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# GOALS, AFFECT AND APPRAISAL WITHIN THE STRESSFUL TRANSACTION

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A Thesis submitted to the Faculty of Humanities, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements of the Degree of Doctor of Philosophy

Johannesburg, 2008

## DECLARATION

I declare that this thesis is my own, unaided work. It is submitted for the degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination in any other university.

Stacey Leibowitz-Levy

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Date

_____

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- My one and only Love… For all you are and all you do for me.

## ABSTRACT

This study explored how personal strivings constructs of Goal Conflict and Complementarity and primary appraisal dimensions of Motivational Relevance and Congruence (separately and in combination), related across time to immediate and long-term effects of a stressful transaction. The study was located within the transactional model of stress and integrated aspects of motivational theory, focusing on the theoretical position that within the stressful transaction the relationship between motivational factors and the individual response to an event is mediated by cognitive processes, including appraisal. Advances in transactional theory highlight the role of motivational factors (such as personal strivings) as linked to primary appraisal in the form of Motivational Relevance and Congruence. The utility of personal strivings in exploring the role of motivational factors in the stress process were highlighted. Despite an increasing theoretical focus on motivation and appraisal, research in the area is limited. Data was collected for the study through the administration of questionnaires to university students (N=152) prior to (time 1) and into (time 2) an examination period. The questionnaires used a range of self-report measures. Correlations, partial correlations and ANOVAs were used to analyze the data. The findings indicated that Goal Complementarity and Conflict directly influenced primary appraisal processes but not affective and wellbeing outcomes. It was proposed that primary appraisal processes were the conduit through which the impact of Goal Complementarity and Conflict were expressed within the stressful transaction. The results also suggested the impact of anticipatory Motivational Relevance which seemed to imply a highly “loaded” event with negative affective and long-term consequences into the event. Subjects entering the event wit h an “optimistic” demeanour indicated by high anticipatory

Congruence and positive affect had increased Congruence into the event with consequent amplified positive emotions and dampened negative effects. Subjects with high anticipatory Relevance and low Congruence across the event had relatively higher scores on negative outcomes. High anticipatory Relevance and Congruence was associated with negative immediate and long-term outcomes into the event. High Relevance Congruence was generally associated with a strong emotional response, which also elicited strong positive emotion as the event unfolded. Subjects with low Relevance did not seem to hold as strong an investment in the event and reported reduced emotions and symptomology. These findings were discussed in relation to the stress, appraisal and motivation literature and their limitations and implications were explored.

**KEY WORDS:**

Transactional model, Goals, Appraisal, Affect, Wellbeing, Personal strivings, Goal Conflict, Goal Complementarity, Motivational Relevance, Motivational Congruence.

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# CHAPTER ONE - INTRODUCTION

This thesis explores how the longer-term enduring goals of an individual relate to the individual's ability to negotiate a stressful situation. In so doing the study will highlight specific features of the individual's goals and of the stressful situation and explore the interrelations between these various elements. Stress is understood within the transactional model and, as such the study focuses on the psychological process of appraisal as operationalised by Motivational Relevance and Congruence, emotion and enduring outcomes. Goals are operationalised using the construct of personal strivings and the specific characteristics of Goal Conflict and Goal Complementarity. This dissertation hence draws on and integrates two bodies of theory and research - those pertaining to stress and those pertaining to motivation.

Lazarus and colleagues' transactional model of the stress process is used as the conceptual umbrella for this research. According to Lazarus (1993), psychological processes such as cognitive appraisal, dynamically define and mould stressful transactions in relation to individual motivational factors - goals and personal beliefs - and the demands and constraints of the environment. The study will focus specifically on the theoretical position that the relationship between motivational factors and the environment is mediated by appraisal, which in turn influences emotion and the way the individual responds to the stressful transaction.

Despite an increasing theoretical focus on motivation and appraisal in relation to stressful transactions, a thorough review of the literature revealed a paucity of research focusing specifically on motivational factors in relation to stress. Some incorporation of motivation in relation to understandings of appraisal and emotion was evident, but this remains somewhat simplistic and has more direct application to appraisal and theories of emotion. The impact of these factors in relation to the stress process remains largely unexplored. The theoretical push within stress literature has been toward elaborating on the role of emotion in the stress process. The concept of motivation has been swept along within this drive, but is underplayed, and although given some conceptual significance, has not been emphasized or elaborated upon in the stress literature.

This study endeavors to directly explore the impact of goals on the stressful transaction, clarifying the relations between variables and offering a more complex, multidimensional understanding of motivation within the stressful transaction. The study focused on a student population and investigated the relationship between the individual's goals with regard to the stressful situation of an examination period, how the situation was appraised in relation to these goals and the relation this has to emotion and general wellbeing. The central contribution of the research is its focus on the relation of goals to the stress process. This chapter briefly introduces the study's core concepts and its theoretical foundation. The epistemological and historical location of this study will first be elaborated upon and thereafter the specific bodies of theory that the study draws upon will be briefly introduced.

## 1. THE HISTORICAL LOCATION AND EPISTEMOLOGICAL BASIS OF THE STUDY

The study locates itself within the broader framework of a cognitive understanding of human functioning. As such its conceptualisation of the nature of goals and stress draws on bodies of theory which place primary emphasis on the role of thoughts in shaping human behaviour. Unless otherwise specified the information in this section was largely drawn from Lazarus (1999). The study attempts to explain and explore stress, goals and emotion in terms of the cognitive processes that it assumes shape these constructs. Hence the research is underpinned by the historical context of the field of psychology as well as the core epistemological assumptions of the cognitive approach. It is the intention of this section to make explicit this epistemological base, since the foundation of this study reflects only one of many possible theoretical lenses through which this topic could be explored.

The cognitive focus emerged as a significant approach in psychology from the 1950's onwards, coming of age in the 1970's. Prior to this cognitive revolution, the dominant meta-theory within the field of psychology in the first half of the twentieth century was radical behaviourism, with an underpinning theoretical doctrine of positivism. Within academia, psychology was largely confined to the study of behaviour as opposed to the mind. The focus was on strictly observable and measurable facts, with the mind considered out of bounds for a truly "scientific" approach. Issues of causality were not considered relevant and the role of scientific psychology within this framework was to

"link observable stimuli to observable responses in an effort to predict behaviour." (Lazarus, 1999, p.4).

Following World War II a growing number of psychologists began to distance themselves from a behavioural positivist paradigm in favour of a cognitive mediational understanding of human behaviour. They abandoned a strictly stimulus response approach to psychology in preference for a more complex stimulus-organism-response based understanding. The notion of an intervening organism was used to refer primarily to the thoughts that mediate between the environmental stimulus and the behavioural outcome. Such thoughts were understood to have a causal influence. Lazarus (1999) emphasises that the notion of the intervening process should not be reduced to thoughts alone but should be understood in broader terms as encompassing the mind - thereby incorporating other processes such as motivation and beliefs about the self. Hence a core assumption of a cognitive understanding of the human being is the centrality of mental or 'internal', psychological processes. Behavioural theories adopted a stimulus-response understanding whereas cognitive theories identify psychological processes as intervening between a stimulus and a response (Reeve, 2001). Cognitive processes are thus viewed as "causal determinants to action"(Reeve, 2001, p.181). This cognitive-mediational approach emphasises individual difference and subjective meaning whilst retaining links to the behavioural logical-positivist tradition.

In both a personal strivings and transactional framework cognitive processes (with an emphasis on individual differences) serve as the central conceptual focus. According to Reeve (2001) a cognitive understanding has as its core foci an exploration of – (1) the

ways in which people understand the world they live in; and (2) the ways people use thoughts to modify action and adapt to their environment. This study draws on the construct of 'personal strivings' and the appraisal element of the transactional model to elaborate on the ways people understand their world, and explores the impact of these thought processes on the individual's adaptation, specifically in terms of affect and wellbeing.

The cognitive-mediational approach continues to be a dominant paradigm within psychological theory, particularly with regard to theories of stress and motivation. There are nevertheless significant challenges to the cognitive-mediational perspective, which have gained increasing impetus from the 1980's onward. Post-positivist theories such as systemic and post-modern approaches offer significant challenges to a cognitive-mediational perspective. These perspectives challenge the significance that cognitive meta-theory still accords to the rational and the scientific. Such a metatheoretical perspective represents a fundamental challenge to the cognitive-mediational perspective in terms of a radical paradigm shift. Currently though, whilst bowing to some critique and modification, the cognitive-mediational perspective seems to be clinging tenaciously to its status as a dominant metatheory in many areas of academic psychology, upholding the model of psychology as a "natural science".

Yet even within the cognitive mediational metatheoretical framework, many theorists challenge the underpinning purpose and methods of psychological inquiry. There is a growing sense of the "methodological narrowness" (Lazarus, 1999, p.8) of "scientific"

research within the cognitive approach, with a concurrent inhibiting effect on the development of knowledge and understanding. Jessor (1996 cited in Lazarus, 1999) makes a number of valuable points regarding this narrowness. He points to a pervasive sense of dissatisfaction with scientific achievements in psychology - the lack of relevance of social inquiry and insubstantial advances in knowledge. He highlights the a-contextual nature of a great deal of research with its over-emphasis on generating general principles to the exclusion of the impact of context. In this regard Jessor (1996 cited in Lazarus, 1999) also emphasises the reluctance of psychological theories and research to incorporate a subjective understanding and hence to appreciate the impact of people's inner lives and subjective meaning on psychological phenomena. As such Jessor holds that the human being is excluded from most social research in that the centrality of inter and intra individual differences and a longitudinal understanding of psychological phenomena are overlooked, or at best underemphasised.

Clearly then, the cost of holding too tightly onto a logical-positivist perspective is that important human concerns and what distinguishes us as human beings fall outside the realm of psychological enquiry (Lazarus, 1999). Within the cognitive mediational perspective, there is a call to hold onto, but expand the virtues of what a logical scientific approach has to offer, thereby making the approach more relevant to the nature of human beings. This perspective also challenges scientific meta-theory to let go of its monopoly on the legitimacy of knowledge, through recognising the need for a diversity of approaches. The theoretical frameworks adopted in this study represent working attempts within cognitive-mediational theory to respond to its limitations and

ideally accommodate a subjective and contextual understanding of the individual. As will be illustrated, both the transactional and personal strivings frameworks and this study itself, whilst located within a cognitive, logical positivist paradigm, clearly have as their priority an attempt to capture something of the context, inner lives and subjective meanings of their subjects.

The introductory chapter has thus far provided the reader with a critical and contextualised understanding of the cognitive basis upon which this study rests. The chapter will now proceed with a brief explication of the core theoretical constructs relating to stress and motivation, and a preliminary presentation of the proposed links between these constructs.

## 2. STRESS: LAZARUS'S TRANSACTIONAL MODEL

While a vast number of theorists have explored the nature of the stressful experience, this study focuses on Lazarus's Transactional model of stress as it is the dominant model in the field. According to Lazarus, the individual is perceived as dynamically defining and moulding stressful transactions through the psychological processes of cognitive appraisal, attendant emotions, and coping (Lazarus, 1993). Appraisal is defined as the individual's cognitive evaluation of a situation in terms of the demands it places on him or her (Tomaka, Blascovich, Kelsey & Leitten, 1993). Appraisal is viewed as the central psychological process out of which emotion and coping emerge. These psychological processes are conceptualised as mediating between environmental pressures and resources and the personal beliefs and motivational factors of the

individual. The processes of appraisal, emotion and coping thus shape the individual's response to a person-environment transaction. Within this model of stress, the subjective significance and effects of an event are increasingly being perceived as significantly dependant on the degree to which the event impinges on motivational factors, including personal goals and beliefs (Lazarus, 1999).

Developments in the stress field, and in the elaboration of the transactional model in particular, have witnessed the refinement and expansion of the concepts of appraisal and coping, and the mediator, moderator and outcome variables that act upon this process (Cox & Ferguson, 1991). The focus of the bulk of research in the area has been on the nature of the cognitive variables shaping the stressful transaction. The role of appraisal in mediating the environmental demands on the one hand and the person's goals and beliefs on the other, has served as a focus of enquiry. Appraisal has received substantial conceptual revision and explicitly incorporates motivational factors in more current theorization (Lazarus, 1999). However, there is little evidence of how pre-existing variables, and in particular goal hierarchies and beliefs, may impact on situational variables, such as appraisal, and the stressful transaction more generally. The role of motivational factors, including goals and personal beliefs, has received very little attention despite the theoretical significance given to these variables.

The transactional notion of stress has been extended into the realm of emotions with the relationship between appraisal and emotion developing as a core area of theoretical conceptualization. This research study focused on these developments by specifically

exploring the links between goals, appraisal, emotion and outcome within the stress process. The review of the theoretical concepts within this introductory chapter will thus begin with an exploration of advances with regard to the understanding of emotion and appraisal within the stress process. It will then proceed with an exploration of how these advances are expanded and linked to motivational factors. The introduction will serve to present a summary of the core concepts and issues elaborated further in the literature review, thereby providing an initial framework for the more complex elaboration of these issues presented in chapters 2 and 3.

