	.271	-.029	.733
Control					.503	.371	.168	.176	.433	.379	.145	.254
Support					-.039	.342	-.014	.910	-.028	.345	-.010	.936
Demands*Control									-.084	.399	-.026	.833
Demands*Support									-.238	.385	-.072	.537
Control*Support									.229	.197	.081	.247

	Model 1 ($adjR^2$ = .011)				Model 2 ($adjR^2$ = .066				Model 3 ($adjR^2$ = .068)			
Negative Affect	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*
Gender	.336	.354	.062	.343	.155	.351	.028	.660	.162	.356	.030	.650
Age	-.102	.305	-.033	.737	-.016	.299	-.005	.957	.000	.306	.000	1.000
Experience	-.143	.251	-.053	.568	-.298	.247	-.110	.229	-.354	.251	-.130	.160
Norwegian Cohort	.706	.386	.131	.069	1.064	.401	.198	.009	1.055	.411	.196	.011
Demands					.779	.196	.260	.000	.659	.251	.220	.009
Control					-.291	.343	-.102	.398	-.161	.351	-.057	.648
Support					.198	.316	.076	.532	.249	.320	.095	.437
Demands*Control									.361	.370	.116	.329
Demands*Support									.088	.357	.028	.804
Control*Support									.161	.183	.060	.381

Table 8.5 Wave 2 JDCS variables on PA and NA residual change

	Model 1 ($adjR^2$ = -.004)				Model 2 ($adjR^2$ = .178)				Model 3 ($adjR^2$ = .253)			
Positive Affect	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*
Gender	-.525	.375	-.091	.163	-.685	.342	-.119	.046	-.679	.327	-.118	.039
Age	.176	.323	.054	.587	.389	.295	.120	.188	.263	.284	.081	.355
Experience	-.306	.266	-.107	.251	-.408	.242	-.143	.092	-.333	.232	-.116	.151
Norwegian Cohort	-.100	.410	-.018	.806	-.289	.376	-.051	.442	-.075	.373	-.013	.841
Demands					.291	.097	.289	.003	.222	.093	.220	.018
Control					.284	.149	.181	.058	.570	.156	.363	.000
Support					.043	.095	.027	.653	-.201	.107	-.127	.063
Demands*Control									.079	.061	.182	.200
Demands*Support									-.089	.047	-.251	.058
Control*Support									-.038	.019	-.159	.042

	Model 1 ($adjR^2$ = .011)				Model 2 ($adjR^2$ = .187)				Model 3 ($adjR^2$ = .220)			
Negative Affect	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*
Gender	.336	.354	.062	.343	.405	.323	.074	.212	.455	.318	.083	.153
Age	-.102	.305	-.033	.737	-.293	.279	-.095	.295	-.266	.276	-.086	.336
Experience	-.143	.251	-.053	.568	-.092	.229	-.034	.688	-.083	.225	-.030	.713
Norwegian Cohort	.706	.386	.131	.069	.782	.355	.145	.029	.483	.362	.090	.184
Demands					.382	.090	.254	.000	.430	.104	.286	.000
Control					-.066	.141	-.044	.641	-.168	.151	-.113	.268
Support					-.234	.091	-.244	.011	-.183	.091	-.190	.045
Demands*Control									.031	.060	.076	.600
Demands*Support									.031	.045	.091	.501
Control*Support									.064	.018	.284	.000

Table 8.6 Residual JDCS variables on PA and NA

	Model 1 ($adjR^2$ = .000)				Model 2 ($adjR^2$ = .165)				Model 3 ($adjR^2$ = .225)			
Positive Affect	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*
Gender	-.525	.375	-.091	.163	-.592	.343	-.103	.086	-.566	.332	-.099	.090
Age	.176	.323	.054	.587	.464	.301	.143	.124	.426	.290	.131	.144
Experience	-.306	.266	-.107	.251	-.496	.246	-.173	.045	-.438	.238	-.153	.067
Norwegian Cohort	-.100	.410	-.018	.806	-.055	.381	-.010	.885	.224	.377	.040	.554
Demands					.322	.101	.289	.002	.241	.099	.217	.015
Control					.282	.149	.172	.059	.510	.156	.310	.001
Support					.072	.105	.041	.495	-.141	.125	-.081	.259
Demands*Control									-.032	.057	-.070	.578
Demands*Support									-.065	.023	-.220	.005
Control*Support									-.002	.070	-.004	.977

	Model 1 ($adjR^2$ = .011)				Model 2 ($adjR^2$ = .160)				Model 3 ($adjR^2$ = .187)			
Negative Affect	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*	B	Std. Error	Beta	*p*
Gender	.336	.354	.062	.343	.415	.327	.076	.206	.449	.324	.082	.166
Age	-.102	.305	-.033	.737	-.406	.287	-.132	.158	-.396	.282	-.128	.162
Experience	-.143	.251	-.053	.568	.045	.234	.017	.846	.029	.232	.011	.900
Norwegian Cohort	.706	.386	.131	.069	.560	.363	.104	.124	.331	.367	.061	.369
Demands					.307	.100	.185	.002	.308	.121	.186	.012
Control					-.084	.142	-.054	.556	-.162	.152	-.104	.289
Support					-.285	.096	-.270	.003	-.228	.096	-.215	.019
Demands*Control									-.003	.055	-.007	.955
Demands*Support									.069	.022	.249	.002
Control*Support									.085	.068	.177	.216

Separate effects for the JDCS variables on well-being were found, and the patterns of findings were consistent between models, where support was negatively related to NA, where demand was positively related to NA, and both control and support were positively related to PA. No direct effect of demands on PA were noted. Interaction effects contributed little to the overall explained variance. As with analyses reported earlier in this thesis, on the whole teacher sample at Wave 1, Support was not reported as a significant predictor of either Positive or Negative Affect, despite a significant bivariate correlation. This was attributed to the significantly high correlation with Control. However, the analysis with this sub-population indicates that Support does have a main effect on change in both Positive and Negative.

Table 8.7 Assessing Goodness of Fit Indices (GFI) with the variables identified as significant predictors of residual change in PA and NA

Model	Cmin	Df	*p*	GFI	AGFI	CFI	RMSEA
1	1.904	2	.386	.996	.982	1.000	.000 (.000 - .122)
2	4.230	2	.121	.994	.951	.994	.066 (.000- .155)
3	1.473	2	.479	.998	.983	1.000	.000 (.000 - .113)
2a	.784	2	.676	.999	.991	1.000	.000 (.000 - .094)
3a	7.606	2	.022	.988	.913	.983	.104 (.034 - .188)
2b	4.154	1	.042	.994	.904	.992	.111 (.018 - .230)
3b	2.434	3	.487	.996	.981	1.000	.000 (.000 – 097)
2c	10.762	4	.029	.988	.919	.990	.081 (.023 - .141)

Model 1: predictors = Wave 1 Demand, Control, Support variables; Model 2: predictors = Wave 2 Demand, Control, Support variables; Model 3: predictors = Residual Demand, Control, Support variables; Model 2a: predictors = Wave 2 Demand variable, with Wave 2 Control and Support variables as mediators; Model 3a: predictors = Residual Demand variable, with Residual Control and Support variables as mediators; Model 2b: predictors = Wave 2 Control and Support variables, with Demand variable as mediator; Model 3b: predictors = Residual Control and Support variables with Demand residual variable as mediator; Model 2c: Model 2 with Wave 2 JDCS interactions. Significant covariance paths and correlated error terms were included in all models.

A number of models were tested for Goodness of Fit Indices (GFI) using AMOS v.7 (Table 8.7). Models 1 – 3 tested the main effects of the JDCS variables. Additional models tested mediation effects with Wave 2 JDCS variables (Model 2a and 2b), and the residual JDCS variables (Models 3a and 3b). Models 2a and 3a tested whether support and control mediate the direct effect of demands on well-being. Model 2a reported better fit than Model 3a and is depicted in Figure 8.1. Sobel tests revealed a partial mediation of demands where support mediated its effect on NA. Models 2b and 3b, tested an alternative mediating relationship, whereby perceived demands mediated the direct effect of support and control on well-being. Sobel tests supported partial mediation effects on NA only. Acceptable GFI of Model 3b were also reported, but, as with Model 1, the amount of well-being variance explained was less than a similar fitting model (Model 2a). Model 2c extended Model 2 to test the buffer hypothesis with the inclusion of the interactions reported earlier, but GFI were less acceptable than the main-effects-only model.

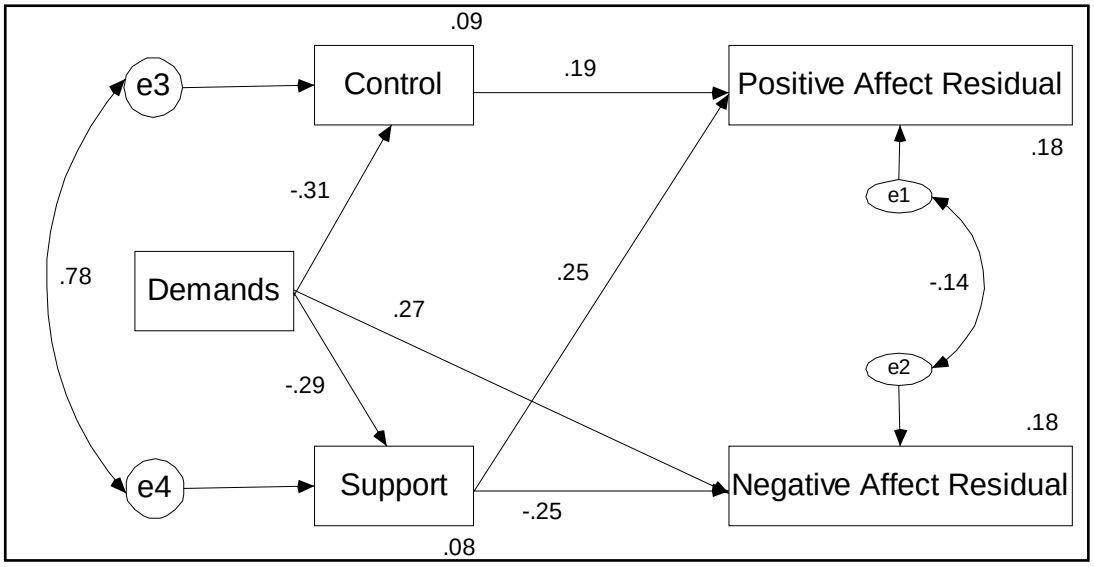

Figure 8.1 The Structural Model of mediation model 2a

Summary 8.2

As with the cross-sectional analyses at wave 1, reported earlier, variables other than the JDCS variables contribute to change in well-being. It is recognised these organisational characteristics do influence changes in employee well-being and therefore analyses will be extended to include climate measures as with the cross-sectional analyses.

Key Question 8.3: Predicting Change in Employee Subjective Well-Being using a Measure of Organisational Climate

A number of bivariate associations were reported between residual change in SWB and wave 1, wave 2 and residual change predictor variable scores (Table 8.8). Generalized Linear Model (GZLM) Analyses tested these associations by testing the effects of wave 1, wave 2 and residual change scores independently. A significant strength to the GZLM approach is that it does not assume normally distributed dependent or independent variables, linearity between the predictors and the dependent variable, nor homogeneity of variance for the range of the dependent variable.

Three models tested these independent effects on Residual Change in Positive Affect (Table 8.9) and Negative Affect (Table 8.10). Model 1 included all demographic and teacher variables, personality, PWB, and organisational climate variables using Wave 1 variables. Model 2 tested the same variables, but using wave 2 scores. The third model included residual change predictor scores. The effects on residual change on Positive Affect were quite interesting. As with analyses reported throughout this chapter, a combination of personality, organisational climate and PWB variables appear related to change in Positive Affect. However, there were differences in the variables identified in the different models. Two wave 1 effects were evident. Extraversion reported a positive association, whilst Negative Organisational Climate reported a negative association with residual change in Positive Affect. These associations were not reported in subsequent models. Four wave 2 effects were reported, with all PWB variables and Positive Organisational Climate related to increased changes in residual Positive Affect. These associations were mirrored for the third model which comprised the residual change predictor scores, except no effect for EGPS was reported.

In relation to Negative Affect, Negative Organisational Climate was consistently related to residual change in Negative Affect. In addition, there were two positive effects for the Norwegian cohort and Openness to Experience in model 1, but these were not reported for the additional models. Wave 2 and residual change in Neuroticism was revealed as a significant positive effect in both models 2 and 3, and

residual change in Positive Organisational Climate was associated with a decrease in residual change in Negative Affect.

Table 8.8 Bivariate Correlations between Wave 1 Wave 2 and residual change independent variables and SWB residual change

		Positive Affect Residual Change	Negative Affect Residual Change
	Positive Affect Residual Change	1	-.255(**)
	Negative Affect Residual Change	-.255(**)	1
Wave 1 Variables	Gender	-.074	.095
	Age	-.019	-.022
	Experience	-.049	-.076
	Australian Cohort	.019	-.120
	Norwegian Cohort	-.019	.120
	Extraversion	.279(**)	-.036
	Neuroticism	-.035	-.033
	Openness To Experience	.169(**)	.072
	Agreeableness	.039	.058
	Conscientiousness	.007	.055
	Negative Organisational Climate	-.233(**)	.165(**)
	Positive Organisational Climate	.022	.013
	EGPS	.183(**)	-.005
	PR	.103	.091
	A	-.011	-.022
Wave 2 Variables	Neuroticism	-.428(**)	.456(**)
	Extraversion	.399(**)	-.265(**)
	Openness To Experience	-.023	.030
	Conscientiousness	.213(**)	-.116
	Agreeableness	.262(**)	-.188(**)
	Positive Organisational Climate	.429(**)	-.426(**)
	Negative Organisational Climate	-.214(**)	.427(**)
	EGPS	.449(**)	-.368(**)
	PR	.445(**)	-.273(**)
	A	.205(**)	-.010
Residual Change Variables	Positive Organisational Climate	.456(**)	-.465(**)
	Negative Organisational Climate	-.154(*)	.401(**)
	EGPS	.412(**)	-.387(**)
	A	.207(**)	-.008
	PR	.436(**)	-.325(**)
	Extraversion	.290(**)	-.302(**)
	Neuroticism	-.437(**)	.488(**)
	Openness To Experience	-.109	-.002
	Conscientiousness	.225(**)	-.145(*)
	Agreeableness	.259(**)	-.198(**)

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

Table 8.9 testing the Effects of Wave 1, Wave 2 and Residual Change Predictor Scores on Residual Change in Positive Affect

Model	Parameter	B	Std. Error	*p*	Exp (B)	95% Wald CI for Exp(B)		Log Likelihood	AIC
						Upper	Lower		
1	(Intercept)	-8.550	2.9674	.004	.000	.001	.065		
	Extraversion	.134	.0365	.000	1.143	1.064	1.228	-605.624	1251.247
	Negative Organisational Climate	-.902	.2132	.000	.406	.267	.617		
2	(Intercept)	4.030	4.6414	.385	56.245	.006	502185.155		
	Positive Organisational Climate	.734	.1884	.000	2.083	1.440	3.013		
	EGPS	.648	.2584	.012	1.912	1.152	3.173	-574.380	1188.760
	Positive Relations	.965	.2345	.000	2.625	1.658	4.156		
	Autonomy	.525	.1748	.003	1.690	1.200	2.380		
3	(Intercept)	-.301	.4994	.546	.740	.278	1.969		
	Positive Organisational Climate	.889	.1963	.000	2.434	1.657	3.576		
	Autonomy	.532	.1690	.002	1.702	1.222	2.371	-570.533	1181.065
	Positive Relations	.902	.2101	.000	2.466	1.633	3.722		

Model 1 – Wave 1 Predictors; Model 2 – Wave 2 Predictors; Model 3 – Residual Change Predictor Scores

Table 8.10 Testing the Effects of Wave 1, Wave 2 and Residual Change Predictor Scores on Residual Change in Negative Affect

Model	Parameter	B	Std. Error	*p*	Exp (B)	95% Wald CI for Exp(B) Upper	95% Wald CI for Exp(B) Lower	Log Likelihood	AIC
1									
	Norwegian Cohort	.866	.4243	.041	2.377	1.035	5.460	-604.253	1248.507
	Openness To Experience	.071	.0307	.022	1.073	1.010	1.140		
	Negative Organisational Climate	.842	.2121	.000	2.321	1.532	3.517		
2									
	Neuroticism	.297	.0795	.000	1.346	1.152	1.572	-566.034	1172.068
	Negative Organisational Climate	.586	.1614	.000	1.796	1.309	2.465		
3									
	Positive Organisational Climate	-.418	.1871	.026	.659	.456	.950	-558.242	1156.484
	Negative Organisational Climate	.568	.1621	.000	1.765	1.285	2.425		
	Neuroticism	.902	.2091	.000	2.465	1.636	3.713		

Model 1 – Wave 1 Predictors; Model 2 – Wave 2 Predictors; Model 3 – Residual Change Predictor Scores

Summary 8.3

Mostly, results of the GZLM mirrored those of earlier analyses into level and residual change in SWB. However, additional effects were found whereby Negative Organisational Climate was significantly negatively associated with residual change in Positive Affect. Change in Positive Relations was significantly associated with change in Positive Affect. In relation to changes in Negative Affect, increase in Positive Organisational Climate was associated with significant decreases in Negative Affect.

Key Question 8.4: Assessing the Effects of Level and Change in Predictors on Level of SWB

Generalised Estimating Equations (GEE)

In order to extend the standardised residual change scores, using a more powerful model of change, Generalized Estimating Equations (GEE) were used to analyse correlated outcome measures of Positive and Negative Affect at waves 1 and 2. As with the GZLM analyses, GEE models do not assume normally distributed dependent or independent variables, nor linearity between them, nor homogeneity of variance across the dependent variable (Hardin & Hilbe, 2003; Twisk, 2003). Also, this method is seen as a more appropriate technique than Repeated Measures ANOVA or ANCOVA procedures which assume independent measures. Four models were tested on Negative Affect (Table 8.11) and Positive (Table 8.12) separately.

Model 1 tested the effects of PWB, organisational climate and personality as time varying predictors. Model 2 tested the effects of PWB, organisational climate and personality as baseline predictors. Model 3 tested the effects of residual change scores in PWB, organisational climate and personality as predictors. As previously discussed, standardised residual change scores are more robust measures than difference scores (Twisk, 2003). Model 4 tested the combined effects of both baseline and residual change scores for PWB, personality and organisational climate. All models included baseline demographic variables such as gender, cohort and years of experience. In addition, a wave variable was entered to test whether there were

differences between waves. These GEE analyses provided mean population estimates (Hardin & Hilbe, 2003).

All analyses were undertaken using the same procedure. All effects were included in the first analysis, with non-significant effects removed one at a time, according to the size of their probability level. This procedure continued until the best fitting model was identified according to the Quasi Likelihood under Independence Model Criterion (QIC), a GFI that assumes that smaller indices indicate better fit.

In undertaking GEE analyses, a working correlation structure must be correctly specified. Whilst some have suggested that GEE is robust against the wrong choice of correlation structure (Zeger & Liang, 1986), others have demonstrated that different correlation structures can lead to erroneous conclusions (Twisk et al., 1997). Typical working correlation structures include an independent structure whereby correlations are assumed to be zero, an exchangeable structure in which correlations are assumed to be constant over time, and unstructured correlations where all correlations are assumed to be different (Hardin & Hilbe, 2003; Twisk, 2003). However, with only two waves of data, incorrect specification is less of an issue. Analyses did test different correlation structures, but reported very little difference. An exchangeable correlation structure with an identify link function (Twisk, 2003) identified significant effects in all four models, detailed in Tables 8.11 and 8.12.

Results from Table 8.11 and 8.12 include an exponential parameter estimate which in GEE analyses reflects an Odds Ratio and allows for a comparison of effects. All effects in Table 8.11 report a positive relationship with Negative Affect, except a decline in Agreeableness between waves was associated with a significant decline in Negative Affect.. In particular, across all models, is the effect for wave (wave 1) which suggests significant differences in reported Negative Affect between measurement occasions. Consistent effects were reported between the four models; clearly level and changes in Neuroticism, Negative Organisational Climate, and Openness to Experience are frequently identified as significantly related to level of Negative Affect. As with other analyses previously reported, there was an

unexpected positive relationship between EGPS and Negative Affect, despite a negative bivariate correlation between these two constructs.

Table 8.11 Summary of GEE analysis of Negative Affect including only significant effects

Model	Parameter	B	Std. Error	*p*	Exp(B)	95% Wald Confidence Interval for Exp(B)	
						Lower	Upper
1	Wave 1	3.558	.3662	.000	35.097	17.121	71.949
	Neuroticism Time Variant	.613	.0725	.000	1.845	1.601	2.127
	Openness to Experience Time Variant	.215	.0567	.000	1.240	1.110	1.386
	Negative Organisational Climate Time Variant	1.286	.2121	.000	3.617	2.387	5.481
	EGPS Time Variant	.812	.2868	.005	2.252	1.284	3.951
2	Wave 1	3.054	.4350	.000	21.199	9.037	49.729
	Neuroticism Baseline	.331	.0485	.000	1.393	1.266	1.531
	Openness To Experience Baseline	.168	.0363	.000	1.182	1.101	1.270
	Negative Organisational Climate Baseline	1.491	.1969	.000	4.444	3.021	6.537
3	Wave 1	3.054	.4350	.000	21.199	9.037	49.729
	Australian Cohort	1.706	.5304	.001	5.506	1.947	15.571
	Negative Organisational Climate Residual Change	1.082	.2331	.000	2.949	1.868	4.657
	Agreeableness Residual Change	-.629	.2452	.010	.533	.330	.862
4	Wave 1	3.054	.4350	.000	21.199	9.037	49.729
	EGPS Baseline	.605	.2782	.030	1.831	1.061	3.158
	Neuroticism Baseline	.352	.0478	.000	1.422	1.295	1.562
	Openness To Experience Baseline	.145	.0401	.000	1.156	1.068	1.250
	Negative Organisational Climate Baseline	1.174	.2155	.000	3.235	2.121	4.935
	Negative Organisational Climate Residual Change	.627	.1892	.001	1.871	1.291	2.712
	Neuroticism Residual Change	.806	.3407	.018	2.240	1.149	4.367

Model 1 = time varying predictors. Model 2 = baseline predictors. Model 3 = residual change score predictors. Model 4 = both baseline and residual change scores predictors. All models included baseline demographic variables and a wave variable.

Table 8.12 Summary of GEE analysis of Positive Affect including only significant effects

Model	Parameter	B	Std. Error	*p*	Exp (B)	95% Wald CI for Exp(B)	
						Lower	Upper
1	Male	.944	.380	.013	2.571	1.221	5.410
	Middle Aged	1.778	.602	.003	5.918	1.820	19.242
	Wave 1	1.950	.345	.000	7.029	3.575	13.822
	Extraversion Time Variant	.192	.059	.001	1.211	1.080	1.359
	Conscientiousness Time Variant	.159	.061	.010	1.172	1.039	1.322
	Positive Organisational Climate Time Variant	.650	.228	.004	1.916	1.226	2.995
	EGPS Time Variant	1.199	.347	.001	3.318	1.682	6.545
2	Male	1.382	.405	.001	3.985	1.800	8.820
	Middle Aged	1.652	.604	.006	5.215	1.595	17.048
	Wave 1	1.890	.364	.000	6.619	3.246	13.499
	Extraversion Baseline	.159	.037	.000	1.173	1.091	1.261
	Positive Organisational Climate Baseline	.622	.234	.008	1.863	1.178	2.945
	EGPS Baseline	1.885	.319	.000	6.585	3.526	12.296
3	Wave 1	1.890	.364	.000	6.619	3.246	13.499
	Middle Aged	1.767	.658	.007	5.853	1.613	21.235
	Most Experienced	1.350	.561	.016	3.858	1.285	11.580
	Autonomy Residual Change	.472	.232	.042	1.603	1.016	2.528
	Neuroticism Residual Change	-1.080	.367	.003	.340	.164	.701
	Positive Relationships Residual Change	.797	.350	.023	2.219	1.117	4.410
4	Male	1.346	.380	.000	3.844	1.825	8.094
	Wave 1	1.890	.364	.000	6.619	3.246	13.499
	Middle Aged	1.738	.536	.001	5.687	1.991	16.247
	Positive Organisational Climate Baseline	.850	.212	.000	2.340	1.545	3.544
	EGPS Baseline	1.925	.291	.000	6.855	3.873	12.133
	Positive Relations Baseline	.490	.206	.017	1.633	1.090	2.446
	Positive Relations Residual Change	.797	.203	.000	2.219	1.490	3.304

Model 1 = time varying predictors. Model 2 = baseline predictors. Model 3 = residual change score predictors. Model 4 = both baseline and residual change scores predictors. All models included baseline demographic variables and a wave variable.