## 2.1. Goals, appraisal and emotion in the stressful transaction: Conceptual advances

Conceptual advances regarding the core concepts of the transactional approach have tended to focus on the relation of emotion to appraisal, and the factors influencing appraisal and emotion. These advances have increasingly highlighted the role of goals within the stressful transaction. Although clearly linked to the stress field in terms of the implications for the psychological processes of appraisal and emotion, these advances have largely occurred outside of the realm of stress research, and have emerged out of cognitive theories of emotion. The notion of appraisal has received a great deal of attention in terms of its conceptual development and is viewed as playing a significant and central role in stress reactions (Lazarus, 1993). These developments have largely emerged out of Lazarus's attempts to integrate his understanding of the stressful transaction into a broader cognitive-motivational relational theory of emotion.

This model offers a framework regarding the nature **of appraisal and its link to motivation and emotions** within the stressful transaction (Lazarus, 1999; Smith & Lazarus, 1990). Appraisal is divided into primary and secondary appraisal, which in turn consist of a number of dimensions. Primary appraisal is divided into the components of Motivational Relevance and Motivational Congruence. Motivational Relevance is defined as "an evaluation of the extent to which the encounter touches on personal goals or concerns (i.e. the encounter's importance)" (Smith & Lazarus, 1993, p.918). Motivational Congruence is defined as "the extent to which the encounter is consistent or inconsistent with the person's goals (i.e. its desirability)" (Smith & Lazarus, 1993, p.918). Secondary appraisal incorporates the dimensions of accountability (attribution of responsibility), problem-focussed coping potential (ability to directly impact on the situation), emotion-focussed coping potential (ability to adjust psychologically) and future expectancy (the chances of the situation changing). It is held that these appraisal components combine in different ways to underpin emotions such as anger, hope and compassion (Smith & Lazarus, 1990; 1993 & Lazarus, 1999). In response to stressful situations, the nature of the kind of emotion elicited is not made explicit by Lazarus and categories of harm, threat and challenge are still employed (Lazarus, 1999).

Given the link of **motivation** (as in Congruence and Relevance) to primary appraisal, in establishing a person-environment transaction's significance and desirability, it is held that the event and its consequences are evaluated in terms of their relation to goal attainment. Hence a central aspect of how an encounter is appraised is with regard to

the extent to which it impacts on personal goals, as well as its consistency (associated with benefit and challenge emotions) or inconsistency (associated with threat and harm emotions) with the achievement of these goals (Lazarus, 1993). Thus the subjective significance and effects of an event are viewed as largely dependant on the degree to which the event is appraised as impacting on motivational factors, including personal goals and beliefs.

To further underline the increasing significance being attached to motivational factors in stressful transactions, Lazarus points to the individuals' goals and goal hierarchy as a significant person variable which plays a substantial role in shaping the person-environment transaction (Lazarus, 1999). In this regard, he specifically highlights the impact of conflict between goals and points to the manner in which an individual negotiates this inevitable conflict as having a significant impact on the outcome of stressful transactions (Lazarus, 1993 & Smith and Lazarus, 1993).

Factors impacting on appraisal clearly have consequences for the entire stress process. Emotions in particular are viewed as emerging out of the juxtaposition of environmental factors with the goals and beliefs of the individual (Lazarus, 1993). In keeping with the previously described relation between appraisal and emotion, appraisal is viewed as negotiating between, and integrating environmental and motivational influences. This process of negotiation provides an indication of the significance of the event for personal wellbeing, which in turn elicits an emotional response. In fact, for Lazarus, the experiencing of an emotion implies the presence of an active goal in a situation. A

person with no goal at stake is unlikely to experience emotion as the situation would have a neutral value for them. Hence the overarching goals in a situation, the individual's intentions and resultant emotions, are increasingly being viewed as central to an understanding of the nature of the stressful transaction (Lazarus, 1993). Thus Lazarus (1993) would hold that it is the underlying specific and overarching meaning of a situation for an individual in relation to his/her goals, which ultimately shapes his/her appraisal and consequent emotional response.

In summary, conceptual advances in the field have pointed to the central role that appraisal and emotion may play in shaping the stressful transaction. They have further suggested the significance of motivational factors in relation to appraisal, although the development of primary appraisal as an operationalisation of motives remains conceptually underdeveloped in contrast to the emphasis on emotion. Any understanding of motivation has to be explored within the frame of these theoretical advances.

There is a paucity of research exploring motivation and the dimensions of appraisal as outlined by Smith and Lazarus (1993). The division of appraisal into increasingly complex units of analysis further complicates research in this area. These concepts require additional conceptual development, including a more textured, multi-layered dimensional understanding of the role of motivation. Hence this study will focus on the specific primary appraisal dimensions of Motivational Relevance and Congruence, exploring their link to the personal strivings constructs of Goal Conflict and Complementarity and outcomes within the stressful transaction. This focus and the

need to ensure conceptual and methodological clarity, requires the exclusion of the constructs of coping and secondary appraisal as primary concerns in the research design and analysis. Similarly the study has not attempted to encompass theorisation and assessment of the plethora of potential stress-related emotions elaborated upon by Lazarus, but has rather attempted to retain a discrete yet contextually sensitive focus on motivation and emotions within the stressful transaction.

The introductory chapter thus proceeds with an introduction to the motivational construct of personal strivings. This construct provides the vehicle through which the study extends the exploration of the role of motivation within the transactional model.

## 3. MOTIVATION: EMMONS'S NOTION OF PERSONAL STRIVINGS

As previously mentioned the subjective significance and effects of an individual-environment transaction are closely related to the degree to which the event is seen to impinge on motivational factors, including personal goals and beliefs (Lazarus, 1993, 1999; Smith & Lazarus, 1993). Although this link has been suggested in theory, a thorough review of the literature reveals a dearth of research linking motivation to the stress process.

Difficulties have been encountered in operationalising motivational factors (Emmons, 1991). In reference to, and in agreement with Lazarus and Folkman's notion of appraisal, Emmons (1989) holds that an event is appraised with regard to the

significance that it holds for the issues which motivate the individual. Emmons (1991) holds that "events are appraised with respect to the significance that they hold for a person's **personal strivings** and that personal strivings offer one solution to the problem of determining a person's commitments." (Emmons, 1991, p. 454). He proposes that the concept of personal strivings provides a possible solution to the operationalisation of motivational factors, such as goals and beliefs, upon which appraisal is based. Emmons suggests that by utilising the concept of personal strivings and its identified characteristics, a more refined, concrete and specific understanding of the relationship between motivational factors and psychological processes within the stress process may be developed.

The notion of personal strivings refers to the types of goals that a person wishes to accomplish across a variety of situations. Personal strivings are perceived as largely enduring, characteristic motivating factors, providing the context within which specific goal-directed behaviours and decision-making occurs. A number of personal striving characteristics have been identified, including factors describing the nature of the interrelationships between goals within the striving system. Such factors include the characteristics of Goal Conflict, in which goals are described as interfering with the achievement of each other, and Goal Complementarity where goals are viewed as enhancing each other's achievement (Emmons, 1988). The striving characteristics of Goal Conflict and Complementarity are central to this study as they resonate with Lazarus's emphasis on the person variable of goals and the likelihood that conflict within goal hierarchies may contribute to the stressful transaction. In addition Emmons

highlights Goal Conflict as central to the relations between cognition, emotion and action and it is the most extensively researched of his goal characteristics.

Emmons (1991) proposes that the concept of personal strivings may serve as an effective tool in determining and investigating the relationship between the individual's *goals* and beliefs and his/her *appraisal* of, and response to, a *stressful event*. This is perfectly resonant with the research needs of the transactional model and with existing theory, for as Lazarus's (1993) states "(the transactional approach) is centered on the concept of appraisal, which is the process that mediates - I would prefer to say *actively negotiates* - between, on the one hand, the demands, constraints and resources of the environment and, on the other, the goal hierarchy and personal beliefs of the individual." (Lazarus, 1993, p. 6)

This study proposes to expand the understanding of motivation in the stressful transaction by linking appraisal to personal strivings constructs and outcomes, thereby facilitating a more complex and dimensioned way of understanding the role of motivation in relation to appraisal and emotion. Hence this study explores the role of personal strivings within the stressful transaction. It achieves this end by linking the individual's goals to primary appraisal, in relating the appraisal components of Motivational Relevance and Congruence directly to the individual's personal strivings. It focuses in particular on Goal Conflict and Complementarity as features of the striving system and explores the relations between these motivational constructs and other variables within the stressful transaction.

## 4. CONCLUDING COMMENT

The introductory chapter has provided a brief orientation to the core theoretical concepts of this study and has provided a preliminary rationale for the further development of the role of motivation within understandings of the stress process. It addressed Lazarus's transactional model of stress, focusing on advances that incorporate goals into the process of primary appraisal in the forms of Motivational Relevance and Congruence. The chapter pointed to the hypothesised role of motivational units within this process, as operationalised by the notion of personal strivings and Goal Conflict and Complementarity in particular. Lazarus and Folkman's conceptualisation of stress provides the overarching framework for the research study, while Emmons's work regarding personal strivings serves as the tool for exploring motivational factors within this model.

The review of the literature covered in chapters 2, 3, 4 and 5 serves to contextualize and justify the aims and rationale of this study. Chapters 2, 3 and 4 address the theoretical underpinnings of the study and hence draw on seminal papers from the past three decades. Chapters 2 and 3 in particular provide a general review of the literature relevant to stress theory and locate the study within the context of the transactional model of stress. Current advances within the transactional theory of stress and the significant role of motivational factors as applied to appraisal in the form of Motivational Relevance and Congruence are highlighted. Chapter 4 explores the field of motivation, pointing to the construct of personal strivings and Goal Conflict and Complementarity

more specifically, as a means of exploring the role of motivational factors in the stress process. Chapter 5 addresses relevant research findings and highlights the need for further research in this area. As such, it offers an empirical context for the study and addresses relevant findings from some key studies as well as from more recent research. Chapter 6 addresses the implementation of the study in terms of research design, method, procedure and analysis. The results of the study are presented in chapter 7 and the interpretation and discussion of these findings and their link to relevant theory and research is addressed in chapter 8. Chapter 9 offers some evaluation of the study in terms of its implications, limitations and future research possibilities.

# CHAPTER TWO - THE CONCEPT OF STRESS

This chapter begins with a broad outline and evaluation of the conceptualisation and development of the notion of stress. This outline provides a context and rationale for the focus on the transactional model in particular. Following this, the dominant transactional model of stress is explored with particular emphasis placed on the concepts of appraisal, emotion and their links to motivation. Relevant theoretical advances and research findings regarding these aspects of the transactional model serve as the primary focus of this chapter. Finally, the limitations of the transactional approach are addressed.

## 1. INTRODUCTION TO THE NOTION OF STRESS

Advances in the field of stress research, particularly since World War II, have witnessed a development in notions of stress from unidimensional, structural conceptualisations to multidimensional, process-oriented conceptualisations (Lazarus, 1993). A shift in emphasis from an understanding based on stable features, such as personality traits and fixed features of the environment, to a dynamic focus on individual appraisal, and variations within stress as a process, has taken place (Folkman and Lazarus, 1985). The concept of stress has developed from its basis in understandings of combat settings, to an increasingly diverse and complex understanding of stress as a common process, occurring across a wide variety of situations (Lazarus, 1993).

The study of stress bridges traumatic stress (Solomon and Maser, 1990), stress (Lazarus, 1993) and victimisation (Wortman, 1983) literature. Stress research broadly falls into two increasingly converging categories, i.e. research focussing on either physiological or psychological processes (Kasl, 1990; Monat & Lazarus, 1991). The plethora of theoretical and empirical approaches to stress has led to the inconsistent and confusing use of key concepts and a concomitant variability in methodology and theory (Cooper and Dewe, 2004; Solomon and Maser, 1990). The realm of stress in the broadest terms "refers to any event in which environmental demands, internal demands, or both, *tax* or *exceed* the adaptive resources of an individual, social system, or tissue system." (Monat & Lazarus, 1991, p. 3).

In terms of such a broad definition, the following components appear to be consistently viewed as central, across varying understandings of the stress process:

- A **stressor,** event, stimulus or causal agent which may be either external or internal - the "antecedent conditions" (Monat & Lazarus, 1991, p.3) that induce stress.
- The **strain** or internal state of the person as a pattern of response to the stressor (Green, 1990; Lazarus, 1993; Solomon & Maser, 1990). These responses include both physiological and emotional reactions. They reflect the response to stress and serve as the indicators of stress (Monat & Lazarus, 1991).
- The **transaction** between the person and the environment which generates "intervening processes" (Monat & Lazarus, 1991) that are viewed as eliciting the responses. These include the perception of the stimulus event and coping

attempts - the psychological and physiological methods employed to address the stimulus.

Within this broad definition the concepts and procedures utilised across theories and studies vary markedly in terms of the definition and measurement of antecedent conditions, intervening processes and outcomes (Monat & Lazarus, 1991). **Conceptualisations of stress** appear to differ according to their emphasis on the locus of stress, with three approaches having been formulated (Cox, 1978).

According to these three approaches, stress can be primarily understood as -

- An **external** event, as with the stimulus-based approach.
- An **internal** state of the organism, as with the response-based approach.
- An experience emerging out of the **transaction** between the person and the environment. This view is embodied in the transactional approach to stress.

The stimulus-based and response-based models will briefly be reviewed, following which a detailed analysis of the transactional model will be undertaken.

## 2. THE STIMULUS-BASED APPROACH

The stimulus-based or engineering approach views stress as a stimulus feature of an individual environmental context (Cox & Ferguson, 1991). The idea that something in one's environment provokes a stress reaction and coping attempts, clearly reflects a common-sense understanding of stress (Lazarus, 1999). Most commonly individuals tend to attribute stress responses to external environmental factors such as failing an

examination or breaking up with a partner (Lazarus, 1999). In more technical terms, stress is perceived within this framework in terms of the degree of demand placed on an individual by an environmental stimulus, with the individual's strain response being assessed in terms of the nature of the move involved toward restoring equilibrium (Cox & Ferguson, 1991; Newcombe, 1990). Stress is understood to be external to the individual, placing demands on the individual, and in so doing, eliciting a strain reaction (Cox & Ferguson, 1991; Fleming, Baum & Singer, 1984).

Within this framework, researchers such as Holmes and Masuda (1974) endeavoured to quantify stress as a feature of life changes, and in so doing, facilitated the acknowledgement of life stressors as aetiological factors of disease (Lin, Simeone, Ensel & Kuo, 1979). This spawned the development of an area of research focussing on the relationship between life events and physical and psychological illness (Michelson, 1991). This approach served to legitimate the role of the environment in the occurrence of illness, and the necessity of locating the individual in context.

Limitations of this approach include the assumption that stress is a uniform experience - that what is experienced as stressful by one individual will also be experienced as such by another (Cox, 1978), and the fact that the individual is perceived as passive in the face of stress. In addition, the presence of high levels of stress in the absence of what have been identified as highly stressful life events challenges the stimulus-based approach (Lazarus, 1999). In viewing stress as a consequence of objective external reality this approach fails to consider the role of individual differences in appraising and

coping with the environment (Michelson, 1991). Furthermore, there are difficulties in locating with any certainty what, in particular, is stressful about a situation or an event (Cox, 1978).

## 3. THE RESPONSE-BASED APPROACH

The response-based or medico-physiological approach to stress perceives the individual's "generalised and non-specific" (Cox & Ferguson, 1991, p. 7) response to negative environmental stimuli, as encompassing the stress response (Cox, 1978; Cox & Ferguson, 1991). It is the organism's internal physiological and emotional reactions which are defined as the locus of stress (Aldwin, 1994).

The modern origin of interest in stress from a medico-physiological perspective lies in Cannon's (1936; cited in Fleming, Baum and Singer, 1984) research into emotional stress. Stress was perceived by Cannon as an adaptive response to threat or danger which directly facilitated "survival and adaptation" (Fleming et al, 1984, p. 939). Although Cannon's work provides an important contribution to understandings of stress, it is Selye (1976) who provided the seminal conceptualisation of the stress concept within the medico-physiological context (Fleming et al, 1984).

Selye defined stress as the "'non specific (physiological) response of the body to any demand made upon it'" (1976), and went on to identify characteristic physiological effects of stress (Fleming et al, 1984). Selye (1976) developed an elaborate theory of

stress, centred around his concept of the General Adaptation Syndrome (GAS), a process describing how stress impacts on the organism. Implicit in his theory are a number of core assumptions including perceiving the consequences of stress as cumulative, acknowledging such consequences as damaging when they exceed an individual's coping abilities, and

viewing an individual's response to stress as "augmented or added to by his or her reaction to the previous exposure to threats" (Fleming et al, 1984, p. 940).

Studies regarding physiological responses to stress have tended to focus on the central and peripheral nervous systems, as well as on neuro-endocrine and immune system functioning (Aldwin, 1994). With regard to emotional reactions to stress, research has primarily focussed on the exploration of negative emotional responses, with some acknowledgement of positive stress responses and emotional numbing (Aldwin, 1994). Attempts have been made to integrate understandings of the role of physiological and emotional stress responses (Mason, 1975; cited in Fleming et al, 1984). Interactive, explicit and meaningful connections are increasingly being made as technology enhances available means of measuring the physiological stress response (Lazarus, 1993; Smith, 1989).

The response-based approach offers a convenient and research friendly conceptualisation in that it views the stress response as observable, measurable and objective. Hence it offers a more scientific conceptualisation of stress that does not rely

on subjective, individual appraisals of an event (Hobfoll, Schwarzer & Chon, 1996). Yet in so doing it overlooks a significant component of the experience of stress in that it does not reflect the idiosyncratic and subjective nature of stress (Lazarus, 1999). The notion of a stress response as generalised and non-specific fails to account for a growing awareness of the variability and diversity of the individual stress response (Cox, 1978; Lazarus, 1999). This approach is limited in that it carries with it the assumption that any event that produces a stress response is immediately assumed to be a stressor (Cox, 1978) and is thus characterised by circular reasoning, in that the stimulus and response are not defined independently (Lazarus, 1999).

Although maintaining some popularity, the stimulus and response-based approaches to stress research lack theoretical sophistication and do not adequately account for available research findings (Cox & Ferguson, 1991). Hence (as evident in the dates of the references), both these approaches have waned in popularity. In adopting a cause-effect, linear approach to the notion of stress (Aldwin, 1994) both approaches fail to sufficiently take into account the idiographic components of stress.

Nevertheless, in their respective emphases on external (stimulus-based) and internal (response-based) conceptualisations they have contributed to an enhanced understanding of stress. Increasingly however, the need for both a grasp of the external features of a stressor event (stimulus) and an understanding of the individual's experience of the event (response) has become apparent (Solomon & Maser, 1990). The stimulus and response-based approaches thus represent the stepping-stones

toward the development of an integrated notion of stress, incorporating both "external and internal events" and "emphasizing the interaction between environment and response" (Fleming et al, 1984, p.939).

## 4. THE TRANSACTIONAL APPROACH

Whereas the two preceding approaches largely overlook the dynamic interrelationship between person and environment, the transactional approach firmly places the locus of stress within this interrelationship. The transactional approach emerged out of the interactional model of stress (Newcombe, 1990). The **interactional** model served as a conceptual bridge from the linear, causal theorising of the stimulus and response-based models to the circular reasoning of the transactional paradigm.

Within the interactional model, stress is perceived as a reflection of a lack of congruence between the individual and his/her environmental context (Cox, 1978). Based on engineering principles, the interactional definition of stress equates the human stress reaction to that of physical structures. Hence it assumes that just as constructions vary in their capacity to resist external force, so too do humans differ in their ability to deal with stress (Newcombe, 1990). The interactional model conceptualises stress in terms of the interaction between the environment and the individual, wherein the environment places a demand on the individual. The demand is defined as stressful if the individual does not have the capacity to respond appropriately to the demand (Fisher, 1976; cited in Newcombe, 1990).

The core assumption of this approach is an acknowledgement of differences in individuals in relation to the capacity to resist different external demands, without displaying strain (Newcombe, 1990). Thus the issue of individual differences with regard to the experience and consequences of stress is a pivotal feature of the interactionist approach (Cox & Ferguson, 1991), and reflects acknowledgement of subjective elements of stress (Lazarus, 1999). However this approach does not sufficiently take account of the role of cognitive mechanisms, and maintains a linear, cause-effect conceptualisation of stress.

In contrast, the **transactional** model is more process-oriented and emphasises the psychological structures underlying the person-environment relationship. The transactional approach builds on the interactional model, placing greater emphasis on the individual responses of the organism and the cognitive mechanisms which shape these responses. For instance Lazarus (1999) points to the most significant sources of individual difference as relating to goals, personal beliefs and resources. Hence research in the transactional framework is largely based on human subjects using psychological, self-report measures (Monat & Lazarus, 1991).

The work of both Cox (1978) and Lazarus and colleagues such as Folkman (see Lazarus & Folkman, 1984) embody this approach. Although the terminology and emphases of Cox and Lazarus's theories differ, their underlying conceptualisation of stress is very much the same. These models discard the assumption of a linear cause-effect understanding of stress and adopt a circular, systemic, process-oriented

approach (Michelson, 1991). They make explicit a conceptualisation of stress as a "psychological state which is the internal representation of a particular and problematic transaction between the person and their environment" (Cox & Ferguson, 1991, p. 9). Both assume that "**cognitive** variables" mediate between the "stressor" and the "reaction" (Lazarus, 1993, p. 3) and strongly emphasise individual differences.

This shift in perspective to a transactional notion of the stress process paralleled a growing emphasis, during the 1960's and 1970's, on a cognitive-mediational view within psychology as a whole (Lazarus, 1999). It represented a significant paradigm shift within psychology toward an acknowledgement of the complexity of relations between variables, and an awareness of variables as mutually influencing each other (Aldwin, 1994). The emphasis on **individual differences** further reflects a broader shift in psychological thinking from a scientific approach aimed at developing general laws to a focus on variations between individuals (Lazarus, 1993). As discussed later in the study, this emphasis is evident in the transactional model's exploration of mediator and moderator variables involved in the stress process, including personality traits and coping processes.

Having provided a brief outline of the transactional approach and its development, the theories of Cox and Lazarus will now be addressed. The work of Lazarus and Folkman serves as the framework for this study, but given that Cox's theory of stress has made a significant contribution to notions of stress, it is briefly reviewed. This review also provides the rationale for why Lazarus's model is used as the foundation for this

research, as opposed to Cox's theory.

### 4.1. Cox's theory

Cox (1978) holds that stress emerges as a consequence of the feedback elicited in relation to the interaction between the individual's perceived notion of the demands placed on him/her, and his/her perceived capability to meet that demand. Stress thus occurs as a result of the subjective perception of imbalance between the perceived demands of the environment and the individual's capacity to meet those demands (Cox, 1978). Cox specifically identifies five stages of the stress process: (i) the origin of the demand; (ii) the individual's appraisal of the demand including his/her perception of his/her capacity to respond effectively to the demand; (iii) the psycho-physiological alterations in relation to stress, defined as coping responses; (iv) the perceived and real outcomes of coping methods; and (v) a feedback loop involving an ongoing sequence of transactions between the stages, with each stage impacting on the outcome of the other. Cox thus views stress as necessarily incorporating negative emotional and physiological responses. He also acknowledges the key role of cognitive mechanisms and the circular, dynamic nature of the stress process.

Hence in contrast to the conceptualisations that have been discussed previously, Cox's theory offers a much more comprehensive model of the stress process. However Lazarus's model of stress is considered superior on the basis of considerations outlined in the following section.

**4.2. Lazarus's theory**

In contrast to Cox, Lazarus's theory of stress is more process-oriented, and places greater emphasis on the individual as proactive in the stress process. For Lazarus, stress is not conceived of as a variable but rather as "a rubric consisting of many variables and processes "(Lazarus & Folkman, 1984, p.12). According to Lazarus, stress involves a "range of phenomena" (cited in Cooper & Dewe, 2004, p.113), whereby the individual is perceived as dynamically defining and moulding stressful transactions through cognitive appraisal and coping mechanisms (Lazarus, 1993).

Lazarus appears to differentiate the components of the stress process more finely than Cox, and further elaborate upon components such as coping and appraisal within their conceptual framework. Moreover, where the two approaches differ and where Lazarus's theory is possibly superior to that of Cox, is in his location of stress as a broader emotional response within the stressful transaction (Lazarus, 1993). Furthermore Lazarus's conceptual model has had wider application as a theoretical reference point for the empirical investigation of the stress process. Having made an initial distinction between the work of Cox and Lazarus, the term - 'the **transactional** framework, model or approach', is used interchangeably for the remainder of this dissertation in order to describe Lazarus's approach to stress. This is consistent with the stress literature which views Lazarus's model as almost synonymous with the transactional approach.

Given the general theoretical and applied preference for the transactional approach as elaborated in the work of Lazarus and various colleagues, this model serves as the theoretical framework for the present study. Hence the remainder of the literature review focuses on this conceptualisation. The core features of this approach and interactions between various components of the stress process will initially be discussed.

### 4.2.1. Core features of Lazarus's approach

Despite a number of recent conceptual advances, the core assumptions of the transactional model have remained consistent. Advances in conceptualisation primarily relate to how appraisal is understood within the model. Although these advances have been linked to Lazarus's cognitive motivational relational theory of emotion, his conceptualisation of the stressful transaction has not been subsumed within this broader theory. The core features of this model are addressed at first in order to locate the appraisal process within the broader transactional framework, without being distracted by the complexity of the later conceptual advances. The nature of these conceptual elaborations will then be addressed in chapter 3 where theoretical advances in the field are explored.