As with Negative Affect, many of the effects reported on Positive Affect were consistent whether the predictors were tested as level or change indices (Table 8.12). EGPS, Extraversion, Positive Organisational Climate and Positive Relations consistently reported positive associations on Positive Affect. Additional effects included effects for wave (wave 1), gender (male), age and years of experience. Unlike the cross-sectional analyses, with the oldest and most experienced as the reference group, significant differences were found with the third oldest/experienced group and not the youngest/least experienced. Residual changes in Autonomy and Neuroticism reported positive and negative associations, respectively, with Positive Affect.

Summary 8.4

Analysis of two waves of data using a GEE approach reported quite similar results to the preceding analyses of change, except instead of analyzing a residual change score, it used each individual's raw data from both waves. Clearly, level of EGPS, Extraversion and Positive Organisational Climate are the most important predictors of Positive Affect, although other demographic effects are reported, and Neuroticism and Negative Organisational Climate predict Negative Affect. Interestingly, Neuroticisim appears to be related to change in Positive Affect, but not level and supports the argument outlined in earlier chapters that stability of SWB and predictors of stability, may be more important issues that level of SWB.

Key Question 8.5

Mixed Models Analyses: Identifying within and between person variance across two waves

An alternative analytical process to the GEE procedure is a mixed or random coefficients model which includes the potential for including random intercepts and slopes. However, with only two time measurements, modelling a random slope is not possible. Although generally the same procedure as the GEE, the Mixed Models output in SPSS will generate an estimate of the between and within person variance, whereas GEE ignores this. In addition, using a Variance Components Covariance Structure for the repeated measures effects, SPSS will estimate the degree of random variation at both waves. Random effects were estimated using a Diagonal Covariance Structure.

As with the GEE analyses, misspecification of the covariance structures can alter the conclusions of any analyses undertaken. But so as not to detract from the main issues of this thesis by complicating the results with a discussion of issues that relate to Mixed Level analyses, especially with those related to using such procedures over only two waves, the Mixed Models that follow will simply rerun the analyses undertaken in the GEE section above, with the addition of a Random Effects component. This will allow additional verification of the relationship between predictors and the outcome variables over two measurement occasions, but will also report the degree of within and between person variance.

Table 8.13 Summary of Mixed Model analysis of Negative Affect with significant time variant effects

							95% CI	
Fixed Effects		Estimate	Std. Error	df	t	*p*	Lower Bound	Upper Bound
Wave 1		3.534	.343	252.035	10.298	.000	2.858	4.210
Least Experienced		1.284	.513	245.369	2.502	.013	.273	2.294
Moderate Experience		.772	.366	246.892	2.112	.036	.052	1.493
Neuroticism		.572	.046	468.187	12.481	.000	.482	.662
Openness to Experience		.126	.039	455.453	3.261	.001	.050	.202
Negative Organisational Climate		.863	.129	314.794	6.700	.000	.610	1.117
EGPS		.503	.189	417.807	2.668	.008	.132	.873
Random Effects								
Repeated Measures	Wave 1	26.121	2.480			.000		
	Wave 2	3.832	.843			.000		
Intercept	Subject	1.430	.775			.065		

As with the GEE analyses, four models were tested and included a model with time varying predictors (Table 8.13), a model with Baseline predictors (Table 8.14), a model with residual change scores (Table 8.15), and a model that comprised both baseline and residual change score predictors (Table 8.16). All models were tested using the Likelihood Ratio Test. The difference value between the – 2 log likelihood of the full model and smaller models follows an χ^2 distribution, and with the number of degrees of freedom being the difference in the number of parameters estimated in

the two models (Twisk, 2003). The smaller models were created by removing non-significant effects one at a time. The null hypothesis states that the smaller refined model fits the data as well as the full model and a non-significant χ^2 distribution would support this. Therefore the significant estimates reported in Tables 8.13 thru 8.20 reflect those estimates reported in the best fitting models, whilst both significant and non significant random effects estimates are provided.

Table 8.14 Summary of Mixed Model analysis of Negative Affect with significant baseline effects

							95% CI	
Fixed Effects		Estimate	Std. Error	df	t	*p*	Lower Bound	Upper Bound
Wave 1		3.054	.432	315.876	7.063	.000	2.203	3.905
Least Experienced		1.951	.601	306.427	3.246	.001	.768	3.134
Neuroticism		.143	.031	306.427	4.582	.000	.081	.204
Openness To Experience		.100	.029	306.427	3.424	.001	.042	.157
Negative Organisational Climate		1.069	.198	306.427	5.387	.000	.679	1.460
Random Effects								
Repeated Measures	Wave 1	40.090	3.859			.000		
	Wave 2	7.319	.701			.000		
Intercept	Subject	.[a]	.			.		

[a] parameter was redundant possibly due to a final Hessian matrix not being positive.

Table 8.15 Summary of Mixed Model analysis of Negative Affect with significant residual change effects

							95% CI	
Fixed Effects		Estimate	Std. Error	df	t	*p*	Lower Bound	Upper Bound
Wave 1		3.054	.436	257	7.006	.000	2.196	3.91
Positive Organisational Climate Residual Change		-.461	.163	245.000	-2.838	.005	-.781	-.141
Negative Organisational Climate Residual Change		.658	.160	245.000	4.120	.000	.343	.972
Neuroticism Residual Change		.916	.180	245.000	5.080	.000	.561	1.271
Random Effects								
Repeated Measures	Wave 1	49.933	4.258			.000		
	Wave 2	2.085	1.010			.039		
Intercept	Subject	2.788	1.021			.006		

Results of the fixed effects estimates generated in the Mixed Models approach mostly mirror those reported in the GEE analyses, though additional fixed effects are now reported. Years of Experience reports a significant effect on Negative Affect in all models, except in the model that tested the effect of residual changes in predictors. With the most experienced teachers as the reference group, the least experienced teachers reported higher levels of Negative Affect (Tables 8.13 - 8.15).

Table 8.16 Summary of Mixed Model analysis of Negative Affect with significant baseline and residual change effects

							95% CI	
Fixed Effects		Estimate	Std. Error	df	t	*p*	Lower Bound	Upper Bound
Wave 1		3.054	.436	257.000	7.006	.000	2.196	3.912
Least Experienced		1.658	.505	246.000	3.286	.001	.664	2.652
Neuroticism Baseline		.120	.026	246.000	4.648	.000	.069	.171
Openness To Experience Baseline		.071	.023	246.000	3.036	.003	.025	.116
Negative Organisational Climate Baseline		.555	.170	246.000	3.272	.001	.221	.890
Positive Organisational Climate Baseline		.355	.175	246.000	2.031	.043	.011	.698
Positive Relations Baseline		.514	.175	246.000	2.940	.004	.169	.858
Positive Organisational Climate Residual Change		-.329	.153	246.000	-2.148	.033	-.631	-.027
Negative Organisational Climate Residual Change		.649	.153	246.000	4.237	.000	.347	.951
Neuroticism Residual Change		.843	.153	246.000	5.493	.000	.541	1.145
Random Effects								
Repeated Measures	Wave 1	44.261	4.102			.000		
	Wave 2	4.757	1.326			.000		
Intercept	Subject	.085	1.52			.941		

It is with the residual change score model (Table 8.14) that a significant departure with the GEE analyses can be found. Unlike the findings of the GEE model (Table 8.9), the Mixed Model did not report a positive effect for cohort or a negative effect for Agreeableness, but did report the addition of a negative effect for Positive Organisational Climate and a positive effect for Neuroticism. These patterns are not unexpected, since analyses in section 4 relates Negative Affect with a negative association and Positive Organisational Climate, and a positive association with

Neuroticism. Additional effects for teaching experience were frequently reported, and a number of additional effects were found in the model that included both baseline and residual change predictor scores (Table 8.14). These included a negative residual change score effect for Positive Organisational Climate, and rather counter-intuitively, positive baseline effects for Positive Organisational Climate and Positive Relations.

The random effects estimates report significant between-persons variance at both wave 1 and wave 2, in all four models (Tables 8.13 – 8.16), although the amount of variance at wave 1 appears much greater than that reported in wave 2. This is demonstrated in the plot of each participant's Negative Affect scores across waves (Figure 8.2). Apart from the residual change score model, none of the subject random effects were significant, reflecting little within-person variation except when change in covariates were assessed.

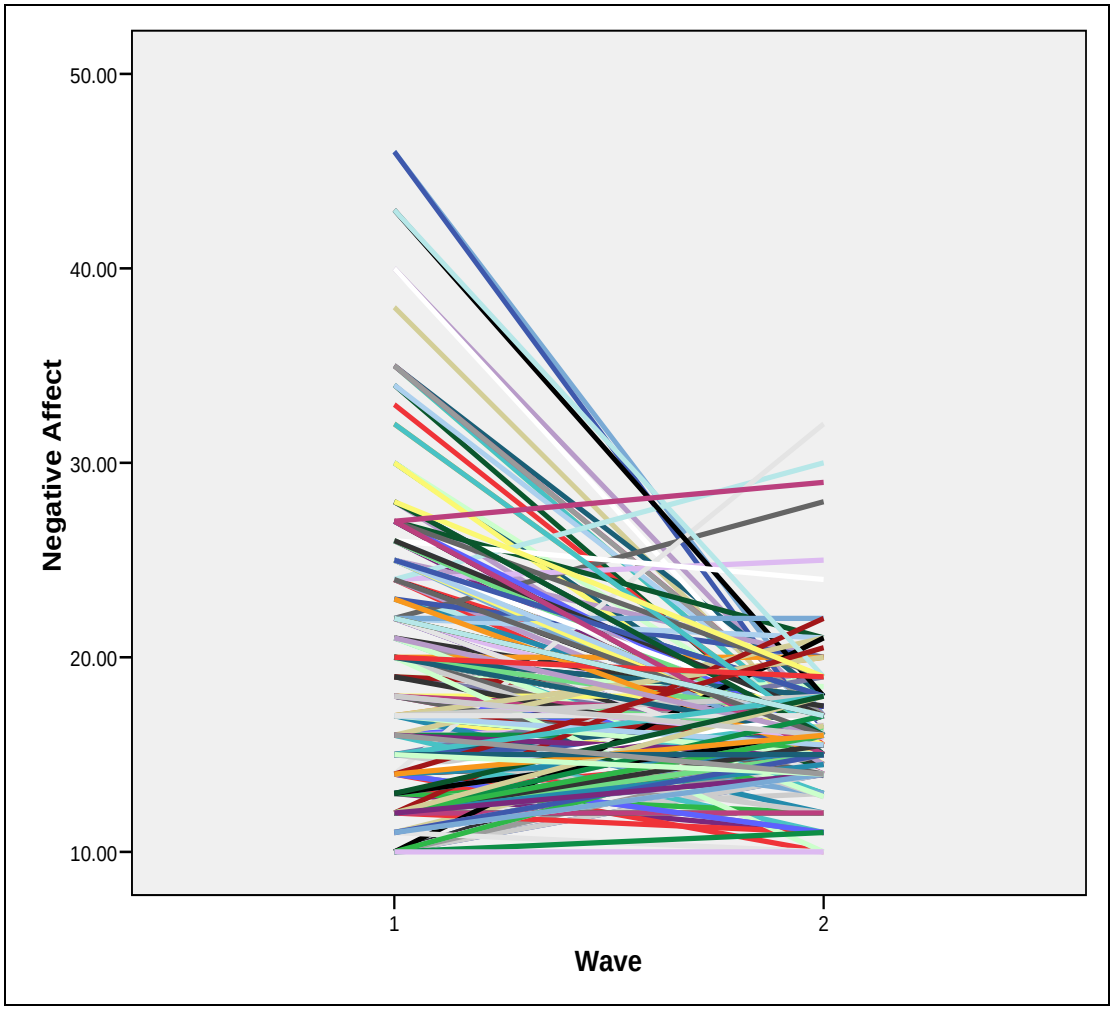

Figure 8.2 Negative Affect response scores for all participants across two waves

As with Negative Affect, the mixed models analyses of Positive Affect were very similar to the GEE analyses, both in the size of the unstandardised estimates, but also the reported effects in each of the models. However, there were some instances of effects not being reported. Age was not reported in the time variant (Table 8.17) or residual change score (Table 8.19) predictor models, and Experience was not reported in baseline (Table 8.18) or residual change score (Table 8.19) predictor models.

Table 8.17 Summary of Mixed Model analysis of Positive Affect with significant time variant effects

							95% CI	
Fixed Effects		Estimate	Std. Error	df	t	*p*	Lower Bound	Upper Bound
Wave 1		1.847	.328	257.454	5.633	.000	1.201	2.492
Male		.635	.312	249.143	2.032	.043	.020	1.250
Extraversion Time Variant		.136	.051	477.551	2.679	.008	.036	.236
Neuroticism Time Variant		-.120	.051	480.470	-2.348	.019	-.220	-.020
Conscientiousness Time Variant		.096	.047	491.600	2.033	.043	.003	.189
Positive Organisational Climate Time Variant		.541	.145	348.452	3.735	.000	.256	.825
EGPS Time Variant		.610	.208	409.350	2.927	.004	.200	1.020
PR Time Variant		.421	.196	406.720	2.150	.032	.036	.806
A Time Variant		.525	.169	309.545	3.115	.002	.194	.857
Random Effects								
Repeated Measures	Wave 1	23.128	2.235			.000		
	Wave 2	3.743	.902			.000		
Intercept	Subject	2.066	.823			.012		

Table 8.18 Summary of Mixed Model analysis of Positive Affect with significant baseline effects

							95% CI	
Fixed Effects		Estimate	Std. Error	df	t	*p*	Lower Bound	Upper Bound
Wave 1		1.890	.364	257.000	5.188	.000	1.173	2.607
Male		1.031	.332	250.000	3.106	.002	.377	1.684
Oldest		.991	.466	250.000	2.128	.034	.074	1.908
Extraversion Baseline		.161	.031	250.000	5.134	.000	.099	.223
Negative Organisational Climate Baseline		-.679	.178	250.000	-3.826	.000	-1.029	-.330
EGPS Baseline		1.489	.216	250.000	6.887	.000	1.063	1.915
Random Effects								
Repeated Measures	Wave 1	27.871	2.683			.000		
	Wave 2	6.371	1.212			.000		
Intercept	Subject	1.176	.994			.237		

Table 8.19 Summary of Mixed Model analysis of Positive Affect with significant residual change effects

							95% CI	
Fixed Effects		Estimate	Std. Error	df	t	*p*	Lower Bound	Upper Bound
Wave 1		1.890	.364	257.000	5.188	.000	1.173	2.607
Positive Organisational Climate Residual Change		.9762	.209	241.000	4.663	.000	.564	1.389
Positive Relations Residual Change		.987	.231	241.000	4.279	.000	.533	1.442
Autonomy Residual Change		.587	.186	241.000	3.164	.002	.222	.953
Neuroticism Residual Change		-.597	.200	241.000	-2.987	.003	-.991	-.204
Random Effects								
Repeated Measures	Wave 1	33.391	3.084			.000		
	Wave 2	.851	.917			.353		
Intercept	Subject	5.062	1.023			.000		

Table 8.20 Summary of Mixed Model analysis of Positive Affect with significant baseline and residual change effects

							95% CI	
Fixed Effects		Estimate	Std. Error	df	t	*p*	Lower Bound	Upper Bound
Wave 1		1.890	.364	257.000	5.188	.000	1.172	2.607
Male]		.891	.286	244.000	3.112	.002	.327	1.456
Oldest		.916	.397	244.000	2.309	.022	.135	1.700
Positive Organisational Climate Baseline		.441	.154	244.000	2.856	.005	.137	.745
EGPS Baseline		1.291	.192	244.000	6.723	.000	.912	1.669
Positive Organisational Climate Residual Change		.914	.163	244.000	5.602	.000	.593	1.236
Negative Organisational Climate Residual Change		.363	.155	244.000	2.336	.020	.057	.669
Positive Relations Residual Change		.856	.189	244.000	4.535	.000	.484	1.227
Autonomy Residual Change		.410	.165	244.000	2.482	.014	.084	.735
Random Effects								
Repeated Measures	Wave 1	28.827	2.719			.000		
	Wave 2	5.415	1.075			.000		
Intercept	Subject	.009	.875			.992		

In comparison to the GEE analyses, additional effects were reported. The time variant model (Table 8.17) included additional positive effects for Positive Relations and Autonomy, and a negative effect for Neuroticism. The baseline model (Table 8.18) did not report a positive effect for Positive Organisational Climate, but did report a negative effect for Negative Organisational Climate, whilst the residual change model (Table 8.19) included a positive effect for Positive Organisational Climate. Effects for Positive Organisational Climate and Autonomy were reported in

the baseline and residual change model (Table 8.20) whilst the positive effect for Positive Relations, reported in the GEE models, was not. Negative Organisational Climate reported a positive effect (Table 8.10) despite a non-significant bivariate correlation.

As with the random effects estimates reported for Negative Affect, estimates for Positive Affect report significant between-persons variance at both wave 1 and wave 2, in all four models, and again the amount of variance at wave 1 appears much greater than that reported in wave 2. Overall, the amount of variance at wave 1 for Positive Affect for the four models is less than that reported for Negative Affect. Within person variance was not significant for the baseline and combined baseline and residual change score models. These findings are demonstrated in the plot of each participant's Positive Affect scores across waves (Figure 8.3).

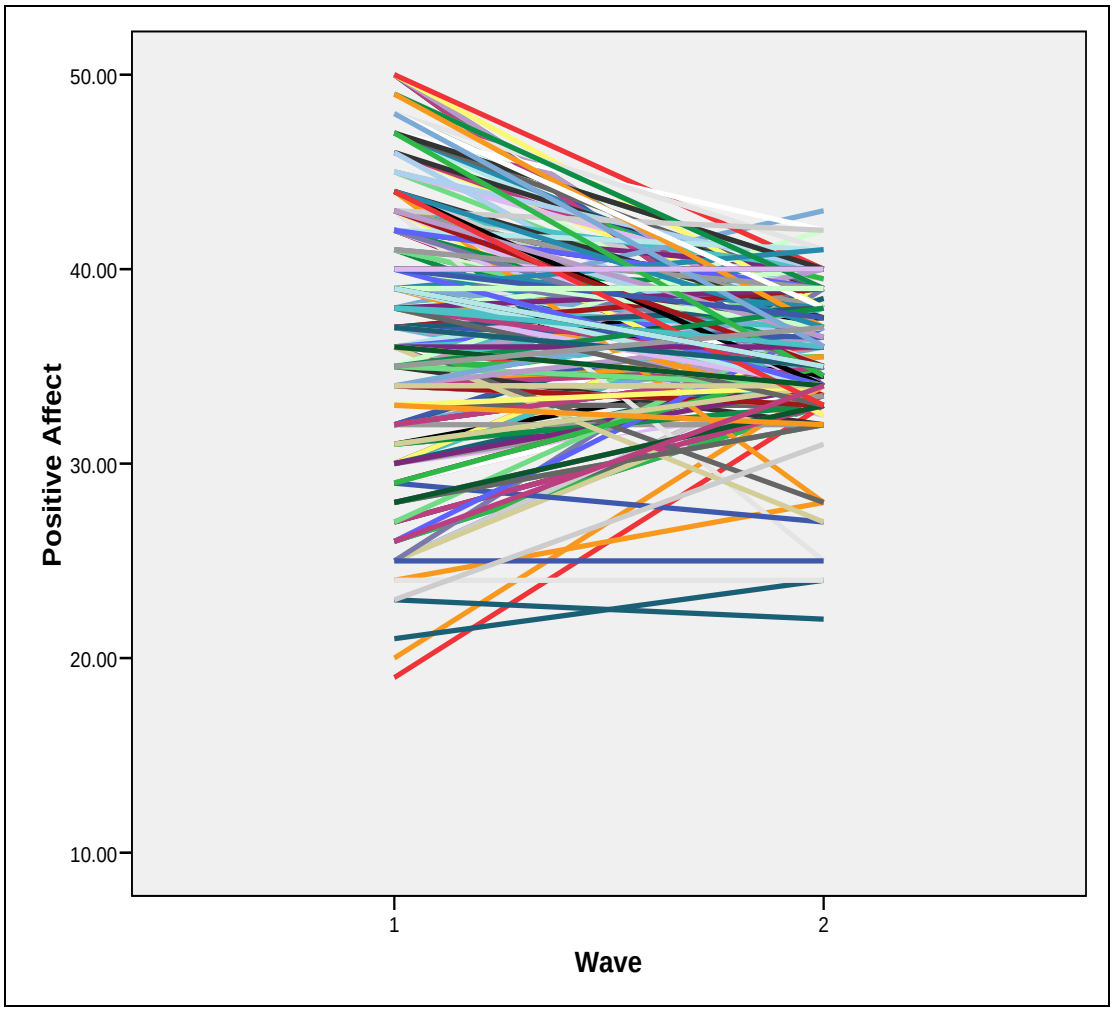

Figure 8.3 Positive Affect response for all participants across two waves

Summary 8.5

Considerable variance between participants was reported on Positive and Negative Affect at both waves 1 and 2, though this was greater in the first wave when there were more participants. Variance within-person across wave reveals that change is relatively consistent for all individuals.

Post-Hoc Analysis

EGPS Is Positively Associated with Negative Affect in the Organisational Climate Study

In the preliminary study (the life events study) and in bivariate analyses of the organisational climate study, a strong negative association between EGPS and Negative Affect was consistently reported. However, in subsequent regression analyses that included personality measures, this association was reported as a significant positive effect. Since EGPS comprises a significant component of PWB, a main focus of this thesis that is highly related to Positive Affect, this was a suppression effect that warranted further investigation. Since the positive association was reported when personality factors were included, an initial investigation ran partial correlations between EGPS and Negative Affect, partialing out each personality variable in turn. These analyses are shown in Table 8.21 for all participants at wave 1, and separately for those respondents who participated in wave 1 and wave 2.

Table 8.21 Correlations between EGPS controlling for Personality

	Negative Affect Wave 1*		Negative Affect Wave 1**		Negative Affect Wave 2	
	r	*p*	r	*p*	r	*p*
EGPS	-.237	.000	-.217	.000	-.375	.000
Controlling for						
Extraversion	-.164	.000	-.137	.028	-.292	.000
Neuroticism	**.176**	**.000**	**.164**	**.009**	**-.006**	**.927**
Openness to Experience	-.273	.000	-.265	.000	-.382	.000
Conscientiousness	-.081	.035	**-.084**	**.181**	-.361	.000
Agreeableness	**-.068**	**.075**	-.101	.104	-.343	.000

* Wave 1 data includes data from all three teacher cohorts. ** Wave 1 data includes data for respondents who participated in both waves.