The core assumption of the transactional approach is that the cognitive mechanisms of appraisal and coping shape the stressful experience through serving as a mechanism for establishing the personal relevance of a particular stimulus (Lazarus, 1999). This

psychological relevance is assessed according to how the specific person thinks, feels and responds. Hence for Lazarus, "It is the meaning constructed by a person about what is happening that is crucial to the arousal of stress reactions." (Lazarus, 1999, p. 55). These meanings or cognitive mechanisms are influenced by variables within the person and the environment (Lazarus, 1993). More specifically personal relevance is defined by the personal values, goals and beliefs that the individual brings to any environmental event (Lazarus, 1999). Hence appraisal and coping are conceptualised as mediating between individual features such as **motivational factors,** and the demands and constraints of the environment, thereby eliciting an individual response to this interaction including immediate effects in terms of emotional and physical changes and long term effects on health and social functioning (Lazarus, 1993; 1999). To reiterate it is the psychological meaning the person constructs in relation to a particular environmental event which elicits the stress reaction and its associated emotions. This relationship is represented in the following diagram:

| Causal → | Mediating processes → | Immediate → | Long-term |
|---|---|---|---|
| Antecedents | Time 1 … *T2 … T3 … Tn*<br>Encounter 1 … 2 … 3 … n | Effects | Effects |
| Person variables<br>Values/commitments<br>Goals and beliefs<br><br>Environment:<br>Situational demands, constraints<br>Resources<br>Ambiguity of harm<br>Imminence of harm | Primary appraisal<br><br>Secondary appraisal<br><br>Reappraisal<br><br>Coping<br>Problem focused<br>Emotion focused<br>Seeking, obtaining and using social support<br><br>Resolutions of each stressful encounter | Physiological changes<br><br>Positive or negative feelings<br><br>Quality of encounter outcome | Somatic health /illness<br><br>Morale (wellbeing)<br><br>Social functioning |

**Figure 2.1 - The transactional model of stress (adapted from Lazarus, 1999, p.197)**

Within this framework the various components of the stress process are referred to as independent, mediator and outcome variables - immediate and long-term. Individual characteristics (such as goals and personality factors), and environmental factors, are viewed as antecedent conditions which interact to produce an outcome. The relationship between the antecedent and outcome variables is mediated by the **psychological processes** generated in the stressful encounter. These mediating processes are viewed as being situation dependent and as changing over time according to variations in the nature of the encounter. Features of the person and the environment interact with mediating processes (appraisal, coping and emotion generated in the stressful encounter) thereby producing an outcome.

Folkman and Lazarus (1988) attempted to further clarify the interrelations between the aforementioned mediating psychological processes generated in the stressful encounter. They identified the following interrelationships between appraisal, coping and emotion. Person and environment variables set the stage for the process of appraisal. With regard to the "stressor" in particular, this is perceived as a *potential* source of threat (Lazarus and Folkman, 1991). It is not inherently a stressor but only has the potential to be so within the context of the individual's make-up and psychological response to the potential environmental threat (Lazarus & Folkman, 1991). Some elaboration on the relations between these psychological processes is represented in the following diagram:

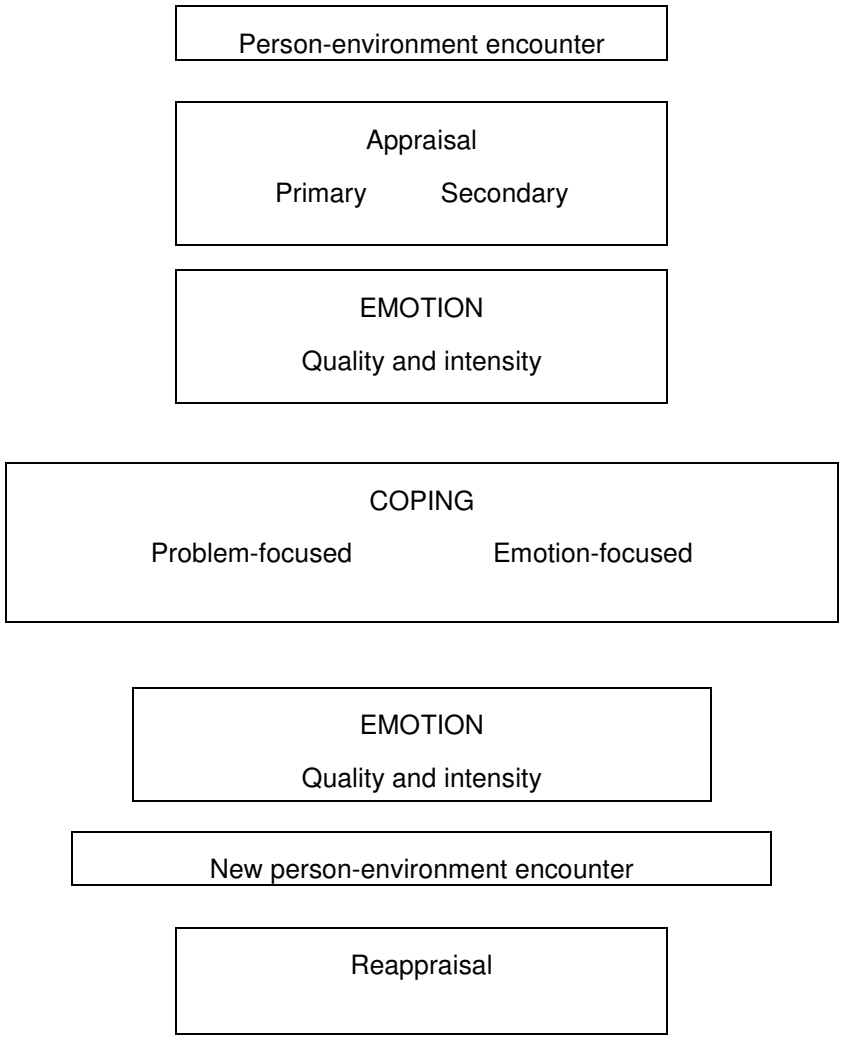



**Figure 2.2 - Interrelations between psychological processes in the transactional model (adapted from Monat & Lazarus , 1991, p. 214)**

The person-environment transaction is shaped by psychological processes that begin with appraisal in terms of a perception of the subjective meaning of the event (primary appraisal) as innocuous, beneficial, harmful, threatening or challenging, and an assessment of the resources available to cope with it (secondary appraisal). It is

through primary appraisal that the event is broadly appraised as significant to wellbeing or not and as a stressor or not. In other words the person-environment transaction may be perceived as significant, but beneficial, or as potentially harmful, threatening or challenging - i.e. in the latter instance as a stressor (Lazarus and Folkman, 1991). Having appraised the person-environment transaction as a stressor, the individual assesses his/her ability to manage the stressor. This process of secondary appraisal is in turn linked with the selection of a coping strategy and also generates an attendant emotional response (Lazarus, 1999; Lazarus & Folkman, 1991). Appraisal and its attendant emotions in turn impact on the coping processes, altering the person-environment relationship. This shift in the person-environment transaction is reappraised, leading to a concomitant alteration in coping response and hence affective quality and intensity. Coping is thus seen as a powerful mediator of the emotional outcome of the stressful transaction (Lazarus, 1999), for appraisal impacts on coping, which thereafter alters the person-environment relationship and in turn the emotional response (Lazarus & Folkman, 1991). Coping is understood to arise during the stressful encounter, transforming the original appraisal and its attendant emotions (Lazarus, 1999).

Thus the cognitive process of appraisal and re-appraisal is viewed as the primary reaction in a stressful transaction, with coping and emotion emerging out of or being generated by appraisal. This model has generated a great deal of research in the stress and emotion fields and has substantial empirical verification (David, Schnur &Belloiu, 2002; Folkman &Lazarus, 1998; Lazarus, 1991).

The cognitive mechanisms occur within the “behavioural flow” of a “dynamic mutually reciprocal relationship” (Lazarus & Folkman, 1991, p.213). Dealing with a stressful transaction is viewed as an ongoing moment-by-moment process with appraisal, coping, emotion and reappraisals being generated like a “continuing motion picture” (Lazarus, 1999, p.206) through the course of the person-environment transaction.

A potentially stressful transaction is understood to have at least three stages: anticipation, confrontation and post confrontation (Lazarus & Folkman, 1991, p.226), with the nature of appraisal, coping and emotion varying across these stages. For example, prior to a potentially stressful encounter such as an examination period, a person may have the goal of performing well academically. This goal may interact with relevant environmental variables during the actual experience, such as a difficult exam paper. This, in turn, may generate an appraisal of the situation as threatening to the goal and as overwhelming, an appraisal of available coping resources as inadequate and an attendant emotional response of fear and anxiety. The appraisal and emotional response would then be accompanied by efforts to cope with the event, such as attempting to emotionally detach oneself or actively attempting to break down the exam paper into more manageable components. These coping attempts may then lead to a particular outcome or response. For example, a person who successfully manages to respond to an examination paper that was initially appraised as threatening, may thereafter re-appraise the situation as challenging, may perceive him/herself as more able to manage the situation and may feel emotions of happiness and relief which may

in turn lead to more problem-focussed coping attempts. He/she may further experience an increase in his/her personal sense of self-worth, and a reduction in levels of anxiety. Over the course of any transaction there may be multiple appraisal, coping, emotion and reappraisal processes such as the ones described above.

Lazarus thus holds that the psychological processes employed in a stressful encounter, occur on the basis of, and impact upon the individual's underlying environmental and personal resources (Monnier, Hobfoll & Stone, 1996). Yet despite this awareness of the relevance of personal and environmental factors and some elaboration of these factors in later publications (see Lazarus, 1999), the theoretical emphasis and much of the research conducted within this framework takes as its primary area of focus the mediating variables embodied by the cognitive mechanisms of appraisal and coping, with a growing awareness of the role of emotions. These mechanisms are viewed as central to the transactional model and the role of antecedent variables such as goals has largely been neglected (Oliver & Brough, 2002)

Although the transactional model is presented in clear-cut terminology epitomised in the kinds of diagrammatic models presented thus far, Lazarus expresses some reservations regarding the diagrammatic representation of the transactional model and the categorisation of variables using causal terminology. The various elements of the transactional network including motivation, appraisal, coping and emotion are intended to be viewed in a holistic way, as a system forming a complete entity (Lazarus, 1999). Essentially the relations between appraisal, emotion and coping are conceptualised as

bi-directional processes (Folkman & Lazarus, 1988). Diagrammatic representations clearly cannot hope to capture the richness and complexity of such a model. They at best provide some overview of the process and allow for epistemic categorisation of the variables (Lazarus, 1999). Lazarus cautions that such diagrams can be misleading - implying a much more thorough and absolute knowledge of the process than is the reality. In addition he holds that these models can obscure relationships through oversimplifying the system, thereby creating an impression of understanding. For instance appraisal and coping are viewed as influencing every element of the transactional system - relations that cannot be adequately represented through the placement of an arrow. Lazarus (1999) also points to the dynamic nature of the person-environment transaction which changes with each passing moment and observes that such change can be precipitated at the level of antecedent, mediator or outcome variables.

These reservations essentially reflect Lazarus's un-ease with locating the transactional model within a causal, linear framework. Whilst previously supporting the logical benefits of such an approach, in his later work and shift to a relational understanding Lazarus moves towards a more subjective approach to stress, employing a narrative methodology to explore appraisal and emotion (Cooper and Dewe, 2004; Lazarus, 1999). While most research continues to operationalise the transactional model in a linear way, Lazarus's critique needs to be borne in mind. The author argues that, although perhaps limited, a quantitative framework still has much to offer in terms of exploring the role of motivation in relation to the stressful transaction and can

successfully incorporate subjective or idiographic elements. This position will be elaborated on in further detail in the methodology section of this study.

Having clarified the interrelations between elements of the transactional model and offered some cautionary statements concerning the model, the discussion will proceed with an exposition of the core concepts of appraisal, its attendant emotions and coping.

### 4.2.2. Appraisal

Although conceptual advances within the transactional framework have largely focussed on reformulated understandings of appraisal and its relation to the stressful transaction, the core definition of appraisal, the categorisations of primary and secondary appraisal and its intimate relation to emotional response have remained consistent. Hence this section will focus on these notions and earmark those features of the construct that have been subject to later revision.

Appraisal is defined as "a process whereby a person assesses the subjective meaning of a situation" (Turton, 1993b, p. 9) or the consequences that the situation has for personal wellbeing. Lazarus endowed this concept with theoretical primacy and it served as the initial focus of the transactional approach, both in terms of theory and research (Cox & Ferguson, 1991). Whilst it has not maintained its pre-eminent position in terms of research (research into coping is far more extensive), there is no doubt that Lazarus has continued to view appraisal as the most significant of the cognitive

processes. Lazarus (1999, p. 72) states: “I became convinced that the main source of variation in the arousal of stress and how it affects human functioning is the way an individual evaluates subjectively the personal significance of what is happening.” Appraisal, as a core cognitive mediator of the stress response, is perceived as a "universal process" (Lazarus, 1993, p. 7) which precipitates coping attempts and an emotional outcome. The individual is viewed as utilising appraisal in constantly evaluating the events in his/her environment, in terms of their consequences for personal wellbeing. Thus appraisal is "an evaluative process that imbues" the individual-environment transaction "with meaning" (Cox & Ferguson, 1991, p. 9).

Cognitive appraisal is further understood as a dynamic process, which involves ongoing re-evaluation of a situation in terms of the demands it places on the individual (Tomaka, Blascovich, Kelsey & Leitten, 1993). Lazarus (1993) also maintains that individuals are selective both in terms of what they attend to and with regard to the factors they consider in their appraisal. Thus the same situation may be appraised as having no subjective meaning by one individual and may be perceived as extremely threatening by another.

For routine appraisals of person-environment transactions, including fairly common stressful transactions such as examinations, Lazarus (1999) views appraisal as a rapid, virtually instantaneous process. As such, routine appraisals are viewed as “unconscious” in the sense that they are automatic - allowing for almost instantaneous evaluation of already “familiar” scenarios. According to Lazarus such appraisals can

easily be brought to consciousness by merely drawing the person's attention to the context within which the appraisal occurred (Lazarus, 1999). This perspective on the "unconscious" nature of appraisal and its accessibility to consciousness is but one amongst a range of views. Other perspectives would hold that appraisals are not so easily accessible and will be discussed in the sections of the study addressing the limitations of the transactional approach and of this study. The current study follows the dominant view that appraisals can be reasonably easily consciously accessed in response to enquiry.

Lazarus and Folkman (1984) initially divided cognitive appraisal into two component processes: **primary** and **secondary** appraisal. Primary and secondary appraisals are perceived to function interdependently (Lazarus, 1999). There is constant interplay between primary and secondary appraisal and they are part of a single process. The degree to which an event is relevant to wellbeing (primary appraisal) and the degree to which one views oneself as effective and able to cope with the event (secondary appraisal) will impact on the perceived degree of challenge, threat, benefit or harm the situation is seen to hold, which in turn will impact on the perceived relevance. Hence primary and secondary appraisal act interdependently of each other and consequently determine a coping and affective response. According to Lazarus (2001) their distinctive content does warrant addressing them individually but "each should be regarded as partial meaning components of a more complex cognitive motivational relational process." (Lazarus, 2001, p.44).

**Primary appraisal** was originally defined as the individual's evaluation of the demands placed on him/her by the environment (Cox & Ferguson, 1991). The individual poses the question to him/herself: "'Is this particular encounter relevant to wellbeing, and in what way?'" (Cox & Ferguson, 1991, p. 20). If the encounter is appraised as irrelevant there will be no emotional response - the situation has no personal significance. In contrast, when the situation is perceived as relevant to personal wellbeing, the level of intensity and the nature of the appraisal will vary according to the situation and its degree of impact or potential impact on wellbeing. Primary appraisal is “mainly a judgement of whether what is happening is worthy of attention” (Lazarus, 2001, p.44).

Whereas primary appraisal addresses the stressful features of an event (Cox and Ferguson, 1991), **secondary appraisal** involves the person's evaluation of available "coping resources and options, addressing the question "'what can I do?'" (Folkman & Lazarus, 1985, p.152). What, if anything, can be done to address the stressful aspects of a particular situation? (Cox & Ferguson, 1991). Secondary appraisal as a "decision-making process" (Cox & Ferguson, 1991), while centring on underlying cognitive mechanisms in the here-and now, is also shaped by the stressful event and pre-existing coping style(s) (Cox & Ferguson, 1991). Secondary appraisal reflects the level of coping efficacy or the subject's perception and evaluation of his/her ability to impact on a particular situation, to change or control the course of the event (Folkman et al, 1986).

The assessment of relevance and of coping efficacy leads to what Lazarus refers to as

**"stress appraisal contents"**. The person-environment transaction is defined as harmless or positive, pointing to a beneficial effect on wellbeing; or stressful, and hence characterised by threat, challenge or harm-loss (Folkman & Lazarus, 1985). Lazarus and Folkman's (1984) original conceptualisation identified a number of stress-related categories of appraisal emerging out of secondary appraisal and linked to emotion (Tomaka et al, 1993). These included threat and challenge appraisals which occur prior to a stressful event, and harm/loss appraisals following the event. Threat appraisals arise when the perceived danger of a stressor exceeds perceived capabilities and coping resources available to deal with the stressor - resulting in anticipated future damage (Folkman & Lazarus, 1985). Challenge appraisals are those wherein perceived danger is not in excess of capabilities and perceived coping resources (Tomaka et al, 1993) and so people will engage with the transaction and attempt to master it (Folkman & Lazarus, 1985). The retrospective appraisals of harm/loss arise where damage has already happened - danger is viewed as having exceeded capabilities and coping resources. Folkman and Lazarus (1985) also proposed a further post hoc appraisal category of benefit. Benefit refers to the positive appraisal of an outcome as positive - a positively toned appraisal where perceived capabilities and coping resources are viewed as exceeding perceived demand/danger.

### 4.2.3. Appraisal and emotion

Within the original transactional model, as previously stated, negative emotion is viewed by Lazarus and Folkman as emerging out of the appraisals of harm/loss, challenge and

threat. Emotion is perceived as being integrally linked to cognition, with the particular emotions experienced depending on the individual's thoughts regarding a person-environment transaction. Hence, within the stressful transaction, emotion was defined according to the category of appraisal out of which the emotion emerged. In Lazarus and Folkman's initial conceptualisation key stress related emotions included harm, benefit, threat and challenge emotions.

Threat emotions refer to "worried, fearful and anxious" (Folkman & Lazarus, 1985, p.154) feelings. Harm emotions include "angry, sad disappointed, guilty and disgusted" (Folkman & Lazarus, 1985, p. 154) feelings. Challenge emotions encompass feelings of confidence, hopefulness and eagerness (Folkman & Lazarus, 1985). The benefit emotions refer to "exhilarated, pleased, happy and relieved" (Folkman & Lazarus, 1985, p. 154) feelings. These categories are not viewed as mutually exclusive. For example, a student going through an examination period could well experience both threat and challenge emotions simultaneously or in short succession.

The appraisal-based emotion categories correspond with the categories of Positive and Negative Affect delineated by Watson and Clark (1988). Positive affect (PA) reflects the extent to which an individual feels active, alert and enthusiastic, and negative affect (NA) reflects a general feeling of anxiety, distress and displeasure (Watson & Clark, 1988). Threat and harm are viewed as corresponding with NA, and benefit and challenge as corresponding with PA (Turton, 1993a).

In terms of Lazarus's core conceptualisation, the appraisal of and emotional response to stress was not limited to negative responses. Through incorporating the categories of benefit and challenge (in addition to harm and loss), stress was located as a component of a broader cognitive and emotional response (Lazarus, 1993). Thus Lazarus and Folkman (1993) include both negative and positive emotionality in the range of emotion identified as pertinent in the stress process (Folkman & Lazarus, 1993).

Having addressed the cognitive mechanisms of appraisal and its attendant emotions, in terms of the characteristics and processes appraisal encompasses, the review will proceed with a discussion of coping.

### 4.2.4. Coping

Although coping is not a focus of this study, this section briefly reviews the notion, given its central role within the stressful transaction. For Lazarus appraisal and coping are the cornerstones of the stressful transaction (Cooper & Dewe, 2004). Whereas appraisal forms the conceptual core of Lazarus and Folkman's work, it is coping that has been emphasised in research. However, more recently there has been a revival of interest in the role of appraisal within the stressful transaction (Lazarus, 1999). Nevertheless the majority of research within the transactional framework has focused on coping, often detracting from the study of other variables (Lazarus, 1999).

Within the transactional framework, the appraisal of a specific individual-environment transaction usually leads to psychological and physiological consequences, or changes in functioning. These consequences include coping attempts (Cox & Ferguson, 1991). Coping can be defined as the individual's cognitive and behavioural attempts at dealing with a problematic individual-environment transaction (Folkman & Lazarus, 1985). It represents the "main means of reducing discrepancies between one's circumstances and one's desires and motivations" (Smith, Haynes, Lazarus & Pope, 1993, p.919). Thus coping is viewed as a process of attempting to “manage psychological stress” (Lazarus, 1999, p. 111). This notion of coping is in contrast to a typological or trait-oriented approach, which adopts a conceptualisation of coping as more consistent (Cox & Ferguson 1991). A trait-oriented focus centres on pre-existing personality dispositions and also explores the dimensions underlying coping behaviour/style (Folkman et al, 1986). In focussing on traits this latter approach assumes that coping is fundamentally a feature of the individual and places little emphasis on context.

In contrast, Lazarus’s notion of coping is clearly that of a process that the individual utilises in order to deal with the demands of a particular stressful situation (Folkman et al, 1986). Lazarus and Folkman perceive coping as highly contextual, changing over time and according to the situation (Lazarus, 1993). Hence they adopt a process-oriented approach to the concept of coping. A process-oriented approach assumes that there is no one universally efficacious coping strategy (Lazarus, 2001). Their approach represents the most widely accepted and utilised conceptualisation of the process of coping (Cox & Ferguson, 1991).

Lazarus and Folkman initially distinguished between two major styles of coping - **emotion** and **problem-focussed**. Emotion-focussed coping refers to cognitive and behavioural attempts at minimising or regulating emotional distress. Problem-focussed coping is defined as the individual's active attempts to address the problematic individual-environment transaction which resulted in the stress (Folkman & Lazarus, 1985). It refers to cognitively and behaviourally-based problem-solving strategies, that alter or manage the stressful situation. Although theoretically distinct, problem and emotion-focussed strategies typically occur concurrently and their respective consequences may be difficult to distinguish (Carver & Scheier, 1994). Thus Folkman and Lazarus (1985) began to view these categories as lacking in specificity and as overlapping, rather than as mutually exclusive.

Folkman, Lazarus, Dunkel Schetter, De Longis and Gruen (1986), in recognising this limitation reconceptualised coping and by means of further research derived eight specific coping strategies operationalised as separate scale categories, through the use of factor analytic procedures. These scales are still grouped broadly under the categories of emotion and problem-focussed coping. They include the emotion-ocussed coping styles of *distancing, self-control, accepting responsibility, escape-avoidance* and *positive reappraisal*. The problem-focussed coping styles refer to *planful problem-solving* and *confrontative coping*. Finally, *seeking social support* is defined as a combination of emotion and problem-focussed coping styles. Coping styles are not mutually exclusive in that in any particular person-environment transaction Lazarus

holds that an individual would use up to seven of the eight coping strategies identified (Lazarus, 1999).

Given that coping can be operationalised largely along behavioural lines and hence is easier to observe, analyse and quantify, it has received preferential treatment in stress research. Measures relating to coping have had wide application and have been subject to ongoing statistical analyses. In contrast to this predominant research focus on coping and stress, this study takes as its emphasis **appraisal** and related elements within the stress process. This study thus attempts to shift the focus of exploration to other elements of the stress process with the attendant challenges of attempting to operationalise abstract and ambiguous concepts. In particular the study uses as its springboard conceptual advances in the field to establish the particular relations between motivation, appraisal and their attendant elements. It thus aims to elaborate on the understanding of some well-established features of the transactional model as well as to work within more contemporary trends in stress research. While not denying the importance of coping in relation to appraisal, coping style has been excluded as an element of focus in this study. The primary reason for this exclusion lies in a need to retain conceptual and methodological focus and clarity whilst attempting to remain true to the dynamic and process-oriented nature of the transactional model.

## 5. CONCLUDING COMMENTS

This chapter has explored the development of the study and conceptualisation of stress

from a unidimensional, structural conceptualisation to a multidimensional, process-oriented conceptualisation. This development is embodied in the transactional model of stress as developed by Lazarus and Folkman (1984). The transactional model represents a shift in emphasis away from an understanding of stress based on stable features, such as personality traits and fixed features of the environment. The focus of the transactional model is on mediating variables. Stress is thus understood as a dynamic process, incorporating the psychological processes of appraisal, coping and emotion (Folkman & Lazarus, 1985). These variables have been elaborated on with a specific emphasis on appraisal, as this dimension of the stress process is of primary interest to the current study.

# CHAPTER THREE - CONCEPTUALADVANCES WITHIN TRANSACTIONAL THEORY

"Today … the work that Lazarus and his colleagues produced on appraisal, coping, and emotions is still at the heart of stress research" (Cooper and Dewe, 2004, p.83).

## 1. INTRODUCTION

Having delineated the core features of appraisal, emotion and coping in chapter 2, theoretical advances regarding the conceptualisation of appraisal and emotion will now be addressed.

The transactional notion of stress has been extended into the realm of emotions with the relationship between appraisal and emotion developing as a core area of investigation. Lazarus's work in this regard is generally outside the realm of the transactional model of stress and relates more to developments regarding the concepts of appraisal and emotion (Reeve, 2001). Thus the advances in understanding stress and emotion have largely emerged out of Lazarus's shift into the realm of cognitive theories of emotion. He has used the transactional model as a springboard into a more general theory of emotion - the cognitive motivational-relational theory (CMRT) of emotion. Lazarus holds that the fields of emotion and stress are interdependent, stating "the oddity is that two separate literatures have developed, almost as if stress had no bearing on the emotions, and emotions had no bearing on stress" (1999, p.35). He

views theories of psychological stress as a component of emotion-related research - "an important segment of the larger rubric of emotion" (Lazarus, 1999, p.39), with emotion as "a superordinate concept, and stress as a subordinate but very important part of the emotional life" (Lazarus, 2001, p.54).

These developments strongly emphasise a bi-directional relationship between cognition and emotion. Emotion is viewed as emerging in response to meaning but, in turn, influencing subsequent thoughts and feelings (Lazarus, 1999). In addition, CMRT adopts a more holistic approach to the relation between appraisal and emotion and substantially elaborates on the notion of appraisal, the antecedent variables that shape it and the influence of motivation in this regard.

Relevant advances will be elaborated on in relation to Lazarus's attempts to apply his general theory of CMRT to the stressful transaction. These theoretical developments represent Lazarus's growing focus on the complexity and subjectivity of appraisal and emotion generally, as well as within the stressful transaction. They illustrate that for Lazarus "concern with individual differences and a language of relational meaning is … essential for progress in the field of psychological stress and emotion to occur" (1999, p. 13). The chapter will proceed with a focus on this application and will explore the implications of this theory with regard to the links between motivation, appraisal and emotion within the stress process.

## 2. AN OVERVIEW OF THE ADVANCES

The conceptual revisions proposed by Lazarus rest on the notion of **relational meaning** with its primary emphasis on motivation. Lazarus holds that personal meaning "in the form of individual differences in goals and beliefs in the stress process" (Lazarus, 1999, p.73) has been a focus of the theory from its inception. In Lazarus's writings in the 1950's stress was defined as occurring when the attainment of a particular goal was threatened, and stress and emotion were viewed as dependant on the degree of relevance of a person-environment transaction to the individual's motives (Lazarus, 1999).