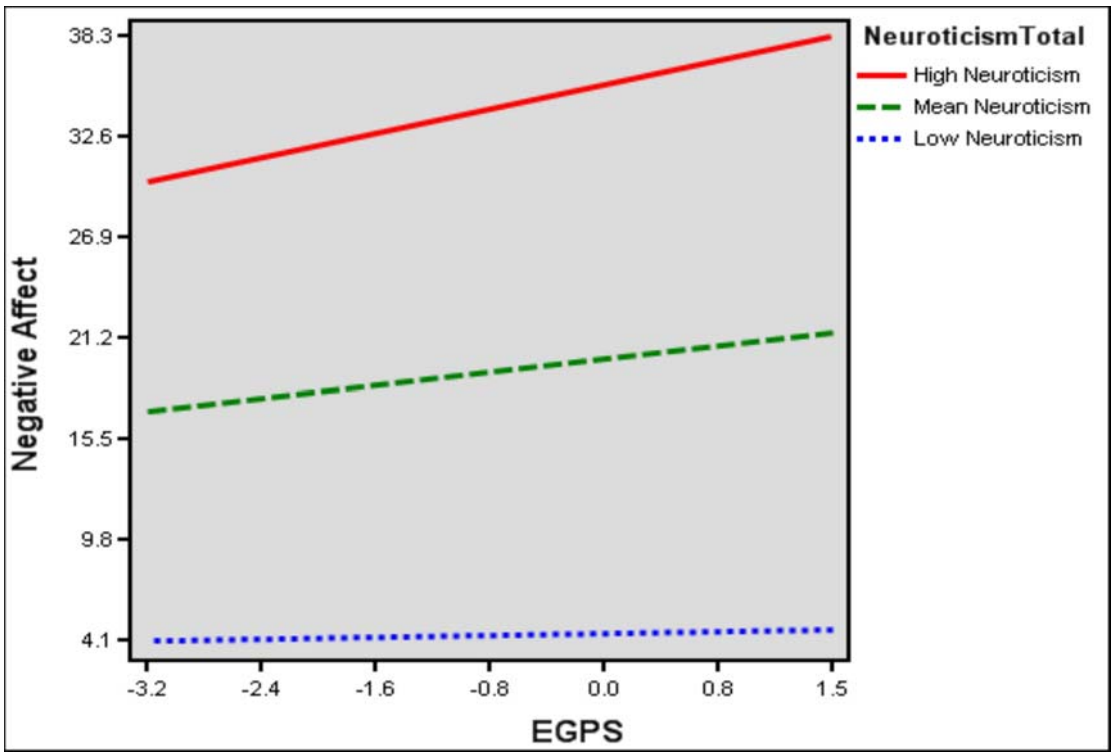

Figure 8.4 Interaction between EGPS and Neuroticism on Negative Affect for all participants at Wave 1

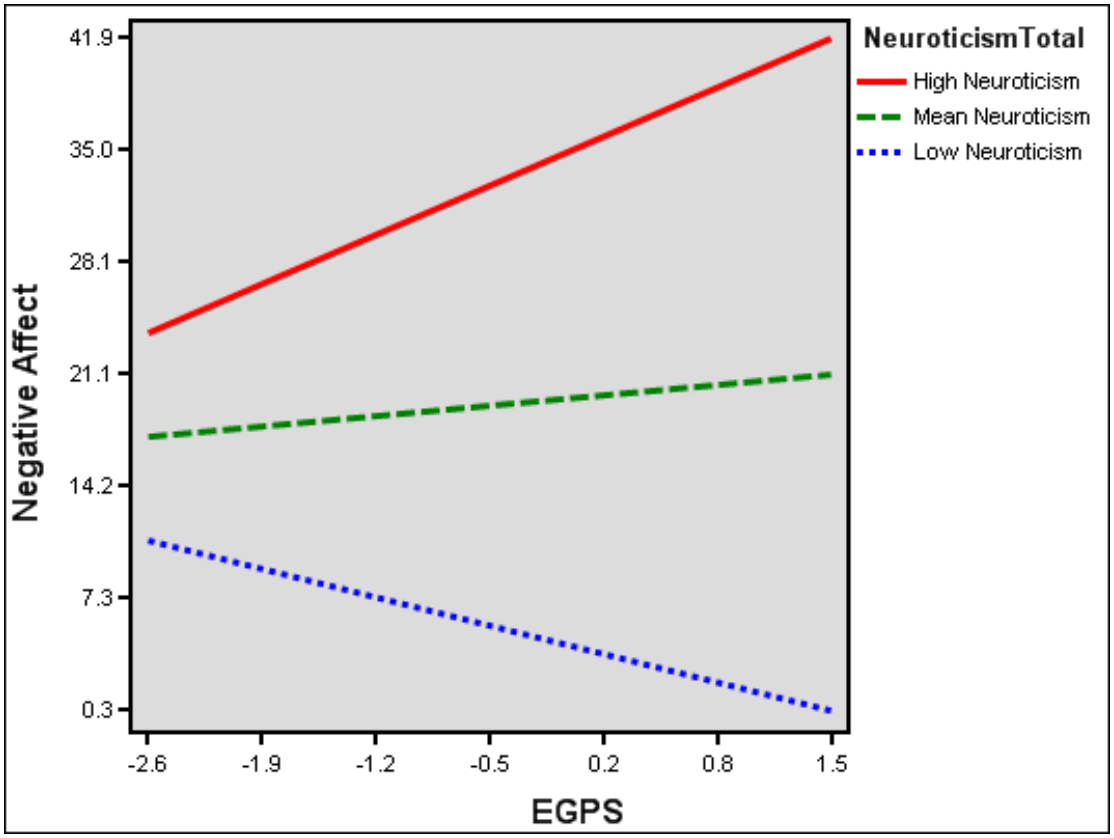

Figure 8.5 Interaction between EGPS and Neuroticism on Negative Affect at Wave 1 for participants that completed both waves

Two effects are reported with Wave 1 Conscientiousness for participants participating in both waves, and Wave 1 Agreeableness for all participants, although the direction of the coefficient between EGPS and Negative Affect is consistent with the original coefficient. Clearly, an issue is identified with Neuroticism. Graphing an interaction between Neuroticism and EGPS on Negative Affect for all participants at wave 1 (Figure 8.4). It appears that increased eudaimonic well-being, as indicated on the latent construct EGPS, is not associated with decreasing Negative Affect. Indeed for those high Neuroticism, increased EGPS is associated with considerable higher levels of Negative Affect. This effect, for those high in Neuroticism, appears more pronounced for those participants at wave 1 who participated in both waves (Figure 8.5). Though there appears to be a significant negative association between increasing EGPS and Negative Affect for these participants. This is an important finding that perhaps extends the original scope of this thesis, suggesting that high levels of eudaimonic well-being are not protective of negative SWB states for all.

CHAPTER 9

DISCUSSION AND CONCLUSION

Overview

By differentiating between affective and cognitive components of well-being, the primary aim of this thesis has been to extend advances in the theory and measurement of well-being. A key assumption of Psychological Well-Being (PWB), that affective states are consequential of cognitive components of well-being (PWB), was tested and confirmed. In addition, this thesis sought to demonstrate how an individual's characteristics (e.g. personality, age, gender) and psychological resources (e.g. positive attitudes of self, perceived autonomy, positive relations), and perceptions of organisational climate relate to well-being outcomes. The nature of individual and organisational characteristics and well-being outcomes supports the Organisational Health Research Framework (Hart & Cooper, 2001).

Summary of Research Findings

Key Question 5.1

Ryff's PWB scales do not appear to measure six distinct constructs of psychological well-being. Exploratory factor analysis of two samples revealed a revised three-factor structure comprising Autonomy, Positive Relations and a super-ordinate factor, EGPS, and supports earlier confirmatory factor analysis findings (Abbott et al., 2006). Post-hoc analysis supported this structure between teacher cohorts and gender, although some differences in the items that loaded onto this revised structure were found, suggesting that PWB items are influenced by participant characteristics such as age and gender.

Key Question 5.2

Factor analysis discriminates between PWB and SWB at an item level, where three PWB variables (EGPS, Autonomy and Positive Relations) and two SWB variables (Positive and Negative Affect) were identified. However, correlations between these

factors were mostly moderate and support a multi-dimensional model of well-being that comprises affective and cognitive components of well-being.

Key Question 6.1

PWB appears to be a strong predictor of SWB after controlling for demographic and negative life events, demonstrating positive associations with Positive Affect and negative associations with Negative Affect. Support for two mediation models were found but fit the data only equally as well as the direct effects model. Moderation effects were not found.

Key Question 7.1

Although a frequently used model of organisational stress, the JDCS variables appear to explain little variance in employee SWB, especially in relation to the associations between PWB and SWB reported in 5.2 and 6.1. However, in line with previous findings (e.g. Van der Doef & Maes, 1998), Control was positively associated with Positive Affect, and Demands positively associated with Negative Affect. The addition of moderation effects contributed only slightly to employees' SWB.

Key Question 7.2

Although the School Organisational Health Questionnaire (Hart et al., 2000) attempts to measure several different aspects of the workplace environment, Exploratory Factor Analysis revealed a two latent factor structure that reflected Positive and Negative Organisational Climate dimensions, which were used for subsequent analyses.

Key Question 7.3

Positive and Negative Organisational Climate factors reported greater effects on SWB than the JDCS variables reported in 7.1. In analyses that included demographic, personality and PWB variables, separate predictors for Positive and Negative Affect were found. EGPS and Positive Organisational Climate were positively associated with Positive Affect, whilst Neuroticism and Negative Organisational Climate were positively associated with Negative Affect. Years of teaching experience were negatively associated with Negative Affect.

Key Question 7.4

The analysis of interaction effects revealed a number of confusing findings, with some main effects now not significant, and interaction effects opposite to their bi-variate correlations indicating suppression effects. Although interactions between individual and environmental characteristics explained more variance in employee SWB, the main effects still contributed most of the explained variance, reflecting a more parsimonious model of employee SWB.

Key Question 7.5

Mediation analyses identified comparative fit where individual or organisational variables functioned as mediators. However, since much of the literature identifies personality and PWB as strongly heritable and or conditioned traits, the model where organisational climate mediates PWB and personality would be the preferred model.

Key Question 7.6

Testing the independent effects of PWB, personality and Organisational Climate on Employee and Organisational well-being identified personal characteristics as most strongly related to individual well-being, and Organisational Climate with organisational well-being. Independent predictor effects for both positive and negative well-being dimensions were also found.

Key Question 7.7

One question relates to the extent to which perceptions of Negative and Positive Organisational Climate reflect individual characteristics. Regression analyses revealed that individual characteristics are somewhat related to Positive Organisational Climate (29.4%), but mostly unrelated to judgements of Negative Organisational Climate (4.9%). Whilst supporting the reciprocal nature of the Organisational Health Research Framework, there is stronger support for earlier analyses that reveal independent effects of PWB, personality and organisational climate on SWB.

Key Question 8.1

Analyses revealed few differences between those participants in the Norwegian and Australian cohorts that responded in the second wave and those that did not. However, it was decided not to impute scores for non-responders in wave 2.

Key Question 8.2

As with the cross-sectional analyses of JDCS variables, the JDCS variables appear only weakly related to residual change in Positive and Negative Affect, though the pattern of findings is consistent with the cross-sectional findings whereby Demands were positively related to Negative Affect, whilst Control and Support were positively related to Positive Affect.

Key Question 8.3

As with the cross-sectional analyses in Section 4, analyses of change in SWB, using a Generalized Linear Model approach, were extended to include organisational climate variables as well as individual characteristics (PWB and personality). Wave 1, wave 2 and residual change in predictors were independently assessed for their effect on residual change in SWB. Unlike cross-sectional analyses, only wave 2 EGPS was associated with change in Positive Affect. Instead, the best fitting model was one where increases in Autonomy, Positive Relations and Positive Organisational Climate between wave 1 and 2 were related to increases in Positive Affect. With regards to changes in Negative Affect, level of Neuroticism and Negative Organisational Climate at wave 1, 2 or as residual change scores, were consistently reported as predictors of increasing Negative Affect. In the best fitting model, with residual change scores, Positive Organisational Climate also reported a negative association with changes in Negative Affect. Most importantly, the lack of an effect of change in EGPS on a residual change in Positive Affect is supported in later analyses and suggests that EGPS may function in determining level of Positive Affect, but not change.

Key Question 8.4

An alternative approach to assessing change was undertaken using Generalised Estimating Equations (GEE). Instead of computing a change score, GEE uses the raw scores of SWB at both waves. Analyses into both Positive and Negative Affect

supported earlier residual change analyses. Baseline Neuroticism, Negative Organisational Climate, and Openness to Experience, and residual change scores in Negative Organisational Climate and Neuroticism were related to Negative Affect. Baseline Positive Relations, EGPS and Extraversion, and residual change in Positive Relations were related to Positive Affect. A strong effect for Wave on both Positive and Negative Affect revealed strong effects on SWB.

Key Question 8.5

To test the effects of variance in SWB between wave 1 and 2, Random Effects Models retested the GEE analyses, but included random intercepts to assess the significance of variability between individuals at wave 1 and 2, and within individuals between waves. Generally, whilst significant effects were reported between individuals at both waves, the level of change in SWB for individuals was mostly consistent.

Post-Hoc Analysis

Suppression effects were reported on Negative Affect when both PWB and personality variables were included as predictors. Analysis revealed that for those high in Neuroticism, increased PWB on the EGPS variable was actually associated with an increase in Negative Affect. This suggests that increased PWB is not a protective mechanism for participants that report high levels of emotionality.

Discussion and Implications of Main Findings

The Validity of PWB

In two studies, Principal Axis Factoring (PAF) with oblique rotation delineated three PWB variables: Autonomy, Positive Relations, and EGPS, a first-order factor first previously identified as a second-order factor by Abbott et al. (2006), and comprising the Environmental Mastery, Personal Growth, Purpose in Life and Self Acceptance items. The inclusion of a SWB measure identified two SWB factors: Positive Affect and Negative Affect, which were distinct from the PWB variables, although significant correlations between all the SWB and PWB variables were reported. Whilst some differences between studies in the items constructing the PWB variables were reported, the structure of PWB was consistent between the studies. Post-hoc analysis of the different teacher cohorts within the organisational climate study and

by gender for both studies, revealed that sampling characteristics appear to influence both the structure and items that comprise PWB.

These results support a number of previous findings which have postulated either a simple 1-factor model, a correlated 6-factor model, as well as first or second-order factors which incorporated the EGPS variables reported in this study and elsewhere (Abbott et al., 2006). Initial GFI of the unmodified models were poor, though the six-factor model was the preferred model. Two types of adjustments were assessed, the first including the addition of method factors (Springer & Hauser, 2006; Abbott et al., 2006) which reported much better fit. Despite some concern about the methodological, theoretical and statistical implications, a second adjustment expanded on previous findings (Springer & Hauser, 2006) which allowed for correlated error terms. Results demonstrated acceptable and comparable fit for all four models where significant paths between correlated error terms were included.

Based on these findings the use of PWB scales should include Exploratory Factor Analysis techniques with larger item pools, and the removal of less important items, or items that are related to more than one factor, in subsequent analysis. This would appear to be a happy medium between longer scales that improve internal consistency and shorter scales that are suited to factor analysis (Van Dienrendonck et al., 2004). The items and structure of PWB will reflect particular characteristics of the sample, but it is hypothesised that a larger item pool will increase the likelihood of identifying a consistent structure to the PWB model, though gender, age and other socio-demographic effects on the structure of PWB are to be expected.

In comparison to Ryff's (1989b) original model development, PAF using an oblique rotation may have proved a more fruitful methodological approach. Whilst the final item pool may have resulted in a multi-dimensional model of PWB, a correlational approach fails to consider item content which enables greater differentiation between highly related constructs, rather leading to the inclusion of items that differ in the extent to which they assess specific versus general judgements of well-being. For example, the Environmental Mastery items cover a wide range of areas of personal control, from control of daily life responsibilities (item #17), to control of time and demands (item #36), to control of personal finances (item #29) and participants'

responses will surely reflect the importance of each particular issue for people at different ages or stages in their lives. Items that comprised the Personal Growth variable also reflect a mixture of items that relate to one's personal growth through life to date (item #s 37, 45 and 50), or reflects on the prospect of continuing to face the challenges to one's growth and development (item 21). Clearly, people of different ages, who are at different stages of their lives, may relate to these questions in quite different ways. For instance, older participants may relate more easily to the reflective questions, whilst younger participants may, in comparison, have shorter temporal contexts within which to reflect on such issues. In contrast, findings for the future-oriented questions may be more important for younger participants.

Such issues are not new to models of self-referent beliefs and attitudes. Decades of research into self-concept failed to consider the implications of generating items within scales that comprise a mixture of items whose content fail to distinguish between global and context-specific judgments. It wasn't until reviews of the existing self-concept measures of the day (e.g. Burns, 1979; Wylie, 1974), that these weaknesses in self-concept surveys were summarily identified, revealing that they failed to address these very same issues. Consequently, Shavelson, Hubner and Stanton (1978) proposed a multidimensional and hierarchical nature of self-concept that reflected this structure, whilst Marsh's (1992) construction of the Self Description Questionnaires (SDQ) operationalised Shavelson et al.'s model, and has since identified the utility of a multi-dimensional and hierarchical structure to self-referent beliefs.

In a similar vein, the author would propose a model of well-being that is both multi-dimensional and hierarchical in nature (Figure 9.1). Whilst Ryff's (1989b) well-being variables reflect a higher order level and may certainly have differential predictions on a number of outcomes, further development of well-being models is needed and should consider the domain and level of specificity that is being assessed. Such a model would incorporate the Eudaimonic processes that Ryff has sought to address at a general level, the hedonic states captured by SWB measures (e.g. PANAS), as well as physical and biological health correlates. Support for such a model has previously been indicated (Keyes, Shmotkin, & Ryff, 2002) where analysis delineated distinct yet related associations between PWB and SWB

variables, a finding supported in this dissertation whereby factor analysis of PWB and SWB items discriminated between factors at the item level, but with moderate correlations between indicating related constructs. It may also be proposed that the relationship between these different dimensions is reciprocal, though in line with Dynamic Equilibrium Theory stronger causal paths from PWB and personality to SWB may be expected (Fig. 9.2) since mean SWB states are generally more reactive, and that the strength of this reciprocal nature is reflected by the level of the hierarchy at which the association is investigated, depicted in Figure 9.1. Within the Self-Concept literature, the correlation between Self-Concept scores at a general level appeared to be correlated from a strong negative to strong positive associations with a range of outcomes, including academic achievement and better mental health outcomes (Burns, 1979).

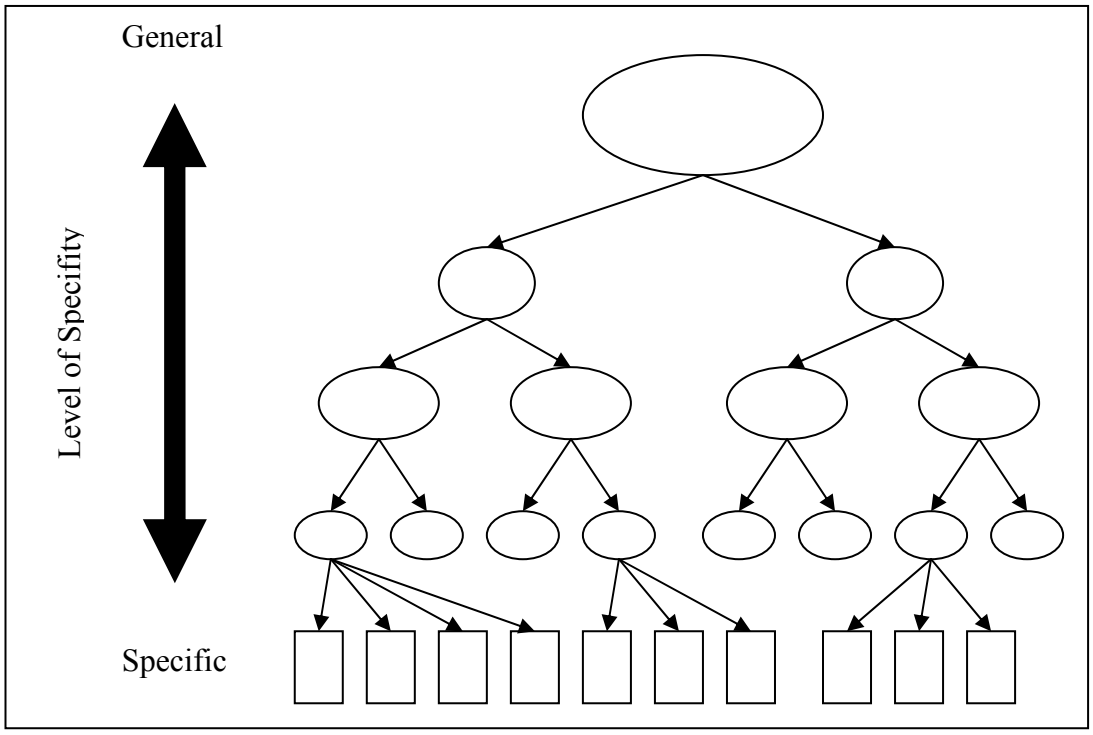

Figure 9.1 Proposed Hierarchical and Multi-Dimensional Model of Well-Being Constructs (Based on Shavelson, Hubner, & Stanton, 1976).

However, the development of a multi-dimensional and hierarchical model of self-concept (Shavelson, Hubner & Stanton, 1976) details how this general level functions as a latent construct that represents a hierarchy of attitudes and beliefs that encompass all of aspects of our lives. Consequently, Marsh (1992) has fully tested

this structural model and found that the ability to associate attitudes and beliefs with various outcomes was directly in proportion to the level of attitude being assessed. For example, predicting academic outcomes was stronger when using items that reflected a general academic self-concept in contrast to one's general self-concept. Further, specific subject self-concept was related more strongly with the relevant outcomes in that particular subject. The self-efficacy theorists would go one better and even argue that a particular belief about one's capacity to bring about a specific outcome was even stronger. This indicates quite clearly the influence of context-specific beliefs that influence behaviour. Similarly, the efficacy of measures of well-being, whether they be assessing affect, control belief, resilience and engagement, to predict health outcomes, will be more strongly related when these measures are sensitive to the context and the specificity of the outcomes being measured.

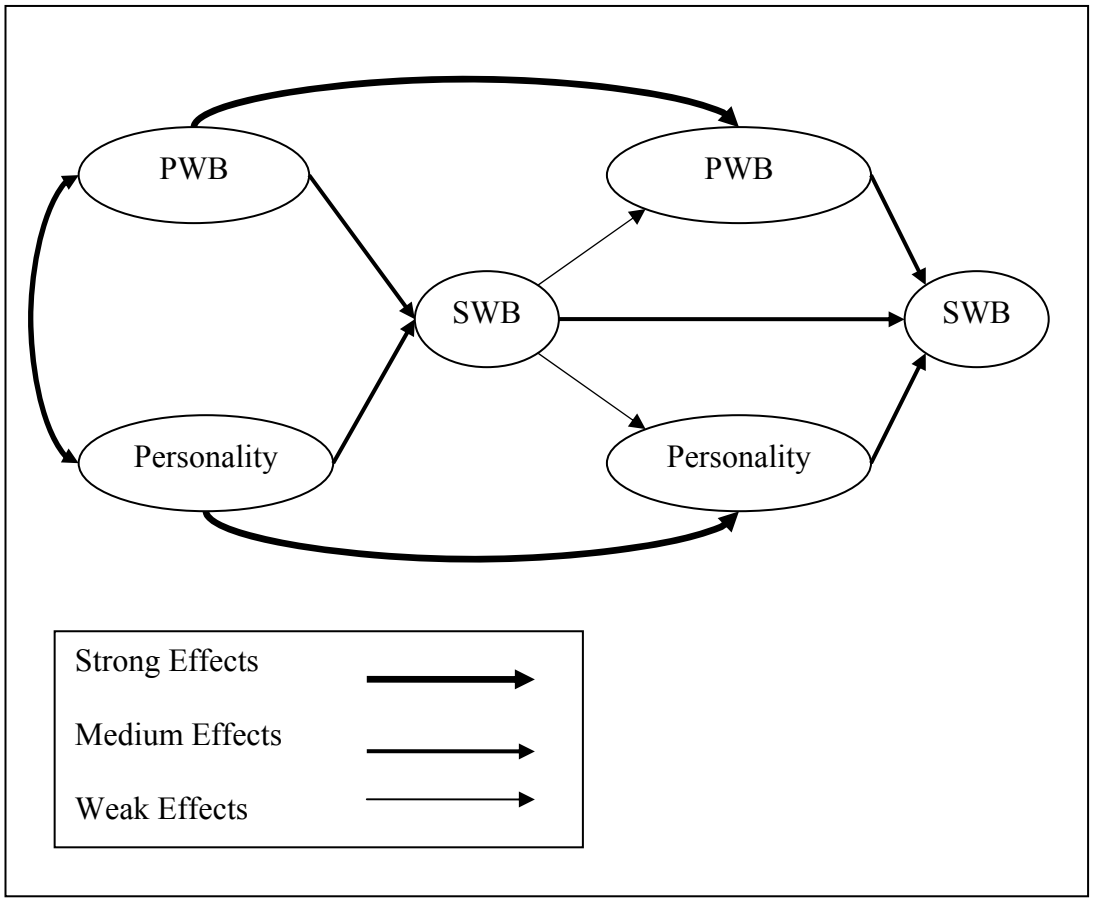

Figure 9.2 Temporal Relationships between PWB, Personality and SWB

More recent analyses of the PWB scales (Abbott et al., 2006; Springer & Hauser, 2006; Van Dierendonck et al., 2007) have used PRELIS or MPlus to provide polychoric correlation estimates as previous methods have perhaps incorrectly assumed PWB responses to reflect continuous data, which can bias estimates. However, it is common to assume that Likert scales that consist of at least 5 points can be analysed as if reflecting a continuous scale (Dollan, 1994). Yet regardless of sample size (Jöreskog & Sörbom, 1996), the use of Pearson correlation matrices in Factor Analysis with Likert scales appear to underestimate the degree of association between variables and consequently results in reduced factor loadings (DiStefano, 2002).