Hence the role of motivation and relational meaning has its origins in Lazarus's theory at its point of inception. Over the years the emphasis on personal meaning gave way to a more positivist, technical, scientific and generalisable notion of stress transactions. Lazarus's revised theory represents an attempt to reclaim an appreciation of the subjective and idiosyncratic nature of stress through the more active incorporation of personal meaning and goals within the transactional model. Such a stance resonates with Lazarus's reservations regarding the diagrammatic, linear representation of the transactional model. The core element of these conceptual advances is Lazarus's extensive elaboration of the **nature of appraisal (underpinned by motivation) and its link to emotions**.

A relational approach to stress firstly takes into consideration the relative impact of

environment and person variables, and secondly emphasizes the relational meaning of the stress process "based on the subjective appraisals of the personal import of what is happening" (Lazarus, 1999, p.60). Lazarus (2001) presents a diagrammatic representation of his revised model of stress illustrating the incorporation of the stressful encounter into his broader theory of emotion. This figure is presented below:

| *Antecedents* | *Processes* | | | | *Outcomes* |
|---|---|---|---|---|---|
| Person:<br>-Goals and goal hierarchies<br>-Beliefs about self and world<br>-Personal resources | | | | | |
| The person-environment relationship | → Appraisal | → Relational meaning as core relational themes | → Coping | → Revised relational meaning | → 1 or more of 15 emotions and their effects; sometimes combined in the same transaction. Also morale, social |
| Environment:<br>-Harms/losses<br>-Threats<br>-Challenges | | | | | |

-Benefits

functioning

and health

**Figure 3.1 - A revised model of stress and coping (Lazarus, 2001, p.56)**

The model essentially follows Lazarus's broader theory of CMRT which rests on an interactional understanding of emotion that is intimately linked to the process of appraisal (Lazarus, 1999). The model indicates the combined influence of person and environment variables acting on appraisal, which in turn shapes relational meaning coping and emotion. Features of the event and particular psychological characteristics of the individual responding to it - the person-environment relationship - shape the components of the individual's appraisal of the event. Emotion is viewed as a consequence of the "relational meaning" or the overall appraisal of the personal relevance of a person-environment transaction. Core relational themes represent the specific relational meaning which underpins a particular coping and emotional response (Smith et al, 1993). Lazarus defines the larger, overarching units of core relational themes as one level of appraisal and smaller units of appraisal components as a second level of appraisal. For instance Lazarus holds that an emotion such as anger would be underpinned by the core relational theme of "a demeaning offense against me and mine" (Lazarus, 1993, p.13) and an emotion like hope would be underpinned by a sense of "fearing the worst but wanting better" (Lazarus, 1993, p.13). Emerging out of a particular person-environment transaction, he would view a specific combination of appraisal components as shaping a core relational theme which, in turn, would generate

coping attempts and emotion, thereby eliciting a revised relational meaning. Lazarus identifies core relational themes for 15 emotion states negatively toned emotions emerging out of threat and challenge and positive emotions emerging out of the broad appraisal category of benefit (Lazarus, 1999, 2001).

The application of CMRT represents an expanded understanding of the stressful transaction. It proposes a view of stress that extends it beyond primarily negative emotion states. In addition Lazarus's revised theory offers the addition of core relational themes and a greater elaboration of antecedent variables and immediate as well as long-term affective outcomes. The understanding of appraisal components is also substantially extended and revised.

Despite the value of these contributions, Lazarus's efforts at synthesising CMRT with the transactional understanding of stress indicate some incompleteness and conceptual confusion with regard to identifying how some of the concepts located within CMRT relate back to stressful transactions (see Lazarus, 1993; 1999, 2001). There are a number of **inadequacies** in the discussion of his revised theory. Lazarus is not sufficiently explicit with regard to how notions of relational meaning would be applied to stress. The links of core relational themes to more long-term outcomes are not elaborated upon and the influence of the temporal dimension is not taken into account. There are also **inconsistencies** in that in his discussion of stress Lazarus draws on both aspects of his original theory (as discussed in chapter 2 and represented in Figure 2.1) as well as making reference to his revised model. In drawing on these two

models, confusion emerges specifically with regard to the understanding of the relation between appraisal and emotion. On the one hand Lazarus seems to maintain distinctive appraisal and emotion outcomes linked to the stressful transaction (i.e. harm/loss, threat, benefit and challenge) and, on the other hand, he appears to propose their integration into his broader CMRT.

Despite these limitations, in keeping with research trends (see chapter 5), it would appear that Lazarus's revised understanding of appraisal offers some interesting theoretical insights into the appraisal process and has useful applications, specifically with regard to motivation. In addition his expanded discussion of antecedent variables builds on existing knowledge emerging out of a transactional understanding of stress and also offers useful avenues for research. However although CMRT holds promise for enhancing understandings of stress, aspects of the theory are underdeveloped and their application to stress is unclear. The present study adopts a 'hybrid' approach in that it incorporates the expanded constructs of goal-related antecedent variables and motivation-based revisions of primary appraisal within the transactional stress framework, but maintains categories of emotion outcomes specifically linked to the stressful transaction (i.e. harm/loss, threat, benefit and challenge). This 'hybrid' approach is common to many studies in the field (see chapter 5) and reflects Lazarus's own retention of these categories, their continued application to research as well as the lack of integration of core relational themes into stress theory and research.

Having provided some basis for the approach to these advances taken in this study, the

review will proceed with a discussion of relevant antecedent variable and appraisal-related developments.

## 3. OPERATIONALISING THESE CONCEPTUAL ADVANCES

### 3.1. Environmental and individual variables

If the nature of stress is defined as relational, it becomes necessarily viewed as a specific kind of transaction between an individual and his/her environment within which certain criteria must be met (Lazarus, 1999). Such a conceptualization does not differ markedly from the original transactional model, other than offering a more specific understanding of the elements at play in this transaction. The individual must require something from the environment - either the avoidance of specific outcomes viewed as undesirable, or the pursuit of specific outcomes that are relevant to the meeting of significant goals or expectations.

For Lazarus, the relational meaning of a stressful transaction is defined as “a person’s sense of the harms and benefits in a particular person-environment relationship” (1993, p.13). According to Lazarus (1999) the meaning a person attaches to an event is viewed as the **proximal** cause of a stress reaction and factors such as the social class or gender of the individual are categorized as **distal** causes. Lazarus places emphasis on the individual’s specific values, goals and beliefs (i.e. proximal causes) as primary in understanding stress, and views distal variables as having little direct effect on appraisal

and coping. While he does engage with distal environmental and person variables, his focus and research interest is clearly at the level of the individual as opposed to the social or political context. This study implicitly adopts an individualized emphasis but, as opposed to Lazarus, sees this as necessary in limiting the scope of this particular study and would not necessarily view social and political factors as insignificant. For (as elaborated upon in the limitations section of this chapter and the discussion chapter), these factors interact with and shape individual values, goals and beliefs and influence the resources individuals have at their disposal in managing a stressful transaction.

A relational approach emphasizes environment and person characteristics as key elements in relation to appraisal or personal meaning (the idiographic, person characteristics being given more significance than demographic features). Lazarus (1999) goes some way toward more specifically defining the major environmental and person variables that influence an individual's stress reaction, moving away from the more general terms of his original conceptualization. He views both person and environment variables in combination as influencing the stress reaction, through the process of appraisal (Lazarus, 2001; 1999). The review will thus proceed with a brief description of the environment and person variables emphasized by Lazarus and then proceed with his re-conceptualization of appraisal.

### 3.1.1. Environmental variables

Lazarus holds that certain environmental variables shape stress and emotion through

impacting on the process of appraisal. These factors are viewed as having a significant influence on whether a transaction is appraised as a threat or challenge (Lazarus, 2001). These include **situational demands** - "implicit or explicit pressures from the social environment to act in certain ways and manifest socially correct attitudes" (Lazarus, 1999, p.61); **constraints** - "what people should *not* do" (Lazarus, 1999, p. 62), particularly in relation to social standards with punitive consequences; and **opportunity** - the presence of opportune experiences and settings, and variations in **culture***,* which may shape appraisal and emotion (Lazarus, 1999). For instance, in the context of an examination situation a person may have explicit demands from their family to succeed academically. Constraints may include a social norm not to cheat during the exam, opportunities may involve having access to relevant textbooks as well as to experts in the field, and cultural factors could include the anticipation of strong feelings of shame in the event of failure or a low expectation of success, for example, in cultures where expectations relating to academic achievement in women are low. Lazarus (2001) also identifies further features of the environment that influence appraisal. These include time-related factors such as "imminence, timing and duration" (Lazarus, 2001, p. 45) and features of the event such as "novelty, predictability (and) clarity of meaning" (Lazarus, 2001, p. 45). While merely touching on these concepts, Lazarus holds that it is these specific elements of the environment that have a substantive impact on stress and emotion.

### 3.1.2. Individual variables

According to Lazarus (2001), personality factors impacting on whether an individual is more likely to experience threat or challenge are related to self-worth or self-efficacy (Bandura, 1982). The more confident a person feels the more likely he/she will appraise a situation as challenging, as opposed to a person with feelings of inadequacy who is more likely to feel threatened (Lazarus, 2001). Lazarus (1999) emphasises three individual variables that interact with the environmental variables and have a substantive impact on appraisal. These are **goals and goal hierarchies**, **beliefs about the self and the world** and **personal resources**. He views these individual variables as influencing "what we are able and unable to do as we seek to gratify needs, attain goals and cope with the stresses produced by demands, constraints and opportunities "(Lazarus, 1999, p.71).

Lazarus places primary emphasis on the person variables of **goals and goal hierarchies,** viewing them as "crucial in stress and in all emotions" (Lazarus, 1999,

p. 70). Lazarus defines emotion as a consequence of the appraisal of the outcome of one's goals in an environment-person transaction. A person is understood to be under stress or experiencing stress emotions to the extent that a particular situation delays, frustrates or does not allow for adherence to goals. Similarly, positive emotions are viewed as arising from progress toward meeting goals.

In discussing this person variable Lazarus (1999) highlights the issue of goal hierarchies

and more specifically **goal conflict**. He points to the fact that in any given situation more than one goal may be at stake. Lazarus (2001) argues that people hold various goals simultaneously. Hence the person-environment transaction could generate a range of emotions in relation to these various goals (David et al, 2002; Lazarus, 2001). In addition, given the various goals a person is likely to have, Lazarus (2001) points to the possibility that the goals may be in conflict with each other. For Lazarus goal conflict "involves the presence simultaneously of two incompatible goals or action tendencies" (Monat & Lazarus, 1991, p.4). Goals may be incompatible as they may require incompatible behaviors and attitudes in order to be met and hence will inevitably lead to negative emotions of threat or frustration (Monat & Lazarus, 1991). For instance over an exam period a subject may have, among others, the goals: "To work hard at my studies" and "Have fun with my friends". Clearly these two goals would involve very different behaviors and attitudes - discipline and keeping to a study schedule, versus being sociable and going out. This in turn may result in feelings such as frustration, disappointment and anger.

Lazarus thus holds that the individual has to decide which of his/her goals are least and most important in any person-environment transaction. Lazarus (1999) earmarks this process as crucial to generating an emotional response and thus views it as central to the outcome of the individual environment transaction, identifying potential goal conflict as being "of great importance in human adaptation" (Monat & Lazarus, 1991, p.4). He appears to view goal conflict as an inherent feature of a potentially stressful transaction. Lazarus's assumption here seems to be that when individuals are faced with conflicting

goals, they need to address this by selecting those of primary significance. Whilst clearly pinpointing processes relating to Goal Conflict Lazarus does not elaborate on the implications of Goal Complementarity.

Lazarus not only highlights the role of motivation in relation to appraisal but also clearly points to the primacy of goals, goal hierarchies and goal conflict as the most significant person variables in the experience of stress. Beyond this brief discussion regarding how goal conflict may come into play in the stressful transaction, no other theoretical discussions or studies by Lazarus could be located that offer a template for operationalising and researching goal hierarchies and goal conflict in the stressful transaction. Nor does Lazarus provide much explanation of their link to appraisal components, coping or emotion. He does, however, propose that personal goals can be measured independently of appraisal by "asking the person about goals and goal hierarchies" (Lazarus, 1999, p.204), (an approach followed in this study, as will be outlined later). This indicates that in keeping with his understanding of other cognitive processes, Lazarus, in common with Emmons (1988), views goals as accessible to awareness. In addition, there are a limited number of studies by other researchers addressing goal variables in the stressful transaction, as will be discussed in chapter five. This study thus directly responds to this gap in the stress literature. It takes the person variable of goals and goal hierarchies and applies Emmons's (1988) notion of personal strivings and, in particular, goal conflict, to directly address Lazarus's reference to the possible role of conflict within goal hierarchies in producing stress.

Lazarus, albeit briefly, also points to the significance of the individual variables of **beliefs about the self and the world** and **personal resources**. He states that our beliefs directly impact on how we perceive ourselves and respond to our environment and that our appraisals constantly reflect our underlying beliefs (Lazarus, 1999). This statement implies that Lazarus views these variables as significant in relation to appraisal, as opposed to in and of themselves. With regard to personal resources, he includes factors such as educational level, intelligence, social support, money, physical attractiveness and social skills. He views these resources as greatly influencing the likelihood of an adaptive outcome within an individual-environment transaction (Lazarus, 1999). Lazarus believes that these personal resources become entrenched in the individual as personality traits and sees the issue of how amenable these various factors are to change as a central if somewhat rhetorical question within the field of psychology (Lazarus, 1999). Thus Lazarus addresses both the variables of beliefs and resources in very general and philosophical terms and does not appear to give them the same primacy as goals and goal hierarchies in his theoretical and research focus.