Approaches that use polychoric correlations may be warranted in some circumstances, but such techniques may only prove to be more stringent. Whilst computing polychoric and tetrachoric matrices is certainly possible in some statistical packages, its use in personality research, for example, where scales frequently comprise Likert scales similar to the PWB scales and where most factor analysis has typically used bivariate correlation matrices, has indicated that this approach generally fails to produce dissimilar results from traditional methods. Holgado-Tello, Carrasco-Ortiz, Victroria del Barrio-Gandara and Chacon-Moscoso (2007) tested the veracity of the Five-Factor Personality Model using polychoric estimates and concluded that the polychoric estimation approach produced results comparable to previous non-polychoric approaches. It is perhaps for these reasons that so few commercially available statistical packages allow for these sorts of techniques. Since the use of such methods in personality research has contributed little, their use in well-being research would not expand our knowledge of the structure of PWB other than, as previously said, to provide a more stringent approach to estimating the correlation matrices. Instead, the issues relating to the use of the larger scales and the extent to which sample characteristics have influenced the previous results, are much more important issues to consider.

The use of the larger 84- and 54-item scales in these studies is an improvement on previous validation studies that have used the shorter scale versions, which comprise far fewer similar items, and has resulted in considerable confusion about the validity of Ryff's PWB scales. As well, previous PWB validation studies have typically

reported internal reliability and CFA techniques, whilst the methodology employed in the one EFA study (Kafka & Korma, 2002) has serious limitations. CFA procedures are conceptually different from EFA techniques, being generally theory- rather than data-driven, and this study has addressed these concerns by using an EFA technique to analyse the larger scale versions, resulting in a revised 3-factor model of PWB, supporting Abbott et al.'s (2006) CFA findings that four of the original PWB variables are highly interrelated. To the author's knowledge, this is the first undertaking of an EFA approach that has correctly specified a PAF procedure with an oblique rotation. Importantly, at the item level, this procedure could delineate PWB constructs from two broad valence SWB constructs, Positive and Negative Affect, whilst an oblique rotation reported moderate associations at the factor level.

Some limitations to the studies relate to the relatively small sample sizes for the CFA to generate reliable parameter estimates in Structural Equation Modelling. In addition, these studies were designed independently of each other and therefore a number of socio-demographic variables were classified differently from each other. For instance, age groupings reflected the target population of each study and as such a sub-groups analysis of the PWB scales based on age and other demographic variables was not possible. The preliminary sub-groups analysis of gender did reveal some differences and may explain why there is such debate over the validity of Ryff's model of PWB as differences in the findings of previous validation studies may reflect these sampling characteristics. However, the unequal distribution of gender in both our studies prohibits placing too much weight to this claim. The post-hoc analysis by cohort within the teacher study revealed greater consistency in the items and structure identified by EFA and suggests that some demographic effects may be consistent amongst Western schoolteachers though differences are still apparent. It should be noted that the Abbott et al. (2006) study comprised a birth cohort sample who were all female, and therefore age and gender effects could not have been an issue for their findings which identified the second order EGPS variable as a better fitting model than the 6-factor model. Still it does provide support for the multi-dimensional properties purported to be measured by Ryff's (1989) PWB scales, but also a hierarchical structure which needs to be investigated further.

The purpose of this dissertation has not been to discredit the value of the Ryff PWB scales, nor the previous validation studies cited. Rather, the author has undertaken a 'back-to-basics' approach to test the dimensionality of the PWB scales. The complexity in drawing out a satisfactory conclusion on the structural validity of PWB, leads the author to suggest that further development into the nature and structure of well-being, which recognises the multiple domains and hierarchical structure inherent to self-referent attitudes, is warranted. Further analyses should identify the extent to which socio-demographic characteristics may influence the structural validity of the PWB scales. Finally, Ryff's (1989b) PWB scales are limited by item content that comprise both general and context-specific judgements of well-being. However, the link between PWB in its current form and a number of health outcomes is recognised, and would support that Ryff's PWB scales are an appropriate tool for assessing distinct aspects of PWB at a general level, though the extent to which this can be replicated across populations will be influenced by sampling characteristics.

Defining EGPS

Clearly, Exploratory Factor Analysis of two different samples, and sub-analyses of these samples by gender and cohort, consistently revealed a three factor structure to Ryff's (1989b) PWB scales. Whilst some difference in extracted items differed between groups, item level consistency was mostly reported in the analyses. In both the Life Events and Organisational Climate studies, PWB was highly associated with SWB outcomes, although the inclusion of a five factor personality model suggests some shared variability between personality and PWB. However, several associations appear to identify PWB as a significant predictor of SWB even after controlling for personality. Most clearly, is the association between the PWB variable, EGPS, and Positive Affect. It has already been demonstrated that this EGPS variable reflects a second-order factor proposed by Abbott et al. (2006), however the question of defining EGPS must be asked. What does EGPS reflect? It can hardly be considered a method artefact since it appeared in Abbott et al.'s (2006) study and in both studies and also in the sub-groups analyses of this dissertation.

Table 9.1 PWB scale items by the factors extracted from the Exploratory Factor Analysis of the Organisational Climate Study.

PWB Factor	EGPS Variable	Item*
EGPS	Environmental Mastery	I am quite good at managing the many responsibilities of my daily life.
		I generally do a good job of taking care of my personal finances and affairs.
		I am good at juggling my time so that I can fit everything in that needs to be done.
		I have been able to build a home and a lifestyle for myself that is much to my liking.
	Personal Growth	I think it is important to have new experiences that challenge how you think about yourself and the world.
		I have a sense that I have developed a lot as a person over time.
		For me, life has been a continuous process of learning, changing, and growth.
		I gave up trying to make big improvements or changes in my life a long time ago.
	Purpose In Life	I enjoy making plans for the future and working to make them a reality.
		I am an active person in carrying out the plans I set for myself.
		Some people wander aimlessly through life, but I am not one of them.
	Self-Acceptance	I like most aspects of my personality.
		I made some mistakes in the past, but I feel that all in all everything has worked out for the best.
		When I compare myself to friends and acquaintances, it makes me feel good about who I am.
Positive Relations		*Maintaining close relationships has been difficult and frustrating for me.*
		I often feel lonely because I have few close friends with whom to share my concerns.
		I don't have many people who want to listen when I need to talk.
		It seems to me that most other people have more friends than I do.
		I have not experienced many warm and trusting relationships with others.
Autonomy		I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.
		My decisions are not usually influenced by what everyone else is doing.
		I tend to worry about what other people think of me.
		I tend to be influenced by people with strong opinions.
		It's difficult for me to voice my own opinions on controversial matters.
		I often change my mind about decisions if my friends or family disagree.

*Items in Italics indicate a negative phrased item that was reversed for analysis.

On first glance, a review of the items from the Organisational Climate Study (Table 9.1) for example, appear to reflect differences between the four variables that comprise EGPS. Yet, statistically, these items appear to fail to differentiate between the four PWB variables that comprise EGPS. Therefore, what do these items reflect? In some respects, the EGPS items appear to reflect cognitive components of self-concept (Burns, 1979) at a general level (Wylie, 1974). On the other hand, perhaps these items reflect notions of self-determinism (Ryan & Deci, 2001), personal resourcefulness, positivity and mindfulness (Seligman, 2003; 2005)? It is clear that further investigations into the construct validity of Ryff's PWB scales are warranted, to determine whether the scales reflect one or a combination of constructs of other well-validated measures of self-referent attitudes like those proposed. Still, it's strong independent association with Positive Affect in particular, across two studies and two waves of data, reveal EGPS to be a significant predictor of Positive Affect, the implications of which cannot be overlooked.

Furthermore, it might be proposed that PWB is an outcome of personality traits. A longitudinal study (Abbott et al., 2008) has recently identified personality, measured at age 16 and 26, as a strong predictor of PWB at age 52. However, the authors were unable to test the reverse causation of the PWB, personality and SWB link since the PWB scales were not available for the earlier waves. The current author would instead propose a model in which personality and PWB are related yet still distinct cognitive constructs that relate to different aspects of an array of self-referent attitudes, although similarity in some item content is noted and may explain strong associations between PWB and personality variables. Support for such a model has previously been identified, though comprising slightly different psychological constructs. Judge, Erez, Bono & Thoresen (2003) identified a correlated four-factor structure comprising the cognitive components of generalized self-efficacy, self-esteem, neuroticism, and locus of control which reflect a broad latent trait of 'core self-evaluations'.

Positive and Negative Affect are Independent Components of Subjective Well-Being

A number of issues were identified in the literature review and relate to weaknesses in the design of past research into SWB. Firstly, there appears to be a lack of distinction between affective states and cognitive assessments of general satisfaction and happiness. Positive Affect and Negative Affect are separate affective dimensions that are generally unrelated to each other, or at best weakly negatively correlated. This was a consistent finding in both of the studies in this dissertation. However, particularly within organisational contexts, far too much research has traditionally focused on negative states as an overall indicator of well-being. With the growing emergence of 'positive psychology', this has been addressed, and research into positive SWB indicators is increasing (e.g. Kahneman, 1999; Seligman, 2003). Following the analyses of this dissertation that identify separate predictors of Positive and Negative Affect, the author's position is one that would encourage the use of measures that assess both positive and negative affective valence.

A second key weakness relates to the frequent cross-sectional assessment of SWB in terms of an affective score at one moment in time. This approach fails to recognise the dynamic nature of SWB. On the one hand, mean level of affect, both positive and negative, is, for most individuals, a generally stable component throughout life (e.g. Headey, 2000, 2008; Headey & Wearing, 1992). However, it is clear that an individual's score on an affect scale changes in the context of positive or negative environmental conditions, like organisational stress (e.g. Cotton, & Hart, 2003) or life events (e.g. Brickman, Coates, & Janoff-Bulman, 1978). This was supported in both of the studies in this dissertation whereby negative life events and Negative Organisational Climate were related to Negative Affect, and Positive Organisational Climate with Positive Affect. The question that must be asked is whether associations between these constructs reflect an association of mean affect level, or does it reflect a particular moment in their dynamic reaction to one of these conditions? Subsequently, what does an association tells us about an individual's affective reaction?

To highlight this issue, consider two hypothetical individuals (Fig 9.3) who both report the same mean level of Negative Affect but who demonstrate quite different changes in Negative Affect following a negative stressor. Differences between these individuals can be considered in three ways: by the extent of any change, the duration of change, and the immediacy of change. A line graph (Fig 9.3) demonstrates that in comparison with Person B, Person A reports a larger degree or extent of affective reactivity following a stressful life event and responds with more immediacy, with a change in mean affect level occurring sooner. Alternatively, SWB analysis may rather address the duration of change rather than the extent and immediacy of change. In our hypothetical scenario, it is clear that whilst Person A reports the greater affective reactivity in terms of extent and immediacy, Person B reports a greater impact on the duration of change in their mean affect level.

Since Neuroticism was highly related to level and change in Negative Affect, we might well expect that those high in Neuroticism to be more reactive in Negative Affect under negative environmental conditions, whilst those high in EGPS and Extraversion should report higher levels and change in Positive Affect under positive environmental conditions. Since these independent predictors of Negative and Positive Affect were reported, it might also be expected that different predictors or interactions of predictors may influence the duration of affect change. For example, those high in Neuroticism may report higher levels of Negative Affect, but an interaction with Extraversion or Positive relations may mean that those higher in these constructs may report less duration of change than those Neurotics low in these constructs sicne extraverts and those with good social support are more equipped to deal with these negative conditions. Some support was found in the organisational climate for such moderation effects and although considerable suppression effects were evident, this is certainly an avenue for further research.

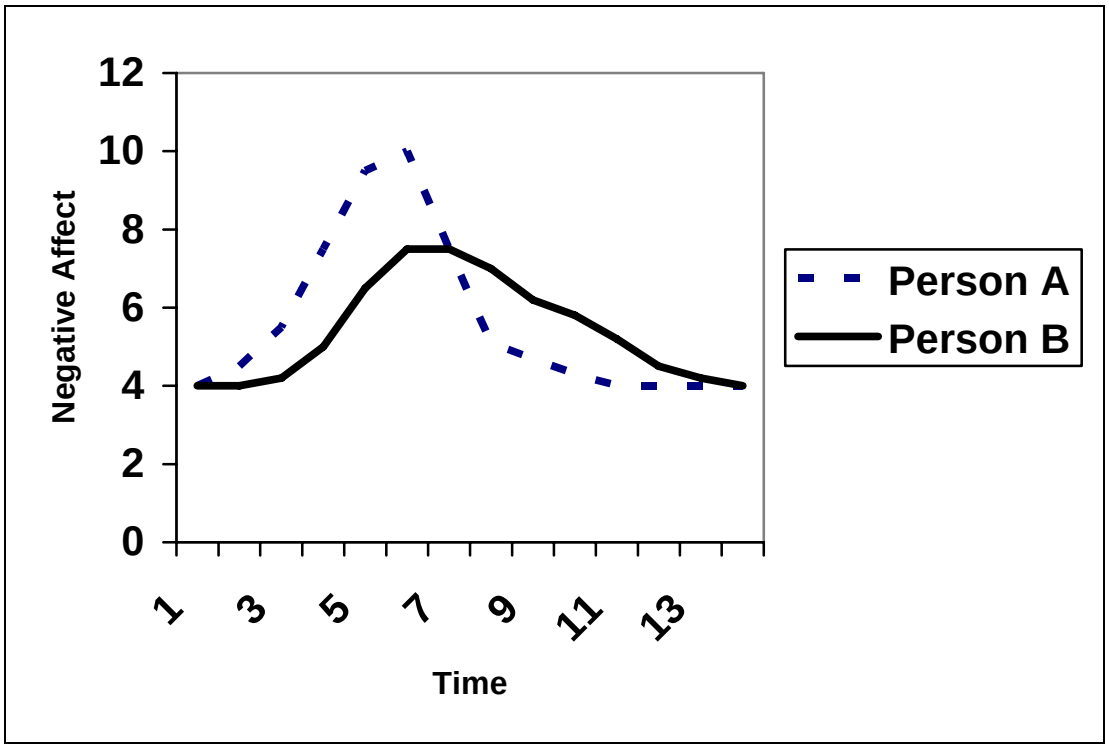

Figure 9.3 Comparing Effects on Negative Affect – Duration, Extent and Immediacy

A further issue for consideration is that whilst this hypothetical example (Fig 9.3) has focused on Negative Affect as an indicator of SWB, it would be important to concurrently consider the changes in an individual's Positive Affect. Remembering the relatively weak association between Negative and Positive Affect, how might Person A react in terms of Positive Affect to the same activating event? Since separate predictors appear to be related to level and change in Affect in this study, might we expect Person A to report different reactivity to this negative environmental effect?

Whilst the findings of this study mostly found positive and negative environmental conditions to be independently related to Positive and Negative Affect, there is the possibility that whilst some individuals may report a change in Negative Affect whilst their Positive Affective states remain relatively unchanged, others might have reported a drop in Positive Affect in proportion to the increased changes in Negative Affect. Clearly, differentiating emotional reactivity on both affectivity dimensions complicates our understanding of previous research into SWB that has generally failed to address these issues, particularly when considering whether it is the degree of affective reactivity or the time it takes to return to baseline. This dissertation did

report some evidence for both the independent main and interaction effects proposed in this discussion, but clearly a design of only two waves, with a relatively small sample size to ensure power for the detection of these interaction effects, precludes a definitive answer on this.

Most cross-sectional and even repeated measure analysis of SWB, do not address these issues and highlights significant weaknesses of studies into SWB which fail to capture the dynamic nature of SWB states. The question to be asked of such studies is to what extent do these one-off measures and their subsequent associations represent? Perhaps one of the strengths to measures like PANAS is that they ask participants to indicate the frequency of particular affect states in the preceding month, and subsequently should capture a general 'mean' level of affect. However, as indicated in this dissertation, it must be recognised that predictors of level and change in SWB may not be the same. For example, in the organisational climate study, whilst EGPS was highly related to level of Positive Affect at both waves, it appeared mostly unrelated to change in Positive Affect. In comparison, Autonomy and Positive Relations appeared mostly unrelated to level of Positive Affect, but were related to change in Positive Affect.

One area of future interest may be to identify the individual characteristics that relate to affective reactivity or the time it takes to stabilise at baseline. The question that has failed to be addressed within the SWB literature relates to whether differences in the extent of emotional reactivity are associated with Eudaimonic well-being, physical health, or general adaptive functioning. The repeated-measures design of the organisational climate study did indicate PWB, as well as organisational climate and personality, to be related to changes and levels in SWB, particularly Positive Affect, but with only two waves of data such a conclusion must be accepted in this light. Interestingly, whilst EGPS was strongly related to level of Positive Affect, it failed to predict change in Positive Affect, but this may relate to the way in which the analyses were undertaken. It may be that EGPS is related to an increase in Positive Affect, but unrelated to a decreased change, but since the change analyses were two-tailed hypothesis, this may have reduced the power of the tests to detect a sizeable effect on the increase in Positive Affect.

By investigating the relationship between PWB and SWB through the analysis of both cross-sectional and standardised residual change data, this thesis has found strong support for both effects on level and change in SWB. However, future research needs to more specifically measure these relationships through longitudinal designs of more than two waves, or through the use of measurement bursts (multiple observations of the same individual over a shorter time period of days/weeks) in order to more accurately gauge baseline levels, and the size and duration of SWB reactivity.

Assessment of SWB also needs to consider the relative worth of the environmental conditions that impact on the SWB state. In a similar vein to self-concept research, individuals who place little weight or importance to a stressor will be less likely to respond as those who place greater importance since failure to succeed is less likely to impact on the individual if such failure meets their expectations (Burns, 1979; Wylie, 1974). Instead, negative reactions will likely arise when environmental circumstance occurs in a way not expected or valued by the individual, or when the environmental demands exceed the individual's capacity to maintain a healthy response. This bears some resemblance to those issues discussed in Chapter Two relating to the cognitive appraisal process which detailed how it was the individual's perception of an activating event that was most strongly related to perceptions of stress than the event itself (Scott & Stradling, 2001), and within the organisational stress literature with the Job Demands-Control-Support model of organisational stress (Karasek & Theorell, 1990).

The life events study lends some weight to this hypothesis since the number of significant life events was no longer a significant effect on Negative Affect after the PWB effects were included. However the perceived impact of life events remained significant and only weakly correlated with PWB, which suggests that perceived impact or degree of importance to the self is an additional factor that is mostly unrelated to PWB and which appears to influence perceptions of environmental conditions and well-being. Whilst a 'reverse-causation' hypothesis identified small effects of demographic, personality and PWB variables at predicting perceptions of organisational climate, this was an avenue that was not fully investigated in the organisational climate study. But clearly, such issues have a significant effect on

whether characteristics within the individual influence perceptions of environmental conditions which in turn have adverse or positive effects on employee well-being.

Subjective Well-Being as an Outcome of Psychological Well-Being

Despite growing interest in Eudaimonic notions of well-being, the empirical investigation of PWB in the mainstream literature has been limited. In support of previous well-being research, both of the studies in this dissertation clearly demonstrate that PWB and SWB items do measure related yet distinct well-being constructs and suggests that inclusion of PWB measures may inform on research into employee well-being. Whilst modest correlations between the factor scores is indicative of some overlap between these constructs, the degree to which PWB predicted SWB was relatively low indicating that there are certainly other important predictors of SWB. Following from the previous section, PWB may play a more important role in determining the extent of SWB reactivity to external stressors and is supported in the literature (e.g. Ryan & Deci, 2001). In the organisational climate study, strong support was found identifying PWB to be a significant predictor of Positive Affect in particular, though clearly studies need to be designed to capture the dynamic nature of SWB.

A number of findings may be drawn from these studies. Firstly, they highlight the need to include measures that tap both SWB and PWB in well-being research. Secondly, in line with Ryan and Deci's (2001) earlier hypothesis, PWB appears to be a significant influence in determining affect reactivity, in particular Positive Affect. The importance of this is that it provides a direction for clinical and social interventions which can focus on developing specific facets of individuals' PWB. Such programs may instil longer-lasting attitudinal changes that engender feelings of vigour and lessen emotional reactivity to environmental triggers.

Employee Assistance Programs that focus on developing specific facets of employee PWB such as control, self-acceptance and positive relations, may instil longer-lasting attitudinal changes in employees, engendering feelings of vigour and resilience, and lessening the affective response to environmental triggers. Evolving from CBT and client-centred approaches, Well-Being Therapy (WBT), in combination with CBT, has reported better improvements post-intervention and in relapse rates for clients

with depression, in comparison with a CBT only treatment group (Fava, 1999). WBT bears similarities with more established counselling services such as CBT and Client-Centred approaches, but has only recently been scrutinized, with some initial positive success (Fava, 1999). Evolving from Ryff's model of PWB, initial WBT research suggests a combined CBT and WBT approach is more effective than CBT-alone, in improving client well-being immediately post-intervention and in decreasing relapse rates in clients with depression and anxiety (Fava et al., 2004). Fava et al. suggested that the importance of WBT and PWB is that it provides a clear framework on which to develop individuals' skills. The value of PWB, and WBT, appears to lie in its focus, not on changing individual affect, nor in creating those conditions which facilitate Positive Affect whilst alleviating Negative Affect, but rather in providing individuals a sense of control, competence, autonomy and relatedness.

Job Demand-Control-Support and Subjective Well-Being

Analysis of the JDCS variables appear to support Karasek and Theorell's (1990) model. Generally, results supported an iso-strain hypothesis whereby high demands, low support and low control are related to increased changes in NA. In addition, this study identified separate associations with PA, where high control and support predicted increases in change to PA, whilst demands were not related to change in PA. The results failed to support a buffer hypothesis whereby support and control buffer the effects of demands. Moderation effects were reported, whilst a mediation model indicated demands as mediating the relationship between control and NA. Both the moderation and mediation models reported acceptable GFI.

Whilst the JDCS variables do influence changes in employee well-being, associations are weak. However, in comparison to cross-sectional studies of teacher well-being (e.g. Verhoeven, et al., 2003), the better models reported in this study explained similar amounts of variance. Clearly, there are other factors that contribute to employee well-being. A criticism of the JDCS model is that it fails to address other important organisational and individual characteristics, such as work climate and personality, which might explain additional variance in well-being (Parkes, Mendham & Von Rabenau, 1994). The Organisational Health Research Framework is one theory that illustrates the reciprocal relationship between those organisational and individual characteristics that may impact on employee well-being and

organisational productivity (Cotton, 2006) and the use of organisational climate variables appeared more strongly related to well-being in this dissertation.

Delineating Individual and Organisational Effects on Well-being

Strong support was found for an Organisational Health Research Framework (Hart & Cooper, 2001) which proposed the influence of both individual and organisational factors in determining individual and organisational well-being. Although explained variance using JDCS variables was similar reported by other similar studies, the *School Organisational Health Questionnaire* appeared to explain considerably more variance in employee Positive and Negative Affect, although this seems sensible given more variables would assess more dynamics within the school workplace that may impact on employee SWB.

Of importance for further research into analyses of organisational factors, this dissertation found strong support for a two factor model which allows for easier analyses of climate effects. And even though positive and negative organisational climate appeared to be strongly related to employee SWB, this thesis still identified individual characteristics as having the strongest effects. However, the presence of interaction effects between individual and organisational variables does suggest that some individuals are more susceptible to adverse working conditions. Similarly, some individuals are more reactive to the presence of positive workplace climate. The importance of both organisational and individual characteristics in predicting employee SWB supports the Organisational Health Research Framework.

Apart from moderation analyses, and also in line with the Organisational Health Research Framework, mediation analyses identified that both individual and organisational characteristics were significant predictors of workplace climate and distress, though the influence of individual characteristics were quite weak in comparison with the effect of organisational climate variables on individual SWB.

Finally, the Organisational Health Research Framework proposes reciprocal effects of or a reverse-causation hypothesis whereby individual characteristics and well-being influence perceptions of organisational climate. However, in comparison with other paths, these associations were weak. Clearly the stronger effects were those

reported by individual characteristics on employee SWB and organisational characteristics on workplace morale and distress.

Potential for Organisational and Personal Interventions within the Workplace

Importantly, this study has modelled the separate effects of both organisational climate and individual characteristics on employee affect, supporting the notion that interventions be applied at both organisational and individual levels. Also, given the separate incremental effects of neuroticism, experience and negative climate on NA, and EGPS and positive climate on PA, these findings suggest that interventions designed to improve PA will have little effect on reducing NA, nor will decreasing NA be likely to improve PA.

The use of climate and environmental interventions focuses on changing some part of the environmental conditions that appear to impact negatively on employee health and well-being. Given what has been described in the opening chapters of this thesis, and throughout this discussion, into both the long-term stability of mean affect levels and its reactivity to day-to-day events, there is some question as to whether the efficacy of organisational interventions is effective in improving employee well-being in the long-term. The notion of the 'hedonic treadmill' (Kahneman, 1999), suggests that individual's tend to adapt to changes to their environmental conditions and return to their affective 'set-point' (Headey & Wearing, 1992). Evidence for this is exemplified in the study of lottery winners (Brickman, Coates, & Janoff-Bulman, 1978) and paraplegics who report considerable positive and negative effects on their well-being in the short-term, but revert to normalised levels in the long-term (Kahneman, 1999).

Almost 20 years of evidence (e.g. Headey, 2000) supports the notion that despite the many significant positive and negative environmental events that occur, changes in set-point appear to occur for only a small number of individuals. From a eudaimonic position, it may be that it is not the set-point level that needs to be altered to improve well-being, but rather the extent of short-term affect reactivity following environmental stressors. Increased PWB may function to reduce negative reactivity,

and increase the capacity for experiencing Positive Affect. Consequently, it could be argued that interventions should be focused on improving PWB as opposed to changing the environmental conditions that appear related to changes in SWB. Within organisational paradigms, improving organisational climate by decreasing demands and increasing support and worker autonomy may improve employee well-being in the short-term, changes to the employee's emotional well-being are likely to soon dissipate. Consequently, concerted effort should focus on personal interventions which although harder to implement may result in longer lasting changes to employee well-being.

Cognitive Behavioural Therapy (CBT) is one common psycho-therapeutic technique which functions to decrease negative thinking processes or Early Maladaptive Schemas with the consequence of decreasing negative states, such as anxiety or depression. The effect on positive SWB is more questionable given the distinctive nature of Positive and Negative Affect. However, CBT may function primarily on Negative Affect with only limited effects on Positive Affect (Sheldon & Lyubomirsky, 2004).

In terms of outlining how environmental effects can be long-lasting, Sheldon and Lyubomirksy (2004) demonstrated that in some situations, environmental conditions can have long-term impact on positive components of well-being. In a general life-events paradigm, Sheldon and Lyubomirsky (2004) differentiated between life events and occurrences that were either circumstantial or a normal part of everyday life experiences, as opposed to those events that were brought about through intentional and engagement actions of the individuals themselves. Results indicated that both positive circumstantial and intentional activities were related to positive well-being in the short-term, but after six months, only the positive intentional activities reported any association with Positive Affect. Sheldon and Lyubomirsky (2004) suggested that this partially supports the work of Headey and Wearing (1989) and Brickman et al. (1978) who demonstrated support for the set-point theory since these earlier studies involved the influence of circumstantial and non-intentional activities on well-being. It may be that incorporating intentional activity within the workplace may allow employee's the opportunity to develop a cycle of positive change, and to

invest efforts into opportunities that enable personal accomplishments, whilst at the same time improving organisational climate and productivity.

These interventions seek to improve PWB or personal resources on the assumption that increased PWB and resources is related to increased Positive Affect and reduced Negative Affect. However, as with organisational interventions, these PWB resources may have limited effects on long-term SWB. Rather their impact may be on the affective response, and reflect a dynamic process that is a consequence of interactions between positive and negative environmental conditions individual effects such as PWB and personality characteristics.

Lyubomirsky, Tkach, and Yelverton (2004) have identified a non-linear relationship with PWB interventions and changes in individual well-being. Using a generosity intervention, participants were assigned to either a control or one of two experimental groups. Whilst one experimental group recounted their blessing, that is were thankful for various positive events that happened in their lives, once a week, the other intervention group were required to do so three times a week. The effect of this intervention resulted in considerable increase in well-being for the once-a-week intervention group only, with the three-times-a-week intervention actually leading to a decrease in well-being. Whilst PWB interventions appear to have some short-term effect on well-being, it seems that over-prescription can have a deleterious effect as participant tire of the intervention and it loses its meaningfulness.

Headey and Wearing's (1989) concept of dynamic equilibrium describes how individual and environmental conditions influence SWB states. Cross-sectional and repeated measures analyses in this thesis, supported the main and interaction effects between individual and environmental effects, but two waves of data is not sufficient to adequately identify the causal mechanisms. This is clearly an area of importance for future study.

Recognising that concepts of hedonic treadmill, adaptation and the heritability of affect mean that limited effects on long-term change in SWB are possible, Seligman et al. (2005) implemented one of the most exhaustive randomised control trials to assess how different interventions may influence long-term changes in SWB. Five

experimental conditions or exercises were compared to a placebo group in a random control trial that lasted for one week (n = 411). The placebo group were asked to write about their earliest memories each night for one week. The first experimental condition included a gratitude visit whereby participants wrote and delivered a letter of gratitude to someone who has not previously been thanked properly. A second condition involved participants writing down three thing that went well each day over the week long trial. A third group involved participants writing a story about their personal strengths and to reflect on a daily basis for a week. A fourth condition, involved participants identifying five character strengths and to use one of these each day for a week. Finally, participants in the last condition, were, similar to the previous condition, simply asked to identify their key strengths and to try to use them in the coming week.

Interestingly, the effects of these exercises on happiness and depression could be classified into two groups. The 'gratitude', 'reflection' and 'identifying strengths' conditions, both reported significant effects immediately post-intervention, however the effects diminished within a month. In contrast, 'three good things' and the 'using one character strength each day' conditions did not report significant effects on happiness immediately post-intervention, but did within a month post-intervention, the effect of which lasted until the end of the study six months later. The effects on depression were immediate and lasting.

The importance of this landmark study is that the notion that SWB is not a malleable construct, given theories of set-point and hedonic treadmill, is not as complete a story as previously thought. Even set-point proponents like Headey (2008) have recognised that there appears to be a significant minority of individuals who do report a significant shift in their SWB set-point levels. The problem with approaches relating to set-point is that their theoretical underpinnings are based on studies that use general assessments of satisfaction as indicators of well-being. This thesis has demonstrated the importance of delineating between the independent predictors of positive and negative valence, which is supported by the Seligman et al. (2005) study. Unfortunately, a limitation of the studies included in this dissertation was the exclusion of a measure of satisfaction which made it impossible to demonstrate

whether changes in Positive and Negative Affect were associated with comparable changes in life satisfaction, upon which most studies of set-point theory are based.

In relation to PWB, these interventions have appeared so promising because they go beyond focusing on Negative or Positive Affective states, but rather focus on eudaimonic processes that appear to develop a base of cognitive beliefs, exemplified in a sense of control, resilience, autonomy, and positive self-concept, which are more likely lead to increases in the experience of positive and decreases in negative valence.

Within the workplace, Connelly (2002) implemented a strengths-based training programme in an effort to boost organisational productivity. Two experimental groups were exposed to a light or intensive intervention programme that consisted of focusing on individual and team strengths, with the consequence that those in the lighter intervention reporting a 6% increase in productivity and those in the intensive intervention groups increasing productivity by 9%. This was in comparison to relative no growth in the preceding three years. Similar work-based strength-training interventions have been reported on a range of employee and organisational outcomes, including employee engagement (Black, 2001; Clifton & Harter, 2003) productivity , customer loyalty and retention (Harter & Schmidt, 2002), the effect of which is said to be associated with higher life satisfaction (Winseman, 2002).

Although not established within organisational paradigms, there are a number of studies that have indicated the potential for improving PWB. One such study was undertaken by Arkoff, Meredith and Dubanoski (2004) and involved promoting PWB in a non-clinical, community-dwelling group of women. In comparison to a control group, the experimental group was involved in a focus-type retrospective-proactive life review program which involved participants discussing and reviewing their lives and accomplishments. Whilst no significant differences were found in PWB levels between either the control or experimental group at pre-test, statistically significant differences were reported in mean scores on all six domains of PWB at post-test, between the two groups. The experimental group was involved in 14 weekly 2-hour workshop sessions, which related to a positive promoting retrospective review of their lives accomplishments. Each session divided was

divided into two halves, with the first half involving a whole group discussion on a specific well-being topic, which in the second half was then followed small group discussions, and involved participants' disclosure of their individual experiences in relation to the topic of that session. Such focus groups activities have been incorporated within organisational psychology and it would be feasible that such activities could specifically approach improving the various domains of employee's PWB.

The importance of PWB may lie in its ability to provide individuals with the necessary psychological resources to meet the challenges of stressful life events. For example, Smider, Essex and Ryff (1996) followed a sample of older women through their adaptation to a community relocation program, often perceived as a stressful an unpleasant life change as a result of the aging process. Participants who reported higher levels of environmental mastery, autonomy and personal growth were more resilient to the lifestyle changes that they undertook. It is not without justification to suggest that higher levels of PWB will, in a range of stressful situations, enable people to be better able to adapt and meet these challenges. As with the Smider et al. (1996) study, it may be that stressful events decrease Positive Affect and increase Negative Affect in the short term, but that the extent and period of change in affect is limited by the greater psychological resources available to those individuals with higher PWB. Thus PWB may influence emotional reactivity in two ways. Firstly it may limit the extent to which environmental stressors influence changes in level of affect, and secondly, it may return affect to baseline levels more quickly. Fredrickson (2000) has suggested it is possible to create and foster the conditions that enable positive emotions to grow, and to regulate the experiences of negative emotions.

In terms of the current thesis and in terms of the importance of well-being in relation to organisational and other psychological areas of research, it appears that the notion of PWB is more important in determining effects on healthy physiological functioning. By that, it is proposed that assessing SWB, or levels of Positive and Negative Affect, will do little to determine possible long-term physical consequences of well-being. With regards to the present study, it suggests that measures of PWB would be more informative in terms of the impact of organisational climate on the long-term health of employees.

Self-determination is one stream of thought in the PWB paradigm that was covered in Chapter Three and which has been identified as a significant variable in a range of human behaviour and concepts relating to self-determination have figured prominently in the organisational literature for over three decades (Deci, Connell & Ryan, 1989). The importance of self-determination has been its association with increased effective performance, often occurring within organisational climates which promote supportive management styles and organisational structures which allow for greater employee participation in decision making, increased flexibility and control for employee's in carrying out job requirements, and is positively correlated with employee satisfaction, quality of work life and organisational productivity outcomes (Deci et al., 1989).

An important finding of the Deci et al. (1989) study into self-determination in the workplace was that a leader's interpersonal orientation and the quality of relationship with their employees, one that promotes employee self-determination, does positively correlate with worker satisfaction. This was especially so when this interpersonal approach was representative of company policy and procedures. That is, a supportive manager who promoted self-determination in an uncaring environment did nothing to improve worker satisfaction.

Another significant finding was related to the use of an intervention training programme in order to help managers change their relationship orientation to their employees. Deci et al. (1989) demonstrated that it is possible to train managers to change their relationship orientation to employees. Also, when negative experiences were reported by both manager and subordinate, Negative Affect was attributed to top management and overall company policy and procedures. The importance of the study however, lies in the demonstration that to a large degree, managers and leaders have a significant influence on employee satisfaction when their interpersonal leadership style promote self-determination in their employees.

Well-Being: Depression, Happiness and the Engaging Life

This thesis began its introduction outlining how traditional approaches to psychological well-being incorporated a medical model that perceived the presence or absence of adverse mental states like depression and anxiety, as indicative of optimal psychological health. The impact of existentialist thought did influence a number of streams of psychological thought and to advance notions of well-being beyond the focus on self-destructive forces of id, or the detrimental states that resulted from super-ego's repression of id. Even the dogmatic approach of the early behaviourist movement espoused behaviourist principles that were focused more on restricting deleterious human behaviour rather than encouraging growth and engagement.

Although theorising at polar ends of the 19th Century, Kierkegaard and James shared a uniform passion for a self that withstood all other influences, and emphasised the power of self to realise its potential. And despite the advancement of considerable theoretical models, such as those proposed by Adler, Rogers, Maslow, Allport and Kelly, the impetus of focus with the modern psychological literature, on positive and self-affirming human constructs and capacity for life engagement, has really only emerged to the fore in recent decades. Even Seligman, a leading figure in the positive psychology movement, was first most widely-known for his work on learned helplessness rather than his relatively more recent undertakings into learned optimism.

Despite a growing impetus within the positive psychology movement, to this day, most current psychiatric and clinical psychological assessments focus on the presence of negative psychological and related states from which a clinical diagnosis can be made (e.g. DSM IV; ICD-10). Although not a clinical study nor a philosophical treatise on existential notions of health and well-being, this thesis has sought to confirm recent developments within the psychological well-being literature. Emotions are a complex and varied pattern of affective and behavioural states, and this study has found support for weak negative associations between two typically orthogonal constructs: Positive and Negative Affect. Within two studies,

this dissertation has identified mostly separate sets of predictors for each affective dimension and has highlighted how enduring individual characteristics and environmental effects account for a considerable amount of variance in employee well-being.

The implications are noteworthy. If the current doctoral candidate draws on his past experiences as a school guidance counsellor, he asks himself 'What does it mean when an 18-year old sits down across from him and describes his despair and sadness with his life?' Do we relate this to increased Negative Affect and its related predictors, decreased Positive Affect and its related predictors, or a combination of both of these conditions? It would make sense that these questions are answered in order for interventions to address the specific predictors of Negative and Positive Affect and one criticism of traditional mental health treatments has been on the focus only one of these affective states, negative affectivity and its cognitive and behavioural correlates. This may certainly explain why techniques like CBT are more effective in lowering relapse rates than drug-only or talking-therapies because they involve reducing the tendency for the engrained autonomic negative responses to be replaced by more positive constructive thinking (Scott & Stradling, 2001). More encouragingly is that Fava et al. (2004) have demonstrated that a PWB Well-being therapy approach, with a focus on Eudaimonic principles, is more effective on reducing relapse rates than CBT-only.

The author does not intend to detract from the importance of recognising those negative states that impact on one's sense of happiness, nor to relay a notion that happiness is a fleeting and momentary experience that in the long run matters little, since set-point indicates that our average emotional level and capacity for affective reactivity is predominantly driven by heritable traits. Such feelings do matter, but one's sense of despair or joy matter in the extent to which they contribute to an increased fulfilment, satisfaction and engagement at work and in life in general. Not withstanding normal development changes or the impact of positive and negative environmental events, for most affective states and affective reactivity are stable throughout adulthood, and flies in the face of the promulgation of self-help texts that clutter the psychology section of your local bookstore. This dissertation has supported the hypothesis that more stable and enduring individual characteristics like

personality and PWB, and environmental effects are strong predictors of two broad SWB constructs, and that the successful interventions that have been described (e.g. Fava, 1999; Fava et al., 2004; Lyubomirsky, 2004) appear to be successful not because of their focus on boosting happiness or Positive Affect, or decreasing Negative Affect per se, but rather to focus on the cognitive and behavioural mechanisms which appear to predict better SWB outcomes. The implications for employee well-being are clear, rather than asking *'how happy, stressed or burnt-out are our employees?'*, we should perhaps be more focused on eudaimonic notions that relate more to engagement, control, growth and autonomy, in relation to work, their relationships with colleagues and friends, and with their lives in general.

Conclusion

This dissertation has adopted an Organisational Health Research Framework to delineate between individual and organisational effects on both individual and organisational well-being. Findings indicated that individual characteristics exert greater influence on individual well-being and organisational characteristics on organisational well-being. Further, it seems that positive characteristics (e.g. Positive Organisational Climate, PWB or extraversion) are related to positive well-being outcomes whilst negative characteristics (e.g. Negative Organisational Climate or Neuroticism) are related to negative well-being outcomes. The cross-over between individual and organisational characteristics on individual and organisational well-being is limited (i.e. weak associations at best between negative climate on negative individual well-being), as is the cross over between positive and negative characteristics on negative and positive outcomes (i.e. weak associations at best between neuroticism and Positive Affect). The implications of this are important. Interventions need to focus not only on reducing negative experiences, but also improving positive experiences. Organisational interventions will mostly only influence organisational well-being so individual interventions are also needed to influence individual well-being.

As an extension of current issues into the concept of well-being this dissertation assumes a Dynamic Equilibrium Model of SWB which proposes that our affective states, whilst stable over time, are reactive to momentary experiences. In contrast, PWB and personality are more stable constructs which appear to be highly related to

SWB. In particular we note the effect of PWB on level and change in Positive Affect, and Neuroticism on level and change in Negative Affect. This thesis also highlighted limitations of previous studies into SWB that fail to discriminate between positive and negative components of SWB, fail to recognise independent predictors associated with level and change in these positive and negative components, and finally, failed to consider the dynamic nature of SWB reactivity which is not tapped in cross-sectional analyses of employee well-being.

REFERENCES

Abbott, R.A., Ploubidis, G.B., Huppert, F., Kuh, D., Wadsworth, M.E.J., & Croudace, T.J. (2006). Psychometric evaluation and predictive validity of Ryff's psychological well-being items in a UK birth cohort sample of women. *Health and Quality of Life Outcomes*, 4:76 (accessible online).

Adler, N.E., Marmot, M., McEwen, B.S. & Stewart, J. (Eds.) *Socioeconomic Status and Health in Industrial Nations: Social, Psychological and Biological Pathways*. Ann NY: Academic Science. Vol#:896.

Aish, A.M., & Jöreskog, K.G. (1990). A panel model for political efficacy and responsiveness: an application of LISREL 7 with weighted least squares. *Quality & Quantity* 24: 405-426.

Allport, G.W. (1961). *Pattern and growth in personality*. New York: Holt, Rinehart and Winston.

American Medical Association (AMA) (1989). *The American Medical Association encyclopaedia of medicine.* Random House: New York.

Andreasson S. (1998). Alcohol and J-shaped curves. *Alcoholism: Clinical and Experimental Research,* 22:359S-364S.

Anstey, K. J., Burns, R., von Sanden, C., & Luszcz, M.A. (2008). Psychological wellbeing is an independent predictor of falling in an 8-year follow-up of older adults. *Journal of Gerontology B: Psychological Sciences.* 63: 249-257.

Anstey, K.J., Burns, R., Butterworth, P., Windsor, T.D., Christensen, H., & Sachdev, P. (in submission) Cerebrovascular risk factors and life events as antecedents of depression in middle and early-old age: The PATH Through Life Study.

Arkoff, A., Meredith, G.M., & Dubanoski, J.P. (2004). Gains in well-being achieved through retrospective-proactive life review by independent older women. *Journal of Humanistic Psychology*, 44, 204-214.

Baron, R.A. (1986). *Behaviour in organisations: Understanding and managing the human side of work.* (2nd ed.). Allyn and Bacon: Boston.

Bauer, J., Stamm, A., Virnich, K., Wissing, K., Muller, U., Wirsching, M. & Schaarschmidt B. (2006). Correlation between burnout syndrome and psychological and psychosomatic symptoms among teachers. *International Archives of Occupational and Environmental Health.* Vol 79:3. 199-204.

Baum, A. (1990). Stress, intrusive imagery and chronic distress. *Health Psychology,* 9, 653 – 675.

Beck, A.T. (1967). *Depression: Causes and Treatment.* Philadelphia: University of Pennsylvania Press.

Becker, G.S. (1992). Habits, Addictions, and Traditions. *Kyklos*, 45, pp. 327-46.

Black, B. (2001). The road to recovery. *Gallup Management Journal,* 1(4), 10-12.

Black, P.J. (1994). Performance Assessment and Accountability: The Experience in England and Wales. *Educational Evaluation and Policy Analysis*, Vol. 16, No. 2, 191-203.

Borg, M.G., Riding, R.J., & Falzon, J.M. (1991). Stress in teaching. *Educational Psychology*. 11, 59-75.

Boyle, G.J., Borg, M.G., Falzon, J.M., & Baglioni, A.J. (1995). A structural model of the dimensions of teacher stress. *British Journal of Educational Psychology.* 65 49-68.

Bradburn, N.M. (1969). *The structure of psychological well-being*. Chicago: Aldine.

Brand, F.N, Abbott, R.D., Kannel, W.B. & Wolf, P.A. (1985). Characteristics and prognosis of lone atrial fibrillation. 30-year follow-up in the Framingham Study. *Journal of the American Medical Association*, Vol. 254 No. 24, 3449–53,

Brickman, P., Coates, D., & Janoff-Bulman, R. (1978). Lottery winners and accident victims: Is happiness relative? *Journal of Personality and Social Psychology*, 36, 917-927.

Brief, A. P. , Rude, D., & Rabinowitz, S. (1983). The impact of Type A behavior patterns on subjective work load and depression. *Journal of Occupational Behavior*, 4, 157-164

Brindley, D.N., McCann, B.S., Niaura, R., Stoney, C.M., & Suarez, E.C. (1993). Stress and lipoprotein metabolism: modulators and mechanisms. *Metabolism*. 42(9 Suppl 1):3–15.

Brown, M., & Ralph, S. (1992). Towards the identification of stress in teachers. *Educational Research,* 48, 103-110.

Brown, M., & Ralph, S. (1998). The identification of stress in teachers. In J. Dunham and V. Varma (eds.) *Stress in Teachers: Past, Present and Future.* Whurr Publisher Ltd: London.

Brugha, T., Bebbington, P.E., Tennant, C., & Hurry J. (1985). The List of Threatening Experiences: a subset of 12 life event categories with considerable long-term contextual threat. *Psychological Medicine*, *15*, 189 - 194.

Borg, M.G., Riding, R.J., & Falzon, J.M. (1991). Stress in teaching. *Educational Psychology*. 11, 59-75.

Boyle, G.J., Borg, M.G., Falzon, J.M., & Baglioni, A.J. (1995). A structural model of the dimensions of teacher stress. *British Journal of Educational Psychology*. 65 49-68.

Burns, D. (1980). *Feeling Good: The New Mood Therapy.* New York: New American Library.

Burns R.A. (2003). *Sources and Symptoms of Stress and Coping Behaviours reported in a sample of International School Teachers across four countries*. Manchester University: Unpublished thesis.