In his reference to these person and environment variables, Lazarus is generally vague and only appears to elaborate to a limited extent on how he sees these elements relating to other variables within the stressful transaction. These specific person and environment variables are thus acknowledged, but Lazarus's discussion of these issues lacks verification, substance and tangible elaboration.

### 3.2. Appraisal

The revised understanding of the transactional approach places greater emphasis on meaning making (through appraisal) as integral to the relationship between the individual and his/her environment. For, as stated by Lazarus, "the person and environment interact, but it is the person who **appraises** what the situation signifies for personal wellbeing" (1999, p.12). In particular, the theory highlights the individual's unique relationship with the environment and the individuality of his/her responses as predicated on specific goals and beliefs (Lazarus, 1999).

Whilst Lazarus (1999) in his more recent work provides a slightly more substantive understanding of the person and environment variables at play in the stressful transaction, the theory has received its most substantial reworking with regard to the understanding of appraisal or the person's subjective sense of the person-environment transaction. It is the appraisal of the knowledge of the facts of the situation - linked to the fate of the individual's goals - as a unique evaluation of the situation's significance for wellbeing, which directly results in emotion (Smith & Lazarus, 1993). As Smith and Kirby (2001) state "appraisal represents an evaluation of the stimulus situation as it relates to the person's individualized needs, goals, beliefs, and values" (p.124).

Knowledge, in the form of a cognition or attribution that becomes linked to the fate of one's goals becomes emotional and thus would be considered an appraisal (Lazarus, 2001). Appraisal directly impacts on emotion, whereas knowledge merely informs appraisal (Lazarus & Smith, 1988; Smith et al, 1993; Smith & Lazarus, 1993). Hence for Lazarus appraisals are "hot or emotional cognitions" (2001, p. 57) - appraisal is

implicitly accompanied by emotion.

As such, primary appraisal underpins "the conditions for emotion arousal" and secondary appraisal refers to "the coping processes that shape particular emotions" (Frijda, 1993, p.226). Hence for Lazarus:

> "Emotions are not a direct consequence of goals, but rather of the *fate of goals*. To the extent that attributions … are affected by one's goals, they should become hot or emotional appraisals if the fate of such goals were known" (2001, p.41).

In his later work Lazarus (1999) also shifts his focus regarding the generation of emotion from primary to secondary appraisal but does not provide any explanation for this. In keeping with earlier literature this research study is based on the premise that primary appraisal differentiate more finely between emotions than Lazarus's later work seems to hold. It appears that Lazarus's shift in focus to secondary appraisal in the generation of emotion is an assumption that needs to be explored and potentially challenged.

In addition, whereas Lazarus's initial assessment of appraisal was as a conscious, cognitive process, as his work has shifted into the realm of emotion he also has increasingly acknowledged a process of unconscious, instantaneous appraisal (Lazarus, 1999, 2001). Lazarus described this unconscious appraisal as the "cognitive unconscious" emerging out of "inattention" (Lazarus, 1999, p.83). For Lazarus this meant a process whereby what was originally a conscious appraisal process becomes

rapid, automatic and intuitive. Hence Lazarus's later work points to conscious, intentioned and unconscious, intuitive appraisal processes. Lazarus (1999) also acknowledges an additional "dynamic unconscious" appraisal or "defensive reappraisal" emerging out of "ego-defensive processes" (Lazarus, 1999, p.83). Lazarus viewed the cognitive unconscious as accessible to consciousness through a process of focusing the individual on these processes (Lazarus, 1999). In contrast the dynamic unconscious is more difficult to access given that the person is invested in avoiding threatening thoughts. The unconscious aspects of dynamic reappraisal may distort and/or be quite contrasting to what a person is consciously able to report regarding a person-environment transaction. Lazarus does not, however, elaborate very extensively on the notion of the dynamic unconscious nor does he link it to the stressful transaction.

It is the conscious, intentioned aspect of appraisal that serves as the focus of the current study. In describing this aspect of appraisal, Lazarus still works within the framework of primary and secondary appraisal but divides these components into a number of additional dimensions which are explicated in further detail below. Thereafter, the relations between appraisal and emotion within the context of advances regarding CMRT will be addressed.

### 3.2.1. Primary appraisal

In his more recent work Lazarus defines primary appraisal somewhat more specifically in contrast to earlier conceptualisations, viewing it as "whether or not what is happening is *relevant* to one's values, goal commitments, beliefs about self and world, and situational intentions" (1999, p.75). Lazarus places greater emphasis on goal commitments as influencing our reactions as goals imply an active intention in a given situation whereas we may have many values and beliefs but do not necessarily act on them. This emphasis on goals in relation to appraisal is echoed in many other appraisal theories, although the extent to which goals are given primacy does vary (Scherer, 1993).

Lazarus clearly holds that primary appraisal must incorporate the "specific contents of the goal(s) at stake in the encounter" (Smith & Lazarus, 1993, p.263). For Lazarus, goals are not only significant antecedents of primary appraisal, as illustrated by his identification of goals and goal hierarchies as significant person variables, but also have a direct impact on the emotional and long-term outcome of a person-environment encounter (Smith and Lazarus, 1993). This primary emphasis on goals is common across his more recent discussions of stress and his broader theory of emotion.

Within the framework of Lazarus's discussion of stress in relation to his revised understanding of appraisal, primary appraisal is directly related to **goal attainment** as the core concern regarding whether or not anything is at stake in a given situation

(Lazarus, 1999). Lazarus (1999) states the core questions of primary appraisal to be: "'Do I have a goal at stake, or are any of my core values engaged or threatened?'" and in the event that there is something significant at stake **"'What might the outcome be?"'** (p. 76). If the individual does not perceive him/herself to have anything at stake in the transaction - the transaction has no relevance to personal wellbeing - then Lazarus would hold that the transaction would not elicit any stress or emotion (Lazarus, 1999).

In his discussion of the CMRT of emotion Lazarus takes the notion of goal attainment a step further and divides primary appraisal into the components of motivational relevance and motivational congruence. **Motivational relevance** is defined as "an evaluation of the extent to which the encounter touches upon personal commitments" (Smith and Lazarus, 1993, p.237) or the relevance of the encounter with regard to personal goals or concerns (i.e. the encounter's importance). **Motivational congruence** is defined as "the extent to which the encounter touches upon personal commitments and is consistent or inconsistent with the person's desires or goals" (Smith & Lazarus, 1993, p.237). Over an examination period, with regard to motivational relevance, a person may ask him/herself: "How important is this examination period in relation to my goals?" In relation to motivational congruence the person may ask: "Will this examination period aid or obstruct the achievement of my goals?" Thus there is a clear distinction between the two constructs, with congruence often dependant on the prior establishment of relevance.

### 3.2.2. Secondary appraisal

In a stressful transaction where there has been a primary appraisal of something at stake in the situation, Lazarus holds that a person automatically shifts into secondary appraisal - the person's appraisal of their coping potential within a given situation (Lazarus, 1999). This in turn precipitates a choice in coping style, which in turn alters appraisal and the emotion emerging from appraisal. Hence as discussed in chapter 2, primary and secondary appraisal and their attendant stress processes are viewed as interdependent. This study focuses on primary appraisal exclusively, given the emphasis on the goal features of the stressful transaction. Nevertheless according to theory, there is no doubt that secondary appraisal processes (whilst not measured in this study) are a significant feature of the stressful transaction (Cooper & Dewe, 2004; Lazarus, 1999).

Within the context of stress and the transactional model, the notion of secondary appraisal has remained consistent in its definition as an "evaluation of coping options" (Lazarus, 1999, p.76). It is viewed as a cognitive inventory of available coping resources, the cognitive step that underpins active coping attempts. As such, Lazarus has pointed to the ambiguity of the distinction between appraising and coping, recognising that it is difficult to empirically distinguish between the step of secondary appraising and coping and that "it is not inappropriate to refer to it (secondary appraisal) as coping too" (Lazarus, 1999, p.76). In relation to stress Lazarus would hold that the evaluation of coping options may emerge out of a wide range of possible questions

such as: “’Do I need to act?’”; “’When should I act’”; and “’What are its costs and benefits?’” (Lazarus, 1999, p.78). These questions underpin the specification of secondary appraisal components.

Lazarus speaks of a number of dimensions of secondary appraisal in his discussion of CMRT. According to Lazarus (1999, 2001) secondary appraisal involves the consideration of three core factors: i) accountability - the attribution of responsibility or the meting out of blame or credit regarding who or what is accountable for the harm, threat or challenge; ii) coping potential - the personal belief that we can or cannot manage the person-environment relationship effectively; and iii) future expectancy - our expectation that the situation will change either for better or worse. Alternatively, Smith and Lazarus (1990) speak of 5 secondary appraisal components, incorporating future expectancy and dividing accountability into 1) self-accountability - an evaluation of the extent to which the person is responsible for the circumstances and 2) other-accountability - an evaluation of the extent to which others are responsible for the situation. They also divide coping potential into 1) problem-focused coping potential - an individual’s evaluation of his/her capacity to take actions that would maintain or improve the situation, and 2) emotion-focused coping potential - the individual’s perceived capacity to adapt psychologically and manage a situation that is not working out satisfactorily

These dimensions are in contrast to the description of secondary appraisal within the stressful transaction, which focuses on the appraisal categories of harm/loss,

threat/challenge and benefit, in terms of perceived coping potential alone. Thus the revisions concerning primary and secondary appraisal relate to a more extensive and refined taxonomy of appraisal. The relation of primary appraisal to goals is made more explicit and the components of primary and secondary appraisal are more clearly defined. The following section will address modifications in Lazarus's theory regarding the relations between appraisal and emotion that have relevance for this study.

**3.3. Appraisal and emotion**

Lazarus (2001) views the content of primary and secondary appraisal and their combined relational meaning as varying in accordance with each discrete emotion. According to Lazarus, the goal-related primary appraisal components generate the emotion and broadly define it as positively or negatively toned. Lazarus views primary appraisal questions as crucial to the generation of emotion. According to Lazarus, the appraisal of motivational relevance is antecedent to the generation of *any* emotion, given that it indicates whether a goal is at stake at all in the person-environment encounter (Power & Dalgleish, 1997). For instance if the question regarding motivational relevance were to be answered as: "This examination period is not at all important in relation to my goals - I have nothing at stake in this situation", then Lazarus would hold that the transaction has no relevance to personal wellbeing and in effect would not elicit any stress or emotion (Lazarus, 1999). The motivational congruence appraisal is related to the generation of positive emotion and the motivational *in*congruence appraisal is related to the generation of negative emotion (Power & Dalgleish, 1997). The combination of primary appraisal dimensions can indicate in

actuality or potentially whether a situation is not relevant to wellbeing (low motivational relevance), of benefit to wellbeing (high relevance, high congruence) and hence associated with positive affect, or damaging to wellbeing/stressful (high relevance, low congruence or incongruence) and therefore associated with negative affect (Smith & Lazarus, 1990; Smith & Kirby, 2001). Hence, according to Lazarus (1999), within the context of a potentially stressful transaction, the situation will be generally appraised as having high motivational relevance and low congruence that in turn generates negative emotions.

It is the secondary appraisal processes that would then lead to a more nuanced experiencing of a particular emotion. In contrast to his earlier formulation where primary appraisal was viewed as the core cognitive process generating emotion, within CMRT Lazarus views secondary appraisal as the process that allows for a more finely tuned differentiation between the various emotions. The role of secondary appraisal in the generation of emotion is thus given greater significance within Lazarus's CMRT.

The various combinations of appraisal components would elicit a particular core relational theme and be associated with a particular emotion. Smith and Kirby (2001) identify three stress-related emotions of fear, sadness and challenge, all of which, according to them, would have appraisals of motivational relevance and motivational incongruence and thereafter have varying secondary appraisal components and core relational themes. For instance Smith and Lazarus (1990) hypothesise that the emotion of *anxiety* would have the core relational theme of ambiguous danger/threat, be motivationally relevant, motivationally incongruent and have low/uncertain emotion-

focused coping potential. *Sadness* would be associated with the core relational theme of irrevocable loss and be motivationally relevant, motivationally incongruent, have low problem-focused coping potential and low future expectancy (Smith & Lazarus, 1990). It is apparent that links between appraisal and emotion can be understood to generate specific emotional states in a patterned or general way. However, this research study is not aimed at the level of core relational themes, and the discussion will therefore proceed by addressing aspects of appraisal and emotion that require closer scrutiny in the context of the current study.

### 3.3.1. Locating the appraisal and emotion dimensions of harm/loss, threat, challenge and benefit

As discussed in the overview of his theoretical advances, Lazarus, on the one hand maintains distinctive appraisal and emotion outcomes linked to the stressful transaction (i.e. harm/loss, threat, benefit and challenge) and, on the other hand, proposes their integration into his broader CMRT. More specifically, in the application of these theoretical advances to the stressful transaction, revisions of primary and secondary appraisal are applied, while the categories of emotion outcomes specifically linked to the original transactional approach (i.e. harm/loss, threat, benefit and challenge) are maintained.