Burns, R.A., & Machin, M.A. (2007). Re-evaluating our conception of well being in an organisational setting. In M. Dollard, A. Winefield, M. Tuckey, & P. Winwood (Eds.) *Proceedings of the 7th Industrial and Organisational Psychology Conference/ 1st Asia Pacific Congress on Work and Organisational Psychology* (pp. 31-35), Melbourne, Victoria: Australian Psychological Society.

Burns, R.A. & Machin, M.A. (2008). Investigating the Structural Validity of Ryff's Psychological Well-Being Scales across Two Samples. *Social Indicators Research*. DOI: 10.1007/s11205-008-9329-1.

Burns, R.B. (1979). *The self-concept theory in measurement, development and behavior*. London: Longman.

Burns, R.B. (2000). Stress in Primary Teachers in Brunei. *Journal of Applied Research in Education,* 5, 60-72.

Byrne, B.M. (1991). Burnout: Investigating the impact of background variables for elementary, intermediate, secondary, and university educators. *Teaching & Teacher Education.* 7, 197-209.

Byrne, B.M. (1999). The Nomological Network of Teacher Burnout: A literature Review and Empirically Validated Model. In M. Huberman and R. Vandenberghe (Eds.). *Understanding and Preventing Teachers Burnout.* Cambridge University Press; Cambridge.

Byrne, B.M. (2001). *Structural Equation Modeling With AMOS: Basic Concepts, Applications and Programming.* New Jersey: Lawrence Erlbaum Associates.

Cacioppo, J.T., Gardner, W.L., & Berntson, G.G. (1999). The affect system has parallel and integrative processing components: Form follows function. *Journal of Personality and Social Psychology*, 76, 839-855.

Campbell, A., Converse, P.E., & Rodgers, W.L. (1976). *The quality of American life.* New York: Russell Sage Foundation.

Campbell, J., Dunnette, M.D., Lawler, E.E., & Weick, K.E. (1970). *Managerial behavior and effectiveness.* New York: McGraw-Hill.

Caplan, R.D., & Jones, K.W. (1975). Effects of work load, role ambiguity, and type A personality on anxiety, depression, and heart rate. *Journal of Applied Psychology,* 60(6):713-9.

Caplan, R.D., Cobb, S., & French, J.P.R. (1975). Relationships of cessation of smoking with job stress, personality and social support. *Journal of Applied Psychology,* 60, 211-19.

Caspari, I.E. (1976). *Troublesome Children in Class.* Routledge and Kegan Paul: London.

Catterton, B.L. (1979*). The 1978-79 Teaching Stress Events Inventory – Portland Study of Teachers,* ERIC, No: 185042.

Cichon, D.J. & Koff, R.H. (1978). *The Teaching Stress Inventory.* Paper presented to the American Educational Research Association annual meeting, ERIC, No: 160-2

Clagget, C.A. (1980). *Teacher Stress at a Community College: Professional Burnout in a Bureaucratic Setting,* ERIC, No: 195310.

Clarke, P.J., Marshall, V.W., Ryff, C.D., & Wheaton, B. (2001). Measuring psychological well-being in the Canadian Study of Health and Aging. *International Psychogeriatrics,* 13 Supp 1:79-90.

Claxton, G. (1988) *The less stress workshop,* Kings College Publications, London.

Clifton, D.O. & Harter, J.K. (2003). Strengths investment. In K.S. Cameron, J.E. Dutton, & R.E. Quinn (Eds.), *Positive organisation scholarship* (pp. 111-121). San Francisco: Berett-Koehler.

Cobb, S. & Kasl, S. V. (1977). *Termination – The Consequences of job loss.* H.E.W. Publishers: New York.

Cockburn, A. D. (1996) Primary teachers' knowledge and acquisition of stress relieving strategies. *British Journal of Educational Psychology,* 66, 399-410.

Cohen, F. & Lazarus, R.S. (1979). Coping with the stresses of illness. In G. C. Stone, F. Cohen, and N.E. Adler (Eds.), *Health Psychology – A Handbook.* Jossey-Bass: San Francisco.

Cohen, F. & Lazarus, R.S. (1983). Coping and Adaptation in health and illness. Quoted in Sarafino, E.P. (1998) *Health Psychology,* Wiley: New York.

Compton, W.C., Smith, M.L., Cornish, K.A., & Qualls, D.L. (1996). Factor structure of mental health measures. *Journal of Personality & Social Psychology, 71*:406–13

Connelly, J. (2002). All together now. *Gallup Management Journal*, 2(1), 13-18.

Cooper, C.L. (1986b). Job distress: recent Research and the Emerging role of the Clinical Occupational Psychologist, *Bulletin of the British Psychological Society,* 39, 325-31.

Cooper, C.L. (1987). The experience and management of stress: Job and Organisational Determinants. In A. J. Marrow (ed.) *The Failure of Success.* Amacon: New York.

Cooper, C.L. (Ed.) (1991). *Theories of Organisational Stress.* Oxford University Press: London.

Cooper, C.L. (1995). Life at the chalk-face – identifying and measuring teacher stress. *British Journal of Educational Psychology,* 65, 69-71.

Cooper, C.L., Davidson, M., & Robinson, P. (1982). Stress in the police service, *Journal of Occupational Medicine,* 24, 30-6.

Cooper, C.L. & Marshal, J. (1975). The Management of stress, *Personnel review,* 4, 27 – 31.

Costa, P., & McCrae, R.R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, 38, 668-678.

Costa, P.T. & McCrae, R.R. (1985). *The NEO Personality Inventory.* Odessa: PAR. Psychological Assessment Resources, Inc.

Costa, P.T., & McCrae, R.R. (1992). *NEO PI-R. Professional manual*. Odessa, FL: Psychological Assessment Resources, Inc.

Costa, P.T., Jr., McCrae, R.R., & Norris, A.H. (1981). Personal adjustment to aging: Longitudinal prediction from Neuroticism and Extraversion. *Journal of Gerontology*, 36, 78-85.

Costa, P., McCrae, R.R., & Zonderman, A. (1987). Environmental and dispositional influences on well-being: Longitudinal follow -up of an American national sample. *British Journal of Psychology*, 78, 299-306.

Cotton, P. (2006). *Preventing Psychological Injury. A report for Comcare on the pilot prevention program* . Australian Government Canberra: Comcare.

Cotton, P., & Hart, P. (2003). Occupational wellbeing and performance: A review of organisational health research. *Australian Psychologist, 38*(2), 118-127.

Cox, T. (1978). *Stress.* University Park Press: Baltimore.

Cox, T. (1985). Repetitive work: Occupational stress and health. In C.L. Cooper and M. J. Smith (eds.) *Job Stress and Blue Collar Work.* John Wiley and Sons: Chicester

Coyne, J.C. and Holroyd, K. (1982). Stress, coping, and illness: A transactional perspective. In T. Millon, C. Green, and R. Meagher (eds.) *Handbook of Clinical Health Psychology.* Plenum: New York.

Davidson, M.J., and Cooper, C.L. (1992). *Shattering the glass-ceiling: The Woman Manager,* Chapman: London.

Deci, E.L. (1975). *Intrinsic Motivation*. NewYork: Plenum.

Deci, E.L., Connell, J.P., & Ryan, R.M. (1989). Self-determination in a work organization. *Journal of Applied Psychology*, 74, 580-590.

DeFrank, R.S. & Cooper, C.L. (1987). Worksite stress management interventions: Their Effectiveness and conceptualisation. *Journal of Managerial Psychology*, 2, 4-10.

DeNeve, K.M. (1999). Happy as an extraverted clam? The role of personality for subjective well-being. *Current Directions in Psychological Science*. 8:141–44.

Deneve, K.M. & Cooper, H. (1998). The happy personality: a meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin*, 124:197-229.

Department of Health. (1992). *Employment*, HMSO: London.

Dewe, P.J. (1985). Coping with Work Stress: An investigation of Teacher's Actions, *Research in Education,* 33, 27-60.

Dewe, P.J. (1986). An Investigation into the Causes and Consequences of Teacher Stress, *New Zealand Journal for Teaching,* 21, 145-57.

Dick, R. & Wagner, V. (2001). Stress and strain in teaching: A structural equation approach, *British journal of Educational Psychology,* 71, 243 – 259.

Diener, E. (1994). Assessing subjective well-being: Progress and opportunities. *Social Indicators Research*, 31, 103-157.

Diener, E., & Diener, C. (1996). Most people are happy. *Psychological Science*, 7, 181- 185.

Diener, E., & Diener, M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. *Journal of Personality and Social Psychology*, 68, 653-663.

Diener, E., Emmons, R.A., Larsen, R.J., Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment 49,* 1, 71 – 75.

Diener, E., & Lucas, R.E. (1999). Personality and subjective well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 213–229). New York: Russell Sage Foundation.

Diener, E., Suh, E., & Oishi, S. (1997). Recent findings on subjective well-being. Indian *Journal of Clinical Psychology*, 24, 25-41.

Diener, E., Suh, E .M., Lucas, R.E., & Smith, H.L. (1999). Subjective Well-Being: Three Decades of Progress. *Psychological Bulletin*. 125(2), p 276–302.

Dimsdale, J.E., & Herd, J.A. (1993). Variability of plasma lipids in response to emotional arousal. *Psychosomatic Medicine.* 44(5):413–430.

DiStefano, C. (2002). The impact of categorization with confirmatory factor analysis. *Structural Equation Modeling*, 9, 327–346.

DoHA (2000). *National Action Plan for Promotion, Prevention and Early Intervention for Mental Health*. Canberra ACT, Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care.

Dollan, C.V. (1994). Factor analysis of variables with 2, 3, 4 and 7 response categories: A comparison of categorical variable estimators using simulated data. *British Journal of Mathematical and Statistical Psychology*, 47, 309–326.

Dunham, J. (1977). The signs, causes and reduction of stress in teachers. *The Management of Stress in Schools.* Clwyd County Council.

Dunham, J. (1980). An Exploratory Comparative study of Staff Stress in English and German Comprehensive Schools, *Educational Review,* 32, 11-20.

Dunham, J. (1981). Disruptive Pupils and Teacher Stress, *Educational Review,* 23, 205-13.

Dunham, J. (1984). *Stress in Teaching.* Croom Helm: Beckenham.

Dunham, J. (1992). *Stress in Teaching*. Routledge: London.

Dunham, J. & Varma, V. (Eds.) (1998). *Stress in Teachers,* Whurr Pub: London.

Dyer, W.W. (1976). *Your Erroneous Zones.* Avon Books: New York.

Eaton, W.W., Anthony, J.C., Mandel, W. & Garrison, R. (1990). Occupations and the prevalence of major depressive disorder, *Journal of Occupational Medicine* 32, 1079–1087.

Edworthy, A. (1988). Teaching can damage your health, *Education,* 8. 323 – 329.

Ellis, A. (1987). The impossibility of achieving consistently good mental health. *American Psychologist,* 42, 364 – 375.

Ellison, C.G. (1991). Religious involvement and subjective well-being. *Journal of Health and Social Behavior*, 32, 80-89.

Emmons, R.A. (1992). Abstract versus concrete goals: Personal striving level, physical illness, and psychological well-being. *Journal of Personality and Social Psychology*, 62, 292-300.

Emmons, R.A., & Diener, E. (1985). Factors predicting satisfaction judgments: A comparative examination. *Social Indicators Research*, 16, 157-167.

European Commission. (1997). Health and Safety at Work, *Report on Work-Related Stress. The Advisory Committee for Safety, Hygiene and Health Protection at Work*, Euroforum L2920.

European Commission (2000). *Guidance on work-related stress: Spice of Life or Kiss of Death.* European Communities: Luxembourg.

Fava, G.A. (1999). Well-being therapy: Conceptual and technical issues. *Psychotherapy and Psychosomatics, 68*, 171–179.

Fava, G.A., Ruini, C., Rafanelli, C., Finos, L., Conti, S., & Grandi, S. (2004). Six Year Outcome for Cognitive Behavioural Prevention of Recurrent Depression. *American Journal of Psychiatry;* 161. 1872–1876.

Fimian, M.J. & Santoro, T.M. (1983). Sources and Manifestations of Occupational Stress as Reported by Full-time Special Education Teachers, *Exceptional Children,* 49, 540-3.

Financial Times, (17, November, 1990.). *Policies Urged to Combat Teacher Stress*

Folkman, S., Lazarus, R.S., Dunkel-Schetter, C., DeLongis, A., and Gruen, R.J. (1986). The dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes, *Journal of Personality Social Psychology*, 50, 992-1003.

Fontana, D. and Abouserie, R. (1993). Stress levels, gender and personality factors in teachers. *British Journal of educational Psychology,* 63, 261 – 270.

Forbes, A.B., Carlin, J.B. (2005). "Residual Change" analysis is not equivalent to analysis of covariance. *Journal of Clinical Epidemiology*, 58: 540 – 541.

Fredrickson, B.L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention and Treatment*, 3, Article 1. Available on the World Wide Web: http://journals.apa.org/prevention/volume3/pre0030001a.html.

Fredrickson, B.L., & Kahneman, D. (1993). Duration neglect in retrospective evaluations of affective episodes. *Journal of Personality and Social Psychology*, 65, 45-55.

Fredrikson, M. & Matthews, K.A. (1990). Cardiovascular responses to behavioural stress and hypertension: a meta-analytic review. *Annals of Behavioural Medicine,* 12, 30 – 39.

Freeman, A. (1987). Pastoral Care and Teacher Stress, *Pastoral Care in Education,* 5, 22-8.

French, J.R.P. & Caplan, R.D. (1970). Psychosocial Factors in Coronary Heart Disease, *Industrial Medicine*, 39, 383-97.

French, J. R. P. and Caplan, R. D. (1973). Organisational Stress and Individual Strain. In Marrow, A J. (ed.) *The Failure of Success*. Amacon: New York.

French, J.R.P., Jr., Caplan, R.D., & Harrison, R.V. (1982). *The mechanisms of job stress and strain*. London: John Wiley.

Freund, A.M., & Baltes, P.B. (1999). Selection, Optimization, and Compensation as Strategies of Life Management: Correction to Freund and Baltes (1998). *Psychology and Aging*, 14, 700-702.

Fromm, E. (1989). *The art of loving*. New York: Harper & Row.

Garrity, T.F. & Marx, M.B. (1979). Critical life events and coronary disease. In Gentry, W.D., & Williams, R.B., Jr. (eds.), *Psychological Aspects of Myocardial Infarction and Coronary Care*, Mosby, St. Louis.

Garson, G. D. (n.d.). *Statnotes: Topics in Multivariate Analysis.* Retrieved 12/01/2007 from http://www2.chass.ncsu.edu/garson/pa765/statnote.htm.

Gifford, B.D., Zammuto, R.F., Goodman, E.A., & Hill, K.S. (2002). The relationship between hospital unit culture and nurses' quality of work life. *Journal of Healthcare Management*, 47(1), 13-26.

Glick, W.H. (1985). Conceptualizing and measuring organizational and psychological climate: Pitfalls in multilevel research, *Academy of Management Review*, 10: 601–616.

Gohm, C.L., Hillier-Darlington, J., Diener, E., & Oishi, S. (1997). *The effects of marital conflict, marital status, and culture on the subjective well-being of young adults.* Unpublished Manuscript. University of Illinois.

Goldberg, D.P. (1978) *General Health Questionnaire 12-item version*. Windsor, Berkshire: NFER Nelson.

Griffith, J., Steptoe, A. and Cropley, M. (1999). An investigation of coping strategies associated with job stress in teachers. *British Journal of Educational Psychology,* 69, 517-531.

Grunberg, M. M. And Oborne, D. J. (1983). *Industrial Productivity. A Psychological Perspective.* MacMillan Pub.: London.

Hakanen, J.J., Bakker, A.B., & Schaufeli (2006). Burnout and work engagement among teacher. *Journal of School Psychology, 43:6 495-513*

Hardin, J.W. & Hilbe, J.M. (2003). *Generalized Estimating Equations.* CRC Press:Boca Raton, Florida

Hart, P.M. (1999). Predicting employee life satisfaction: a coherent model of personality, work and nonwork experiences, and domain satisfactions. *Journal of Applied Psychology*, *84*, 564–584.

Hart, P.M. (2000). *Understanding organizational health: Benchmarking and improvement in Victoria schools.* Melbourne: Department of Education, Employment and Training.

Hart, P.M. & Cooper, C.L. (2001). Occupational Stress: Toward a More Integrated Framework. In N. Anderson, D.S. Ones, H.K. Sinangil, & C. Viswesvaran (Eds), *Handbook of Industrial, Work and Organizational Psychology (vol 2: Personnel Psychology)*. London: Sage.

Hart, P.M., Griffin, M.A., Wearing, A.J., & Cooper, C.L. (1996). *Manual for the QPASS survey.* Brisbane: Public Sector Management Commission.

Hart, P.M., Wearing, A. J., Conn, M., Carter, N.L. & Dingle, A.R.K. (2000). Development of the School Organisational Health Questionnaire: A measure for assessing teacher morale and school organisational climate. *British Journal of Educational Psychology*, 70: 2, 211-228.

Harter, J.K. & Schmidt, F.L. (2002). *Employee engagement, satisfaction and business-unit-level outcomes: Meta-analysis.* Princeton, NJ: The Gallup Organisation.

Hayney, M.S., Love, G.D., Buck, J.M., Ryff, C.D., Singer, B. & Muller, D. (2003). The Association Between Psychosocial Factors and Vaccine Induced-Cytokine Production. *Vaccine*. 21, 2428-2432.

Headey, B. (2000). Subjective Well-Being: Revisions to Dynamic Equilibrium Theory using National Panel Data and Panel Regression Methods, *Social Indicators Research,* 79: 369–403

Headey, B. (2008). The Set-Point Theory of Well-Being: Negative Results and Consequent Revisions. *Social Indicators Research,* 85:389-403.

Headey, B.W. & Wearing, A.J. (1989). Personality, life events and subjective well-being: Toward a dynamic equilibrium model, *Journal of Personality and Social Psychology,* 57, 731–739.

Headey, B. & Wearing, A.J.(1992). *Understanding happiness: A theory of subjective well-being*. Melbourne, Australia: Longman Cheshire.

H.S.E. (Health and Safety Executive). (2002). *Survey of Use of Occupational Health Support. London: Health and Safety Executive Books.*

Hiebert, B.A., and Farber, I. (1984). Teacher Stress: A literature survey with a few surprises, *Canadian Journal of Education,* 9, 14-27.

Hobfoll, S.E. (1989). Conservation of resources: A new attempt at conceptualising stress. *American Psychologist,* 44, 513 – 524.

Holgado-Tello, F.P., Carrasco-Ortiz, M.A., Victroria del Barrio-Gandara, M. & Chacon-Moscoso, S. (2007). Factor analysis of the Big Five Questionnaire using polychoric correlations in children. *Quality and Quantity,* DOI: 10.1007/s11135-007-9085-3, 202-214.

Huberman, M. (1993). *The Lives of Teachers.* Cassell: London.

Huppert, F. Keverne, B. & Baylis, N. (2006) (Eds.). *The science of well-being.* Oxford: Oxford University Press.

International Personality Item Pool: *A Scientific Collaboratory for the Development of Advanced Measures of Personality Traits and Other Individual Differences.* Retrieved 12/01/2007 from http://ipip.ori.org/

Jackson, D.C., Mueller, C.J., Dolski, I., Dalton, K.M., Nitschke, J.B., Urry, H.L., Rosenkranz, M.A., Ryff, C.D., Singer, B.H., & Davidson, R.J. (2003). Now you feel it, now you don't: frontal brain electrical asymmetry and individual differences in emotion regulation. *Psychological Science* 14:6, 612 – 617.

James, G.D. Broege, P.A., & Schlussel, Y.R. (1996). Assessing cardiovascular risk and stress-related blood pressure variability in young women employed in wage jobs. *American Journal of Human Biology,* 8, 743 – 749.

James, G.D. & Brown, D.E. (1997). The biological stress response and lifestyle; catecholamines and blood pressure. *Annual Review of Anthropology,* 26, 313 – 353.

James, L. & Jones, A. (1974). Organisational Climate: A review of theory and research. *Psychological Bulletin*. 18: 1096-1112.

Johnson, S., Cooper, C., Cartwright, S., Donald, I. Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. *Journal of Managerial Psychology.* Vol. 20:1/2, 178-188

Jones, A.P. & James, L.R. (1979). Psychological climate: Dimensions and relationships of individual and aggregated work environment perceptions, *Organizational Behavior and Human Performance*, 23: 201–250.

Judge, T.A., Erez, A., Bono, J.E., & Thoresen, C.J. (2003) The Core Self-Evaluations Scale: Development of a Measure. *Personnel Psychology*, 56, 303-331.

Jöreskog, K.G., & Sörbom, D. (1996). *PRELIS 2: User's Reference Guide*. Chicago: SSI

Kafka, G.J., & Kozma, A. (2002). The construct validity of Ryff's scales of psychological well-being (PWB) and their relationship to measures of subjective well-being. *Social Indicators Research, 57*, 171-190.

Kagan, J. (1994). *Galen's prophecy.* New York: Basic Books.

Kahn, R.L. & Byosiere, P. (1992). Stress in Organisations. In M.D. Dunnette & L.M. Hough (eds.), *Handbook of Industrial and Organisational Psychology.* (2nd ed). Consulting Psychologists Press: Palo Alto.

Kahneman, D. (1999) Objective happiness. In D. Kahneman, E. Diener and N. Schwarz (eds.), *Well-Being: The Foundations of Hedonic Psychology*. New York: Russell Sage. pp. 3–25.

Karasek, R. (1979). Job demands, job decision, latitude and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24, 285-306.

Karasek, R. (1990). Lower health risks with increased job control among white collar workers. *Journal of Organisational Behaviour,* 11, 171 – 185.

Karasek, R.A. & Theorell, T. (1990). *Healthy Work, Stress, Productivity and the Reconstruction of Working Life*. Basic Books: New York.

Kasser, T., & Ryan, R.M. (1993). A dark side of the American Dream: Correlates of financial success as a central life aspiration. *Journal of Personality and Social Psychology*, 65, 410-422.

Kelsall, R.K. (1980). *Teaching*, in R. Silverstone and A. Ward (eds.) *Careers of Professional Women,* Croom-Helm: London.

Kernis, M.H., Whisenhunt, C.R., Waschull, S.B., Greenier, K.D., Berry, A.J., Herlocker, C.E., & Anderson, C.A. (1998). Multiple Facets of Self-Esteem and their Relations to Depressive Symptoms. *Personality and Social Psychology Bulletin*, Vol. 24, No. 6, 657-668

Keyes, C.L.M., Shmotkin, D., & Ryff, C.D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology, 82*(6), 1007–1022.

Kopelman, R.E., Brief, A.P., & Guzzo, R.A. (1990). The role of climate and culture in productivity. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 282-318). San Francisco: Jossey-Bass.

Kovess-Masféty, V., Sevilla-Dedieu, C., Rios-Seidel, C., Nerrière, E. & Chan C.C. (2006) Do teachers have more health problems? Results from a French cross-sectional survey, BMC Public Health 6 (2006), p. 101.

Kyriacou, C. (1981). Social Support and Occupational Stress among Schoolteachers. *Educational Studies,* 7, 55-60.

Kyricaou, C. (1986). *Effective teaching in schools*, Blackwell: Oxford.

Kyriacou, C. (1987). Teacher Stress and Burnout: An International Review, *Educational research,* 29, 146-52.

Kyriacou, C. (1998). Teacher Stress: Past and Present. In J. Dunham, and V. Varma (Ed.) *Stress in Teachers,* Whurr Pub: London.

Kyriacou, C. (2001). Teacher Stress: directions for future research. *Educational Review,* 53, 27 – 35.

Kyriacou, C. & Roe, H. (1988). Teachers' Perceptions of Pupils' Behaviour Problems at a Comprehensive School, *British Educational Research Journal,* 14, 167-73.

Kyriacou, C. & Sutcliffe, J. (1977). Teacher Stress: A review, *Educational Review,* 29, 299 – 306.

Kyriacou, C. & Sutcliffe, J. (1978). Teacher Stress: Prevalence, Sources and Symptoms. *British Journal of Educational Psychology,* 48, 159-67.

Kyriacou, C. & Sutcliffe, J. (1979). Teacher Stress and Satisfaction, *Educational Research, 21, 89-96.*

Laughlin, A. (1984). Teacher Stress in an Australian Setting: The role of biographical mediators, *Educational Studies,*10, 7-22.

Larsen, R.J., Diener, E., Cropanzano, R.S. (1987). Cognitive operations associated with individual differences in affect intensity. *Journal of Personality and Social Psychology*, 53, 767-774.

Lazarus, R.S. (1966). *Psychological Stress and the Coping Process.* McGraw-Hill: New York.

Lazarus, R.S. (1978). Stress-related transactions between person and environment. In L. A. Pervin & M. Lewis (Eds.) *Perspectives in interactional psychology.* Plenum: New York.

Lazarus, R.S. (1990). Theory-based stress measurement. *Psychological Inquiry,* 1, 3–13.

Lazarus, R. S. & Folkman, S. (1984) *Stress, Appraisal and Coping,* Springer Publishing: New York.

Lee, J., Sparrow, D., Vokonas, P.S., Landsberg, L. & Weiss, S.T. (1995). Uric Acid and Coronary Heart Disease Risk: Evidence for a Role of Uric Acid in the Obesity-Insulin Resistance Syndrome: The Normative Aging Study, *American Journal of Epidemiology* Vol. 142, No. 3: 288-294.

Levinson, H. (1978). The Abrasive Personality. *The Harvard Business Review,* 56, 86-94.

Lindfors, P., & Lundberg, U. (2002). Is low cortisol release an indicator of positive health? *Stress and Health*, 18, 153-160.

Litt, M.D. & Turk, D.C. (1985). Sources of Stress and Dissatisfaction in Experienced High School Teahcers, *Journal of Educational Research,* 78, 178 – 185.

Litwin, G.H. & Stringer, R.A. (1968). Motivation and Organizational Climate. Boston: Harvard University Press.

Lucas, R.E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology, 71*, 616–628.

Lykken, D.T., & Tellegen, A. (1996). Happiness is a stochastic phenomenon. *Psychological Science*, 7, 186–189.

Lyness, S.A. (1993). Predictors of differences btetween Type A and B individuals in heart rate and blood pressure reactivity. *Psychological Bulletin,* 114, 266 – 295.

Lyubomirsky, S., & Ross, L. (1999). Changes in attractiveness of elected, rejected, and precluded alternatives: A comparison of happy and unhappy individuals. *Journal of Personality and Social Psychology*, 76, 988-1007.

Lyubomirsky, S., Tkach, C. & Yelverton, J. (2004). *Pursuing sustained happiness through random acts of kindness and counting one's blessings: Tests of two six-week interventions.* Unpublished data, University of Claifornia, Riverside, Department of Psychology, Quoted in Sheldon, K.M., & Lyubomirsy, S. (2004) Achieving Sustainable New Happiness: Prospects, Practices, and Prescriptions. In P.A. Linley and S. Joseph (Eds.) *Positive Psychology in Practice* Hoboken, NJ: Wiley and Sons.

MacDonald, B. (2001). Quality of life in cancer care: patients' experiences and nurses' contribution. *European Journal of Oncology Nursing*, 5(1): 32 - 41

Margolis, B.L., Kroes, W.H. & Quinn, R.P. (1974). Job stress: An unlisted occupational hazard. *Journal of Occupational Medicine*, 16, 652-61.

Marks, N.F., & Lambert, J.D. (1998). Marital status continuity and change among young and midlife adults: longitudinal effects on psychological well-being, *Journal of Family Issues* 19, pp. 652–686.

Marmot, M.G., Smith, G.M., Stansfield, S., Patel, C., North, F., Head, J., White, I., Brunner, E. & Feeney, A. (1991). Health inequalities among British civil servants: The Whitehall II study, *The Lancet,* 337, 1387 – 1393.

Marsh, H. W. (1992). *Self Description Questonnaire (SDQ) III: A theoretical and empirical basis for the measurement of multiple dimensions of late adolescent self-concept: An interim test manual and research monograph.* Macarthur, NSW, Australia: Faculty of Education, University of Western Sydney.

Marshall, J. (1977), *Job Pressures and Satisfactions at Managerial Levels.* Quoted in Travers, C. J. & Cooper, C. L. (1996) *Teachers Under Pressure: Stress in the Teaching Profession.* Routledge: London.

Maslach, C., & Jackson, S. E. (1984). Burnout in organizational settings. *Applied Social Psychology Annual*, 5, 133-153.

Maslow, A. (1968). *Toward a psychology of being* (2nd ed.). New York: Van Nostrand.

Mason, J.W. (1975). A historical view of the stress field. *Journal of Human Stress,* 1, 22 – 36.

Mastekaasa, A. (1992). Marriage and psychological well-being: Some evidence on selection into marriage. *Journal of Marriage and the Family*, 54, 901-911.

Mattiasson, I., Lindgärde, F., Nilsson, A. & Theorell, T. (1990). Threat of unemployment and cardiovascular risk factors: longitudinal study of quality of sleep and serum cholesterol concentrations in men threatened with redundancy. *British Medical Journal*. 301(6750): 461–466.

McCrae, R.R. & Costa, P.T. (1991). Adding liebe und arbeit: The full five-factor model and well-being. *Personality and Social Psychology Bulletin*, 17, 227-232.

McCrae, R.R. & Costa, P.T. (1996). Toward a new generation of personality theories: Theoretical contexts for the five-factor model. In J. S. Wiggins (Ed.), *The five-factor model of personality: Theoretical perspectives* (pp. 51-87). New York: Guilford.

McGrath, J.E. (Ed.) (1974). A conceptual formulation for research on stress. *In Social and Psychological Factors in Stress*. Holt Rinehart and Winston: New York.

McGregor, I. & Little, B.R. (1998). Personal projects, happiness, and meaning: on doing well and being yourself. *Journal of Personality & Social Psychology, 74*, 494–512.

Miner, J.B. & Brewer, J.F. (1976). Management of ineffective performance. In M.D. Dunette (ed.) *Handbook of Industrial and Organisational Psychology.* Rand Mcnally: Chicago.

Montowildo, S.J., Packard, J.S., & Manning, M.R. (1986). Occupational Stress: Its causes and consequences or job performance. *Journal of Applied Psychology,* 71, 618-29.

Moracco, J.C., D'Arienzo, R.V. & Danford, D. (1983). Comparison of Perceived Occupational Stress between Teachers who are constructed and discontented in their Career choices. *The Vocational Guidance Quarterly,* pp.44-51.

Morgan, M.A., Romanskil, M. & LeDoux, J.E. (1993). Extinction of emotional learning: contribution of medial prefrontal cortex. *Neuroscience letters,* vol.163, no1 pp. 109 -1 13.

Mueller, E.F.; & French, J.R.Jr. (1974). Uric acid and achievement. *Journal of Personality and Social Psychology*. 30(3):336-40.

MyKletun, R.J. (1984). Teacher Stress: Perceived and Objective Sources and Quality of Life, *Scandinavian Journal of Educational Research*, 28, 17-45.

Nelson, D. L., and Quick, J. C. (1985) Professional Women: Are Distress and Disease Inevitable? *Academy of Management Review,* 10, 206-18.

Newton, T.J. (1989). Occupational stress and coping with stress: a critique. *Human Relations*, 42, 441–461.

Niaura, R., Herbert, P.N., McMahon, N. & Sommerville, L. (1992) Repressive Coping and blood lipids in men and women. Psychosomatic Medicine, Vol 54, Issue 6 698-706.

Nisbett, R.E., & Borgida, E. (1975). Attribution and the psychology of prediction. *Journal of Personality and Social Psychology*, 32, 932-943.

Nix, G., Ryan, R.M., Manly, J.B. & Deci. E.L. (1999). Revitalization through self-regulation: the effects of autonomous versus controlled motivation on happiness and vitality. *Journal of Experimental & Social Psychology, 35*, 266–84.

O'Connor, B.P. (2000). SPSS and SAS programs for determining the number of components using parallel analysis and Velicer's MAP test. *Behavior Research Methods, Instrumentation, and Computers, 32,* 396-402.

Okun, M.A., Stock, W.A., Haring, M.J. & Witter, R.A. (1984). Health and subjective well-being: A meta-analysis. *International Journal of Aging and Human Development*, 19, 111-132.

Pajares, F. (1997). Current directions in self-efficacy research. In M. Maehr & P. R. Pintrich (Eds.). *Advances in motivation and achievement* (Vol. 10, pp. 1-49). Greenwich, CT: JAI Press.

Parker, C.P., Baltes, B.B., Young, S.A., Huff, J.W., Altmann, R.A., LaCost, H.A., & Roberts, J.E. (2003). Relationships between psychological climate perceptions and work outcomes: a meta-analytic review. *Journal of Organizational Behavior*, 24:4, 389 - 416

Parkes, K.R., Mendham, C.A. & Von Rabenau, C. (1994). Social support and the demand-discretion model of job stress: Tests of additive and interactive effects in two samples. *Journal of Vocational Behavior*, 44, 91–113.

Persons, J.B. (1989) *Cognitive Therapy in Practice: A Case Formulation Approach.* New York: Norton.

Patterson, M.G., West, M.A., Shackleton, V.J., Dawson, J.F., Lawthom, R., Maitlis, S., Robinson, D.L., & Wallace, A.M. (2005). Validating the organizational climate measure: links to managerial practices, productivity and innovation. *Journal of Organizational Behaviour*. Volume 26 Issue 4, 379 - 408

Patterson M., Warr P., & West M.(2004). Organizational climate and company productivity: The role of employee affect and employee level. *Journal of Occupational and Organizational Psychology*, 77: 2, 193-216

Pieper, G., LaCroix, A.Z.; & Karasek, R.A. (1989). The relation of psychosocial dimension at work with CHD risk: a meta-analysis of five United States data bases. *American Journal of Epidemiology,* 3, 483 – 494.

Pithers, R.T. & Fogerty, G. (1995). Occupational stress among vocational teachers. *British Journal of Educational Psychology*, 65, 3-14.

Pithers, R.T., & Soden, R. (1998). Scottish and Australian teacher stress and strain: A comparative analysis, *British Journal of Educational Psychology,* 68, 269 – 279.

Plant, M.A. (1979). Occupations, drinking patterns and alcohol-related problems: Conclusions from a follow-up study. *British Journal of Addiction,* 74, 267-73.

Pratt, J. (1976). Perceived Stress among Teachers: An examination of some Individual and Environmental Factors and their Relationship to reported Stress. Quoted in Travers, C. J. and Cooper, C. L. (1996) *Teachers Under Pressure: Stress in the Teaching Profession.* Routledge: London.

Punch, K. & Tutteman, E. (1990). Correlates of psychological distress among teachers. *British Educational Research Journal,* 16, 369-382.

Quick, J. C. and Quick, J. D. (1984). *Organisational stress and preventive management.* McGraw-Hill: New York.

Quinn, R.E. & Rohrbaugh, J. (1983). A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. *Management Science*, 29, 363-377.

Reis, H.T., Sheldon, K.M., Gable, S.L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, 26, 419-435.

Roberts, J.E. & Monroe, S.M. (1992) Vulnerable self-esteem and depressive symptoms: prospective findings comparing three alternative conceptualizations. *Journal of Personality and Social Psychology,* 62(5):804-12.

Rogers, C.R. (1961). *On becoming a person.* Oxford: Houghton Mifflin.

Rogers, E.D., Miles, W.G. Jr., & Biggs, W.D. (1980). The Factor Replicability of the Litwin and Stringer Organizational Climate Questionnaire: An Inter and Intra-*Organizational Assessment Journal of Management* 6: 65-78.

Rubin, D.B. (1996). Multiple imputation after 18+ years (with discussion). *Journal of the American Statistical Association*, 91, 473-489.

Ruini, C., Ottolini, F., Rafanelli, C., Tossani, E., Ryff, C.D., & Fava, G.A. (2003). The Relationship of Psychological Well-Being to Distress and Personality. *Psychotherapy and Psychosomatics*; 72:268-275 (DOI: 10.1159/000071898)

Ryan, R.M. & Frederick, C.M. (1997). On energy, personality and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, 65, 529-565.

Ryan, R.M., Sheldon, K.M., Kasser, T. & Deci, E.L. (1996). All goals are not created equal: An organismic perspective on the nature of goals and their regulation. In P. M. Gollwitzer & J. A. Bargh (Eds) *The psychology of action: Linking cognition and motivation to behavior* (pp. 7-47). New York: Guilford Press.

Ryan, R.M. & Deci, E.L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141-166.

Ryff, C.D. (1989a). Beyond Ponce de Leon and life satisfaction: New directions in quest of successful aging. *International Journal of Behavioral Development*, *12*, 35–55.

Ryff, C.D. (1989b). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57,* 1069-1081.

Ryff, C.D. (2002). *Resilience: A biopsychosocial perspective on what protects health.* Behavioral and Social Science Lecture Series, Neuroscience Center, National Institutes of Health, Rockville, MD, December 11, 2002.

Ryff, C.D., & Keyes, C.L. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*(4):719-727.

Ryff, C.D., Keyes, C.L.M. & Hughes, D.L. (2004). Psychological well-being in MIDUS: profiles of ethnic/racial diversity and life course uniformity. In: O.G. Brim, C.D. Ryff and R.C. Kessler, Editors, *How Healthy Are We? A National Study of Well-being at Mid-life, The John D. and Catherine T. MacArthur Foundation Series on Mental Health and Development: Studies on Successful Midlife Development*, Chicago: University of Chicago Press, 398–424.

Ryff, C.D., Lee, Y.H., Essex, M.J. & Schmutte, P.S. (1994). My children and me: Midlife evaluations of grown children and self. *Psychology and Aging*, 9, 195–205.

Ryff, C.D., & Singer, B. (1998). The contours of positive human health. *Psychological Inquiry, 9*, 1–28.

Ryff, C.D., & Singer B.H. (2006). Best news yet on the six-factor model of well-being. *Social Science Research, 35*(4), 1102-18.

Ryff, C.D., Singer, B.H. & Dienberg Love, G. (2004). Positive health: Connecting well-being with biology. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences, 359*(1449), 1383-1394.

Røsamb, E., Harris, J.R., Magnes, P., Vittersø, J. & Tambs, K. (2002). Subjective Well-Being: Sex-specific effects of genetic and environmental factors. *Personality and Individual Differences* 32, 211-213.

Sarafino, E.P. (1998). *Health Psychology,* Wiley: New York.

Sarantakos, S. (1998), *Social Research* (2nd Edition) MacMillan Pub.: Melbourne, Australia.

Schaufeli, W. & Buunk, B.P. (2003). Burnout: An overview of 25 years of research and theorizing. In: M.J. Schabracq, J.A.M. Winnubst and C.L. Cooper, Editors, *Handbook of work and health psychology*, Wiley, Chichester (2003), pp. 383–425.

Seligman, M.E.P. (2003). Positive Psychology: Fundamental Assumptions. *The Psychologist,* 126-127.

Seligman, M., Steen, T.A., Park, N. & Peterson, C. (2005). Positive Psychology Interventions: Empirical Validation of Interventions, *American Psychologist*, 60(5);410-421.

Selye, H. (1956). *The stress of life.* McGraw_Hill: New York.

Schafer, J.L. (1997). *Analysis of Incomplete Multivariate Data*. Chapman & Hall, London.

Schmutte, P.S. & Ryff, C.D. (1997) Personality and well-being: reexamining methods and meanings. *Journal of Personality and Social Psychology*, 73, 549-559.

Schneider, B. & Reichers, A.E. (1983). On the Etiology of Climates. *Personnel Psychology*, Volume 36 Issue 1, 19 – 39.

Schwartz, J.E.; Pickering, T.G.; & Landsberg's, P.A. (1996). Work-Related Stress and Blood Pressure: current theoretical models and considerations from a behavioural medicine perspective. *Journal of Occupational Health Psychology,* 1, 287 – 310.

Schonfeld, I.S. (1992). A Longitudinal Study of Occupational Stressore and Depressive Symptoms in First-Year Female Teachers, *Teaching and Teacher Education,* 8, 151-8.

Scott, M.J & Stradling, S.G. (2001). Determining the cognitive ports of entry amongst the post-traumatic states: Treatment implications. *Behavioural & Cognitive Psychotherapy.* Vol 29(2), 245-250.

Shavelson, R., Hubner, J. & Stanton, G, (1976). Self Concept: validation of construct interpretations. *Review of Educational Research.* 46, 407-441.

Sheldon, K. M. & Elliot, A. J. (1999). Goal striving, need-satisfaction, and longitudinal well-being: The Self-Concordance Model. *Journal of Personality and Social Psychology*, 76, 482-497.

Sheldon, K.M. & Kasser, T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology*, 68, 531 543.

Sheldon, K.M. & Lyubomirsy, S. (2004) Achieving Sustainable New Happiness: Prospects, Practices, and Prescriptions. In P.A. Linley and S. Joseph (Eds.) *Positive Psychology in Practice* Hoboken, NJ: Wiley and Sons.

Sheldon, K.M., Ryan, R., Deci, E. & Kasser, T. (2004). The independent effects of goal contents and motives on well-being: It's both what you pursue and why you pursue it. *Personality and Social Psychology Bulletin*, 30, 475-486.

Sheldon, K.M., Ryan, R. & Reis, H.T. (1996). What makes for a good day? Competence and autonomy in the day and in the person. *Personality and Social Psychology Bulletin*, 22, 1270-1279.

Shirom, A. (2003). The effects of Work Stress on Health. In M.J. schabracq, C.L. Cooper and J.A.M. Winnubst (Eds.) *The Handbook of Work and Health Psychology,* John Wiley and Sons: London.

Shirom, A. (2004). Feeling vigorous at work? The construct of vigor and the study of positive affect in organizations. In *Research in Occupational Stress and Well Being.* (Vol. 3, pp. 135-164).

Shirom, A. (2007). Explaining vigor: on the antecedents and consequences of vigor as a positive affect at work. In Nelson, D. L. and Cooper, C. L. (Eds), *Positive Organizational Behavior: Accentuating the Positive at Work.* Thousand Oaks, CA: Sage, 86–100.

Shirom, A., Toker, S., Berliner, S., Shapira, I. & Melamed, S. (2006). Work-related vigor and job satisfaction relationships with inflammation biomarkers among employed adults. In A. Delle Fave (Ed.), *Dimensions of well-being: Research and interventions* (pp. 254-274). Milano, Italy: Franco Angeli.

Shirom, A., Westman, M., Shamai, O. & Carel, R.S. (1997). Effects of work overload and burnout on cholesterol and triglycerides levels: The moderating efffects of emotional reactivity among male and female employees. *Journal of Occupational Health Psychology*. Vol 2(4), 275-288.

Shmotkin, D. (1998). Declarative and differential aspects of subjective well-being and its implications for mental health in later life. In J. Lomranz (Ed.), *Handbook of aging and mental health: An integrative approach* (pp. 15-43). New York: Plenum.

Siegrist, J., Matschinger, H., Cremer, P. & Seidel, D. (1988) Atherogenic risk in men suffering from occupational stress. *Atherosclerosis,* 69(2-3):211–218.

Skaalvik, E.M. & Skaalvik, S. (2004). Self-concept and self-efficacy: a test of the internal/external frame of reference model and predictions of subsequent motivation and achievement. *Psychological Report*. 95 (3 Pt 2):1187-202

Smider, N.A., Essex, M.J., & Ryff, C.D. (1996). Adaptation to relocation: The interactive influences of psychological resources and contextual factors. *Psychology and Aging, 11,* 362-372.

Smith, M.J. (1985). Machine-paced work and stress. In C. L. Cooper and M. J. Smith (eds.) *Job stress and Blue Collar work. John Wiley and Sons: Chichester.*

Smith, M.J., Cohen, B.G., Stammerjohn, L.W. & Happ, A. (1981). An investigation of Health Complaints and Job Stress in Video Display Operations, *Human Factors,* 23, 389-400.

Sparks, D. C. (1979). A Biased Look at Teacher Job Satisfaction, *Clearing House*, 52, 447-9.

Spector, P.E. (2001), Do national levels of individualism and internal locus of control relate to well-being: an ecological level international study, *Journal of Organizational Behavior*, Vol. 22 pp.815-32.

Spector, P.E., Cooper, C.L., Poelmands, S., Allen, T.D., O'Driscoll, M., Sanchez, J.I., Siu, O.L., Dewe, P., Hart, P. & Lu, L. (2004). A cross-national comparative study of work-family stressors, working hours and well-being: China and Latin America versus the Anglo World. *Personnel Psychology*. 57:1, 119 – 142.

Springer, K.W., & Hauser, R.M. (2006). An assessment of the construct validity of Ryff's scales of psychological well-being: method, mode and measurement effects. *Social Science Research, 35*(4), 1079-1110.

Springer, K.W., Hauser, R.M., & Freese, J. (2006). Bad news indeed for Ryff's six-factor model of well-being. *Social Science Research, 35*(4), 1119-30.

Suh, E., Diener, E., & Fujita, F. (1996). Events and subjective well-being: Only recent events matter. *Journal of Personality and Social Psychology*, 70, 1091-1102.

Sutherland, V. J. & Cooper, C. L. (1991). *Understanding Stress: A Psychological Perspective for Health Professionals.* Chapman and Hall: London.

Tabachnick, B.G. & Fidell, L.S. (2007) *Using Multivariate Statistics.* (5th ed.) Boston: Pearson Education.

Thoresen, C.J., Kaplan, S.A., Barsky, A.P., Warren, C.R. & De Chermont, K. (2003) The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin*, vol. 129:6, pp. 914-945.

Travers, C.J. & Cooper, C.L. (1996). *Teachers Under Pressure: Stress in the Teaching Profession.* Routledge: London.

Trevisan, M., O'Leary, E., Farinaro, E., Jossa, F., Galasso, R., Celentano, E., Scottoni, A., Fusco, G. & Panico, S. (1997). Short- and long-term association between uric acid and a natural disaster. *Psychosomatic Medicine*, Vol 59, Issue 2 109-113.

Trumbull, R. & Appley, M.H. (1986). A conceptual model for examination of stress dynamics. In M.H. Appley and R. Trunbull (eds.) *Dynamics of Stress: Physiological, psychological and social perspectives.* Plenum: New York.

Twisk, J.W.R. (2003). *Applied Longitudinal Data Analysis for Epidemiology: A Practical Guide.* Cambridge University Press: Cambridge.

Twisk, J.W.R., Kemper, H.C.G., van Mechelen, W. & Post, G.B. (1997) Tracking of risk factors for coronary heart disease over a 14 year period: a comparison between lifestyle and biological risk factors with data from the Amsterdam Growth and Health Study. *American Journal of Epidemiology,* **145**, 888-898.

Twisk, J.W.R. & Proper, K. (2004). Evaluation of the results of a randomized controlled trial: how to define changes between baseline and follow-up. *Journal of Clinical Epidemiology,* 57:223-228.

Urry, H.L., Nitschke, J.B., Dolski, I., Jackson, D.C., Dalton, K.M., Mueller, C.J., Rosenkranz, M.A., Ryff, C.D., Singer, B.H. & Davidson, R.J. (2004). Making a life worth living: neural correlates of well-being. *Psychological Science 15*:367–372.

Vandenberghe, R. & Huberman, A. M. (Eds.). (1999). *Understanding and Preventing Teacher Burnout: a sourcebook of international research and practice.* Cambridge University Press: Cambridge.

Van der Doef, M. & Maes, S. (1998). The Job Demand-Control(-Support) model and physical health outcomes: A review of the strain and buffer hypotheses. *Psychology and Health*, 13, 909–936.

Van Dierendonck, D. (2004). The construct validity of Ryff's scales of psychological well-being and its extension with spiritual well-being. *Personality and Individual Differences, 36*, 629–643.

Van Dierendonck, D., Díaz D., Rodríguez-Carvajal, R., Blanco, A. & Moreno-Jiménez, B. (2007) Ryff's Six-factor Model of Psychological Well-being, A Spanish Exploration. *Social Indicators Research* DOI 10.1007/s11205-007-9174-7

Van Horn, J.E., Taris, T.W., Schaufeli, W.B. & Schreurs, P.J.G. (2004). The structure of occupational well-being: A study among Dutch teachers. *Journal of Occupational and Organizational Psychology*, 77, 365–375

Verhoeven, C., Maes, S., Kraaij, V. & Joekes, KK. (2003). The Job Demand-Control-Social Support Model and Wellness/Health Outcomes: A European Study, *Psychology & Health*, 18:4, 421 – 440.

Vittersø, J. (2001). Personality Traits and Subjective Well-Being: Emotional stability, not extraversion is probably the important predictor. *Personality & Individual Differences* 31:903-914.

Walsh, B. (1998). Workplace Stress: Some Findings and strategies. In J. Dunham and V. Varma (eds.) *Stress in teachers: Past, Present and Future*, Whurr Publishers Ltd: London.

Warr, P. (1987). Job characteristics and mental health. In P. B. Warr (ed.) *Psychology at Work.* Penguin: Harmondsworth.

Warr, P. (1992). Job features and excessive stress. In R. Jenkins and N. Loney (eds.) *Prevention of Mental Ill-Health at Work.* HMSO: London.

Waterman, A.S. (1993). Two conceptions of happiness: contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology, 64,* 678-91.

Watson, D. & Clark, L. A. (1992). On traits and temperament: General and specific factors of emotional experience and their relation to the five-factor model. *Journal of Personality*, 60, 441-476.

Watson, D., Clark, L.A. & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.

Weinstein, C. (1979). The physical environment of the school: A review of the research. *Review of Educational Research,* 49, 557-610.

Weiskopf, P.E. (1980). Burnout Among Teachers of Exceptional Children, *Exceptional Children,* 47, 18-23.

W.H.O. (World Health Organisation). (2001). *Mental Health in Europe.* Copenhagen: World Health Organisation, Regional Office for Europe.

Williams, S. (1994). Ways of Creating Healthy Work Organisations. In C. L. Cooper and S. Williams (Eds.). *Creating Healthy Work Organisations*. John Wiley and sons: London

Wilson, M. G., Dejoy, D. M., Vandenberg, R. J., Richardson, H. A., & McGrath, A. L. (2004). Work characteristics and employee health and well-being: Test of a model of healthy work organization. *Journal of Occupational and Organizational Psychology*, 77, 565–588.

Wilson, D., Mutero, C., Doolabh, A. & Herzstein, M. (1990). Type A behavior and self-reported stress among Zimbabwean teachers. *Journal of Social Psychology.* 130, 115-116.

Winseman, A.L. (2002) Doing what they do best. *Gallup Management Journal*, 2(3), 1-4.

Wylie, R.C. (1974). *The self-concept: A critical survey of pertinent research literature.* Lincoln, NE: University of Nebraska Press.

Young, J.E. (1990). *Cognitive therapy for personality disorders: A schema-focused approach.* Wiley: New York.

APPENDIX A

The following set of questions deals with how you feel about yourself and your life. Please tick the box to the answer that best suits you and remember that there are no right or wrong answers. Don't think too long about your response, simply answer the first response that comes to you.

Circle the number that best describes your present agreement or disagreement with each statement.	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1. Most people see me as loving and affectionate.	1	2	3	4	5	6
2. Sometimes I change the way I act or think to be more like those around me.	1	2	3	4	5	6
3. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
4. I am not interested in activities that will expand my horizons.	1	2	3	4	5	6
5. I feel good when I think of what I've done in the past and what I hope to do in the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
8. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.	1	2	3	4	5	6
9. The demands of everyday life often get me down.	1	2	3	4	5	6
10. In general, I feel that I continue to learn more about myself as time goes by.	1	2	3	4	5	6
11. I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
12. In general, I feel confident and positive about myself.	1	2	3	4	5	6
13. I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6
14. My decisions are not usually influenced by what everyone else is doing.	1	2	3	4	5	6
15. I do not fit very well with the people and the community around me.	1	2	3	4	5	6
16. I am the kind of person who likes to give new things a try.	1	2	3	4	5	6
17. I tend to focus on the present, because the future nearly always brings me problems.	1	2	3	4	5	6
18. I feel like many of the people I know have gotten more out of life than I have.	1	2	3	4	5	6

19. I enjoy personal and mutual conversations with family members or friends.	1	2	3	4	5	6
20. I tend to worry about what other people think of me.	1	2	3	4	5	6
21. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
22. I don't want to try new ways of doing things - my life is fine the way it is.	1	2	3	4	5	6
23. I have a sense of direction and purpose in life.	1	2	3	4	5	6
24. Given the opportunity, there are many things about myself that I would change.	1	2	3	4	5	6
25. It is important to me to be a good listener when close friends talk to me about their problems.	1	2	3	4	5	6
26. Being happy with myself is more important to me than having others approve of me.	1	2	3	4	5	6
27. I often feel overwhelmed by my responsibilities.	1	2	3	4	5	6
28. I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
29. My daily activities often seem trivial and unimportant to me.	1	2	3	4	5	6
30. I like most aspects of my personality.	1	2	3	4	5	6
31. I don't have many people who want to listen when I need to talk.	1	2	3	4	5	6
32. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
33. If I were unhappy with my living situation, I would take effective steps to change it.	1	2	3	4	5	6
34. When I think about it, I haven't really improved much as a person over the years.	1	2	3	4	5	6
35. I don't have a good sense of what it is I'm trying to accomplish in life.	1	2	3	4	5	6
36. I made some mistakes in the past, but I feel that all in all everything has worked out for the best.	1	2	3	4	5	6
37. I feel like I get a lot out of my friendships.	1	2	3	4	5	6
38. People rarely talk to me into doing things I don't want to do.	1	2	3	4	5	6
39. I generally do a good job of taking care of my personal finances and affairs.	1	2	3	4	5	6
40. In my view, people of every age are able to continue growing and developing.	1	2	3	4	5	6
41. I used to set goals for myself, but that now seems like a waste of time.	1	2	3	4	5	6

42. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6
43. It seems to me that most other people have more friends than I do.	1	2	3	4	5	6
44. It is more important to me to "fit in" with others than to stand alone on my principles.	1	2	3	4	5	6
45. I find it stressful that I can't keep up with all of the things I have to do each day.	1	2	3	4	5	6
46. With time, I have gained a lot of insight about life that has made me a stronger, more capable person.	1	2	3	4	5	6
47. I enjoy making plans for the future and working to make them a reality.	1	2	3	4	5	6
48. For the most part, I am proud of who I am and the life I lead.	1	2	3	4	5	6

49. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6
50. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
51. I am good at juggling my time so that I can fit everything in that needs to be done.	1	2	3	4	5	6
52. I have a sense that I have developed a lot as a person over time.	1	2	3	4	5	6
53. I am an active person in carrying out the plans I set for myself.	1	2	3	4	5	6
54. I envy many people for the lives they lead.	1	2	3	4	5	6
55. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
56. It's difficult for me to voice my own opinions on controversial matters.	1	2	3	4	5	6
57. My daily life is busy, but I derive a sense of satisfaction from keeping up with everything.	1	2	3	4	5	6
58. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5	6
59. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
60. My attitude about myself is probably not as positive as most people feel about themselves.	1	2	3	4	5	6
61. I often feel as if I'm on the outside looking in when it comes to friendships.	1	2	3	4	5	6
62. I often change my mind about decisions if my friends or family disagree.	1	2	3	4	5	6
63. I get frustrated when trying to plan my daily activities because I never	1	2	3	4	5	6

accomplish the things I set out to do.						
64. For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5	6
65. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
66. Many days I wake up feeling discouraged about how I have lived my life.	1	2	3	4	5	6
67. I know that I can trust my friends, and they know they can trust me.	1	2	3	4	5	6
68. I am not the kind of person who gives in to social pressures to think or act in certain ways.	1	2	3	4	5	6
69. My efforts to find the kinds of activities and relationships that I need have been quite successful.	1	2	3	4	5	6
70. I enjoy seeing how my views have changed and matured over the years.	1	2	3	4	5	6
71. My aims in life have been more a source of satisfaction than frustration to me.	1	2	3	4	5	6
72. The past had its ups and downs, but in general, I wouldn't want to change it.	1	2	3	4	5	6
73. I find it difficult to really open up when I talk with others.	1	2	3	4	5	6
74. I am concerned about how other people evaluate the choices I have made in my life.	1	2	3	4	5	6
75. I have difficulty arranging my life in a way that is satisfying to me.	1	2	3	4	5	6
76. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
77. I find it satisfying to think about what I have accomplished in life.	1	2	3	4	5	6
78. When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5	6
79. My friends and I sympathize with each other's problems.	1	2	3	4	5	6
80. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
81. I have been able to build a home and a lifestyle for myself that is much to my liking.	1	2	3	4	5	6
82. There is truth to the saying that you can't teach an old dog new tricks.	1	2	3	4	5	6
83. In the final analysis, I'm not so sure that my life adds up to much.	1	2	3	4	5	6
84. Everyone has their weaknesses, but I seem to have more than my share.	1	2	3	4	5	6

APPENDIX B

The following set of questions deals with how you feel about yourself and your life. Please tick the box to the answer that best suits you and remember that there are no right or wrong answers. Don't think too long about your response, simply answer the first response that comes to you.

Circle the number that best describes your present agreement or disagreement with each statement.	Strongly Dis-agree	Dis-agree Some-what	Disagree Slightly	Agree Slightly	Agree Some-what	Strongly Agree
1. Most people see me as loving and affectionate.						
2. In general, I feel I am in charge of the situation in which I live.						
3. I am not interested in activities that will expand my horizons.						
4. When I look at the story of my life, I am pleased with how things have turned out.						
5. Maintaining close relationships has been difficult and frustrating for me.						
6. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.						
7. The demands of everyday life often get me down.						
8. I live life one day at a time and don't really think about the future.						
9. In general, I feel confident and positive about myself.						
10. I often feel lonely because I have few close friends with whom to share my concerns.						
11. My decisions are not usually influenced by w1hat everyone else is doing.						
12. I do not fit very well with the people and the community around me.						
13. I tend to focus on the present, because the future nearly always brings me problems.						
14. I feel like many of the people I know have gotten more out of life than I have.						
15. I enjoy personal and mutual conversations with family members or friends.						
16. I tend to worry about what other people think of me.						
17. I am quite good at managing the many responsibilities of my daily life.						
18. I don't want to try new ways of doing things - my life is fine the way it is.						
19. Being happy with myself is more important to me than having others approve of me.						
20. I often feel overwhelmed by my responsibilities.						
21. I think it is important to have new experiences that challenge how you think about yourself and the world.						
22. My daily activities often seem trivial and unimportant to me.						
23. I like most aspects of my personality.						
24. I don't have many people who want to listen when I need to talk.						
25. I tend to be influenced by people with strong opinions.						
26. When I think about it, I haven't really improved much as a person over the years.						
27. I don't have a good sense of what it is I'm trying to accomplish in life.						
28. I made some mistakes in the past, but I feel						

that all in all everything has worked out for the best.
29. I generally do a good job of taking care of my personal finances and affairs.
30. I used to set goals for myself, but that now seems like a waste of time.
31. In many ways, I feel disappointed about my achievements in life.
32. It seems to me that most other people have more friends than I do.
33. I enjoy making plans for the future and working to make them a reality.
34. People would describe me as a giving person, willing to share my time with others.
35. I have confidence in my opinions, even if they are contrary to the general consensus.
36. I am good at juggling my time so that I can fit everything in that needs to be done.
37. I have a sense that I have developed a lot as a person over time.
38. I am an active person in carrying out the plans I set for myself.
39. I have not experienced many warm and trusting relationships with others.
40. It's difficult for me to voice my own opinions on controversial matters.
41. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.
42. Some people wander aimlessly through life, but I am not one of them.
43. My attitude about myself is probably not as positive as most people feel about themselves.
44. I often change my mind about decisions if my friends or family disagree.
45. For me, life has been a continuous process of learning, changing, and growth.
46. I sometimes feel as if I've done all there is to do in life.
47. I know that I can trust my friends, and they know they can trust me.
48. The past had its ups and downs, but in general, I wouldn't want to change it.
49. I have difficulty arranging my life in a way that is satisfying to me.
50. I gave up trying to make big improvements or changes in my life a long time ago.
51. When I compare myself to friends and acquaintances, it makes me feel good about who I am.
52. I judge myself by what I think is important, not by the values of what others think is important.
53. I have been able to build a home and a lifestyle for myself that is much to my liking.
54. There is truth to the saying that you can't teach an old dog new tricks.

APPENDIX C

The following consists of a number of words that describe different feelings and emotions. Indicate to what extent on average, **YOU** have felt this way during the **past month**. Please tick the box to the answer that best suits you and remember that there are no right or wrong answers. Don't think too long about your response, simply answer the first response that comes to you.

	Very Slightly or Not at All	***A Little***	***Moderately***	***Quite a Bit***	***Extremely***
(1) Interested	1	2	3	4	5
(2) Distressed	1	2	3	4	5
(3) Excited	1	2	3	4	5
(4) Upset	1	2	3	4	5
(5) Strong	1	2	3	4	5
(6) Guilty	1	2	3	4	5
(7) Scared	1	2	3	4	5
(8) Hostile	1	2	3	4	5
(9) Enthusiastic	1	2	3	4	5
(10) Proud	1	2	3	4	5
(11) Irritable	1	2	3	4	5
(12) Alert	1	2	3	4	5
(13) Ashamed	1	2	3	4	5
(14) Inspired	1	2	3	4	5
(15) Nervous	1	2	3	4	5
(16) Determined	1	2	3	4	5
(17) Attentive	1	2	3	4	5
(18) Jittery	1	2	3	4	5
(19) Active	1	2	3	4	5
(20) Afraid	1	2	3	4	5

APPENDIX D

BIOGRAPHICAL INFORMATION

Please indicate your answer by selecting the answer that corresponds to you.

Gender: Male Female

In what age category are you?

Under 20 years
20 to 25 years
26 to 29 years
30 to 39 years
40 to 49 years
50 years and over

Of what citizenship are you?

What level of qualification do you currently have?

Certificate
Diploma
Bachelor Degree
Post-Graduate Diploma
Masters
PhD.

What level of qualification are you currently studying?

Certificate
Diploma
Bachelor Degree

Post-Graduate Diploma
Masters
PhD.

Are you studying in your mother-tongue/first language?

Yes
No

What is your current study load?

Full-Time
Part-Time

What mode is your current study pattern?

On-Campus
Distance Education
On-Line
A combination of any of the above three options

Are you living:

In a Hall of Residence?
In a rental property?
At home with parents?
In your own home?

APPENDIX E

Have any of the following events or problems happened to you during the last 6 months?
To what extent have they affected your life?

	Did not occur	***Did not affect my life at all***	***Did affect my life a little***	***Occurred Did affect my life moderately***	***Did affect my life quite a bit***	***Did affect my life extremely***
You yourself suffered a serious illness, injury or assault						
A serious illness, injury or assault happened to a close relative						
Your parent, child or spouse died						
A close family friend or another relative (aunt, cousin, grandparent) died						
You had a separation due to marital difficulties						
You broke off a steady relationship						
You had a serious problem with a close friend, neighbour or relative						
You became unemployed or were seeking work unsuccessfully for more than one month						
You were sacked from your job						
You had a major financial crisis						
You had problems with the police and a court appearance						
Something you valued was stolen or lost						

APPENDIX F

Please indicate your answer by selecting the answer that corresponds to you.

Gender: Male Female

In what age category are you?

Under 30 years
30 to 44 years
45 years and over

Level of qualification:

Certificate
Diploma
Bachelor Degree
Post-Graduate Diploma
Masters
PhD.

What Percentage of your job is:

Administration (Head of Year/School/Department, Deputy-Head etc.)

Class Teaching

Other (Tutor, Advisor, Extra curricular activities)

Approximately, how many pupils attend your school?

Approximately, how many teachers work at your school?

In what country is your school?

Would you describe your school as being in a city, rural or urban location?

Of what citizenship are you?

Do you teach in your mother-tongue/first language?

Yes

No

How many Years of Experience do you have?

0 to 4 years
5 to 10 years
11 to 20 years
21 years and over

Approximately, how many Class HOURS do you teach?

1 to 9 hours
10 to 19 hours
20 hours and over

Approximately, how many HOURS do you spend on Marking and Class Preparation?

1 - 9 hours
10 – 19 hours
20 hours and over

Approximately, how many HOURS do you spend on Administration duties?

1 - 9 hours
10 – 19 hours
20 hours and over

Country of School:

Age of Students Taught:

7 years of age and younger
8 to 12 years of age
13 to 15 years of age
16 years of age and older

APPENDIX G

The following phrases describe different people's behaviours, attitudes and feelings. Please use the rating scale to describe how accurately each statement is for you by ticking the box to the answer that best suits you. Please be open and honest in your response, describing yourself as you see yourself now, not as you wish you would be in the future, Don't think too long about your response, simply answer the first response that comes to you.

	Very Inaccurate	*Inaccurate*	*Neither Inaccurate nor Accurate*	*Accurate*	*Very Accurate*
1. Am the life of the party.					
2. Avoid philosophical discussions.					
3. Get back at others.					
4. Make plans and stick to them.					
5. Often feel blue.					
6. Dislike myself.					
7. Do not enjoy going to art museums.					
8. Insult people.					
9. Know how to captivate people.					
10. Waste my time.					
11. Am often down in the dumps.					
12. Find it difficult to get down to work.					
13. Have little to say.					
14. Tend to vote for conservative political candidates.					
15. Do just enough work to get by.					
16. Have frequent mood swings.					
17. Keep in the background.					
18. Don't see things through.					
19. Panic easily.					
20. Would describe my experiences as somewhat dull.					
21. Don't like to draw attention to myself.					
22. Rarely get irritated.					
23. Shirk my duties.					
24. Don't talk a lot.					
25. Seldom feel blue.					
26. Feel comfortable with myself.					
27. Am not easily bothered by things.					
28. Am very pleased with myself.					

29. Have a good word for everyone.
30. Believe in the importance of art.
31. Believe that others have good intentions.
32. Have a vivid imagination.
33. Respect others.
34. Accept people as they are.
35. Tend to vote for liberal political candidates.
36. Am always prepared.
37. Carry the conversation to a higher level.
38. Make people feel at ease.
39. Enjoy hearing new ideas.
40. Feel comfortable around people.
41. Have a sharp tongue.
42. Pay attention to details.
43. Am not interested in abstract ideas.
44. Cut others to pieces.
45. Get chores done right away.
46. Make friends easily.
47. Am skilled in handling social situations.
48. Carry out my plans.
49. Do not like art.
50. Suspect hidden motives in others.

APPENDIX H

Listed below are statements that could be used to describe different aspects to your school. Please read each statement carefully, and indicate the extent to which the statement *actually applies to your school.* The scale consists of 5 tick boxes that range from Strongly Disagree to Strongly Agree. Please be open and honest in your responses, but don't think too long about your response, simply answer the first response that comes to you.

	Strongly Disagree	***Disagree***	***Somewhat***	***Agree***	***Strongly Agree***
1. There is a good team spirit in this school.					
2. Staff in this school feel anxious about their work.					
3. There is agreement in the teaching philosophy of this school.					
4. Others in the school take an active interest in my career.					
5. My own expectations about discipline are the same as most other teachers at this school.					
6. The morale in this school is high.					
7. There is good communication between teachers and the administration in this school.					
8. Teachers are frequently asked to participate in decisions concerning administrative policies and procedures in this school.					
9. There is no time for teachers to relax in this school.					
10. The staff are committed to the school's goals.					
11. Teachers go about their work with enthusiasm.					
12. My work objectives are always well defined.					
13. There are forums in this school where I can express my views and opinions.					
14. I am encouraged to pursue further professional development.					
15. I am encouraged in my work by praise, thanks or other recognition.					
16. There is a lot of tension in this school.					
17. Teachers take pride in this school.					
18. The administration in this school can be relied upon when things get tough.					
19. There is good communication between groups in this school.					
20. There is sufficient contact between different sections of the school in curriculum planning.					
21. The school has a clearly stated set of objectives and goals.					
22. Teachers in this school can rely on their colleagues for support and assistance when needed.					
23. There is support from the administration in this school.					
24. There is a lot of energy in this school					
25. This school promotes the concept of students being individuals.					
26. Teachers are overloaded with work in this school.					
27. The professional development planning in the school takes into account my individual needs and interests.					
28. I am always clear about what others at school expect of me.					
29. There is effective co-ordination of the curriculum in this school.					
30. I am regularly given feedback on how I am performing my role					

31. I feel accepted by other staff in this school.

32. Teachers frequently discuss and share teaching methods and strategies with each other.
33. There is too much expected of teachers in this school.

34. I receive support from my colleagues.

35. I always know how much authority I have in this school.
36. My personal goals are in agreement with the goals of this school.
37. Students are treated as responsible people in this school.
38. I am happy with the quality of feedback I receive on my work performance.
39. There are opportunities in this school for developing new skills.
40. There is good communication between staff members in the school.
41. I am able to approach the administration in this school to discuss concerns or grievances.
42. There is an agreed philosophy on discipline in this school.
43. I am happy with the decision-making process used in this school.
44. Staff in this school experience a lot of stress.

45. The goals of this school are not easily understood.

46. I am clear about my professional responsibilities.

47. There is opportunity for staff to participate in school policy and decision-making.
48. The rules and sanctions relating to discipline in this school are well understood by both staff and students.
49. There is constant pressure for teachers to keep working.
50. There is a structure and ongoing process that provides feedback on my work performance.
51.Students in this school are encouraged to experience success.
52. It is not difficult to gain access to in-service courses.

53. The school's administrators don't really know the problems faced by the teachers.
54. I have the opportunity to discuss and receive feedback on my work performance.
55. Staff in this school are frustrated with their job

56. I have the opportunity to be involved in co-operative work with other members of staff.
57. Teachers receive recognition for good work.

58. Staff in this school feel depressed about their job.

59. The rules and sanctions relating to discipline are not enforced in a consistent fashion in this school.

APPENDIX I

Dear School Teacher,

Thank you for taking the time to participate in this survey.

The study being undertaken is attempting to identify the roles that teachers' personality and perception of workplace climate have on their sense of well-being, and whether this changes over time.

You are asked to provide an email for access to the questionnaire, in order that you may be invited to participate in the follow up survey six (6) months later, and to match your responses to both surveys. Confidentiality of individual teachers is assured, with results from the online questionnaire accessible only to the researcher and the computer technical staff at The University of Southern Queensland and the analysis of individual teachers' results will not be undertaken. At no other time during the questionnaire will you be asked to identify yourself and at no time will you be asked the identity of your school as this is not a focus of this study. Participants who undertake the surveys both now and six months later will have the opportunity to win one of several gift certificates for use with Amazon.com, ranging in value between US$25 and US$100.

The questionnaire can take between 30 to 40 minutes to complete. There is no time limit, but please try and complete the whole questionnaire in the same session. If you are unable to complete the questionnaire in one sitting, you may simply close the windows box and come back to finish it at a later date. There are instructions at the top of each section. Read carefully before you begin answering questions in each section, but do not spend too much time on any one. Be sure to give an answer for each question.

If you wish to withdraw from the study, you may do so at any time simply by closing the windows box.

If you have any queries or would like to discuss the nature of this study in more detail then you may contact the researcher at the following email address:

Richard A. Burns
Doctoral Candidate
University of Southern Queensland, Australia
Email:

In order to satisfy the University of Queensland's Office of Research and Higher Degree's ethical requirements, all participants must indicate that they have read this introductory page and give consent to participate in this study.

I hereby give my consent to participate in this study by inserting the number from the bottom left-hand corner of the survey into the Consent ID box below:

Once you have completed reading the form and have filled out the Consent ID box, you may begin the questionnaire by clicking **Next.**

Thank you for your interest in this study.