In his discussion of stress in the context of these advances, Lazarus asserts that the assessment of the degree to which goals are at stake (primary appraisal) and of coping

efficacy (secondary appraisal) leads to “stress appraisal contents” (Lazarus, 2001, p.44) with concomitant affective responses (as discussed in chapter 2). Affective responses would include the appraisal and emotion outcomes of threat, harm/loss, challenge and benefit. Lazarus broadly defines benefit as referring to the meeting of a goal or substantial progress toward it and, within CMRT, subsumes emotions such as happiness, joy, pride, gratitude and love under this idea (Lazarus, 2001). Similarly he uses the categories of harm, loss and threat to encompass such emotions as anger, anxiety, fear, guilt, shame, sadness, envy, jealousy and disgust within CMRT (Lazarus, 2001, p53). Whilst it is clearly Lazarus’s aim to extend beyond these appraisal-based categories to incorporate a broader range of emotions; in his discussion of stress Lazarus makes limited reference to the range of emotions suggested by CMRT and stays with his original categories of appraisal-based emotions linking them to the revised primary and secondary appraisal dimensions. This limits the scope of emotions incorporated under the construct of stress (Smith & Lazarus, 1990), but provides discrete and tangible categories of emotion directly linked to stress and hence are more amenable to research.

The conceptual shift toward more specifically defining appraisal components does call into question the location of Lazarus’s more general categories of harm/loss, threat, challenge and benefit appraisals. He appears to view these categories as “fundamental types of stress” (Lazarus, 1999, p.85), but simultaneously shifts his understanding of primary and secondary appraisal based on CMRT. The appraisal components of motivational relevance and congruence, and the various secondary appraisal

components, are not explicitly linked to the stressful transaction and to harm/loss, threat, challenge and benefit within the stressful encounter.

The initial appraisal categories of harm/loss, threat and challenge seem to find expression and to be subsumed under their attendant emotions. It would appear, in keeping with a more general critique of appraisal theory, that in his later theoretical exposition Lazarus has used the notion of appraisal "in a dual way: to refer to the content of emotional experience, as well as to the cognitive antecedents of emotions" (Frijda, 1993, p.357). For instance, in referring to his notion of appraisal as embodied by the terms harm/loss, threat and challenge, Lazarus appears to be already labelling the emotional response rather than its causes (which are represented by his concepts of motivational relevance and congruence and the various secondary appraisal components and coping). In the context of this study, for the sake of clarity and keeping with the broad literature, the categories of harm/loss, threat, challenge and benefit are viewed as categories of emotion rather than appraisal.

So, within the context of these conceptual revisions it seems congruent to refer to harm/loss, threat, challenge and benefit as categories of **emotion** rather than appraisals in relation to the stressful transaction. The notion of a threat or challenge **appraisal** seems somewhat more difficult to accommodate. Moreover the researcher holds that the emphasis on goal attainment in relation to later conceptualisations of primary appraisal within the stressful transaction is more suitably reflected by the incorporation of motivational congruence and relevance as measures of primary appraisal within a

potentially stressful situation. This notion of primary appraisal is more clearly relevant to pre-existing person and environment variables and hence has more explanatory value. Similarly Lazarus's more detailed explication of secondary appraisal also has relevance for and may serve to enrich understandings of the stressful transaction.

The application of the revised appraisal components to these appraisal-based emotion categories remains unclear, since Lazarus does not make explicit the primary and secondary appraisal dimensions that would be associated with each appraisal-based emotion category. Hence one of the contributions of this study is to explore the application of the primary appraisal dimensions of relevance and congruence to the selected appraisal-based emotions. In so doing and in contrast to Lazarus, the current study attempts to adopt a more dynamic and nuanced understanding of these primary appraisal dimensions and their relation to emotion as discussed below.

### 3.3.2. The role of primary appraisal in the generation of emotion

In focusing on the goal-related aspects of the stressful transaction, this study explores the application of primary appraisal components to the stressful transaction. It is thus necessary to take a closer look at the role of primary appraisal specifically in relation to the generation of appraisal-related emotions.

As discussed above there does not appear to be any literature specifically relating relevance and congruence to the stress-related categories of emotion. Lazarus has

illustrated their application in theory to the fifteen categories of emotion in his CMRT of emotion. For Lazarus a situation is appraised as either irrelevant (eliciting no emotion and associated with indifference or calm) or relevant (eliciting emotion) (Smith & Lazarus, 1990). Relevance then combines with congruence, with a person-environment transaction being appraised as congruent (eliciting positive emotion) or incongruent (eliciting negative emotion) (Smith & Lazarus, 1993). For instance for all harm-related emotions (i.e. anger, guilt, fear/anxiety and sadness) the primary appraisal component is simply categorised as motivationally relevant and motivationally incongruent (Smith & Lazarus, 1993). As such the role of appraisal in relation to generating specific emotions is attributed to secondary appraisal and relevance and congruence are defined in static and absolute terms. In acknowledging the limitations of their conceptualisation, Smith and Lazarus (1990) point to the need to both consider the generation of emotion as a **dynamic process** and the role of specific **goals** in the shaping of the emotional response.

This reductionist conceptualisation is perhaps not surprising given that Lazarus's point of departure and emphasis in his more recent work is emotion and he appears to work backward from emotion to a somewhat limited description of the elements that generate these emotions. The discussion of person and environment variables, primary and secondary appraisals are constrained to definitions of these concepts and simplistic, descriptive and brief elaborations of their application (see Lazarus, 1999). These concepts lack conceptual sophistication and empirical rigour, and hence each of these elements requires both theoretical and empirical scrutiny.

Moreover, in the context of this study, the assertion by Lazarus that primary appraisal serves merely to broadly define relevance and indicate positive or negative affect requires closer examination. In keeping with the earlier literature this research study is based on the premise that primary appraisal does more finely differentiate between emotions than Lazarus's later work seems to hold. It appears that Lazarus's shift in focus to secondary appraisal in the generation of emotion is an assumption that needs to be explored and potentially challenged.

**(i) Appraisal as a dynamic process**

An underpinning element of the transactional approach is a dynamic and unfolding understanding of appraisal and emotion across the stressful transaction. Yet as indicated above, this is not incorporated into Lazarus's communication of motivational relevance and congruence. For instance, over an examination period a student may have clear goals to succeed and to study hard and may initially appraise the exam period as motivationally relevant and motivationally congruent. This may elicit emotions of challenge but also emotions of threat as the student both anticipates success but may also feel anxious. When presented with a fair paper and favourable studying conditions, the student may later appraise the situation once again as motivationally relevant and congruent resulting in benefit emotions. In contrast a particularly difficult paper and adverse study conditions may elicit reduced relevance and incongruence appraisals resulting in harm emotions. This example illustrates how primary appraisal

may have more of a defining role in the generation of emotion and also points to the dynamic nature of appraisal and reappraisal across the stressful transaction. For as Smith and Lazarus (1990) state: "as an encounter unfolds … the adaptive significance of the encounter is likely to shift, and as the appraisal shifts so will the emotional state." (p.622).

**(ii) The role of specific goals**

Given the prior discussion, it is apparent that it is only within the context of the person variable of goal hierarchies that the notion of primary appraisal can be adequately conceptualised and elaborated. The goals an individual brings into any person-environment transaction do not present in isolation and hence the adequate appraisal of their relevance and congruence cannot be achieved outside of a consideration of the situation and the interrelations between various goals. Goals may have varying degrees of relevance and congruence in relation to the person-environment transaction and in relation to each other. Lazarus's utilisation of Likert type scales in measuring motivational relevance and congruence (see Smith & Lazarus, 1993) suggests that gradations of assessment of relevance and congruence by the individual are possible.

In the context of a hierarchy of goals, where there are a number of possibly competing goals with varying degrees of relevance and congruence, one can speak of the *extent or degree* of goal relevance and congruence. Even within the context of any single goal, the relation of the goal to the person-environment transaction may vary and hence

it may have greater or lesser relevance and congruence. For instance, the exam period may be rated as highly relevant to getting good marks, very relevant to the goal of studying hard and somewhat relevant to socialising with friends. Hence the researcher holds that relevance and congruence are not absolutes, but rather that the extent or degree of relevance and congruence varies both in relation to individual goals and across goals, and impacts on the nature of the emotion generated, which within the context of a potentially of this study is limited to benefit, harm, threat and challenge emotions.

Many of the points raised in this chapter indicate some lack of refinement regarding Lazarus's revisions. Lazarus has not fine-tuned these developments to the point where contradictions are eradicated, later work is reconciled with earlier work and where the two fields of stress and emotion are sufficiently aligned so as to create clear premises from which to conduct research. The study has chosen a particular stance in relation to these developments which is reasoned, and reflective of the main body of research in the stress field.

Having provided an overview of advances in the transactional model, the review will proceed with a discussion of the conceptual limitations of the model.

## 4. CONCEPTUAL LIMITATIONS OF THE TRANSACTIONAL MODEL

The conceptual limitations addressed in this section reflect core limitations of the transactional approach and the epistemological basis that underpins this study. These limitations are fundamental rather than reflecting the conceptual vagueness of the reworked theory as discussed above. The discussion of these concerns provides a useful framework for qualifying what was and was not possible in conducting systematic research into stress using the dominant transactional model. As such, these constraints were to varying degrees implicitly reflected in the present study and are discussed in relation to the specific limitations of this study in chapter 9.

### 4.1. Going beyond cognitive processes

Perhaps the core limitation of the transactional approach lies in its failure to locate the stress process within its larger context, through underplaying the role of environmental factors and individual predispositional variables. The stressful transaction was initially conceptualised by Lazarus and Folkman (1984) as encompassing individual personality features, aspects of the environment and psychological processes. However, in theory and research, it is a core set of psychological processes which have largely been presented as the 'be all and end all' of the stress process (Monnier et al, 1996). Contextual, personality and physiological aspects of stress have been underdeveloped in the model and in related research, in favour of a more situationally-based emphasis. This study went some way toward countering this limitation by incorporating both

antecedent and outcome variables. Yet it still took as its level of analysis primary psychological processes and largely omitted any focus on other dimensions such as physiological and personality aspects.

### 4.2. Socio-cultural aspects

With regard to socio-cultural aspects in particular, at a fundamental level the transactional model is primarily individual-focused and de-emphasises social context (Monnier et al, 1996). While Lazarus does acknowledge that cognitive processes are located in a socio-cultural and physiological context he views these aspects as distinctly separate, secondary levels of analysis. For some theorists (see Hobfoll, 1998; Parkinson & Manstead, 1993) this issue does not merely rest on a chosen focus of analysis. Rather stress is understood as being intimately linked to culture and community and emerges within the social domain, is processed socially and is socially defined (Hobfoll, 1998). These critics argue that stress emerges out of a dialogue between self and others and thus cannot be adequately captured at the individual level (Monnier et al, 1996).

### 4.3. The primacy of appraisal versus emotion

The transactional model assumes the primacy of appraisal dimensions of in shaping affective and long-term outcomes. Yet within the growing field of emotion theory, the primacy of cognition versus affect in the generation of emotion is the subject of debate.

While the majority of theorists including Lazarus hold that “appraisal is the clue for understanding the conditions for the elicitation of different emotions” (Frijda, 1993, p.225), a significant minority (see Zajonc 1980 cited in Power & Dalgleish, 1997) hold that emotion precedes the cognitive process of appraisal. The debate seems to hinge on whether almost instantaneous, elementary processes can be labelled as cognitive or affective. While some theorists would view this merely as a matter of semantics (Power & Dalglish, 1997), there is no doubt that for Lazarus there has to be “some minimal computation” (which he would define as cognitive) “of a stimulus’s emotional valence and goal-relevance for an automatic generation of emotion to occur.” (Power and Dalgleish, 1997, p.67). This implies that the personal significance of a situation is always mediated by some cognitive process, that the individual is always an “observer” (Parkinson & Manstead, 1993). Thus whilst the labelling of this process may be merely semantic, the notion of the individual as “being always at least one critical step away from the social world, and never close to direct contact with social reality” (Parkinson & Manstead, 1993, p.312) has philosophical implications which in turn impact on theory, research and practice (Parkinson & Manstead, 1993).

### 4.4. Linear causality and the transactional model

In its initial and later development, the transactional model was theoretically defined as a shift away from a cause-effect, linear understanding of stress to a circular, process-oriented understanding. Implicit in this shift was a move away from a notion of unidirectional causality to a multidirectional understanding, which could acknowledge

the complexity of the interrelations between variables in the stress process. Despite this underlying assumption in its theoretical development, research in the area persists with attempts at establishing clear, causal relations within a positivistic framework.

These attempts cannot possibly accommodate the complexity of relations that characterise the transactional model, and run the risk of oversimplifying the interrelations between variables. The complexities involved in conceptually and empirically framing the role of variables across the stressful transaction are epitomised in the following quote regarding appraisal:

> "Ultimately the question concerns how much appraisal is a crucial link in the causal pathway, a mediator nested within dimensions or levels of environmental adversity, consequence of other factors that are more etiologically essential, or a tautological finding with regard to the outcome variable (i.e. stress predicting distress via distress). Put differently, appraisal may be a reflection of underlying forces that are more directly responsible for incurring susceptibility rather than a determinant of such susceptibility itself. As such appraisal may be a "marker" rather than a "maker" of vulnerability" (Monroe & Kelly, 1995, p.133).

Within stress research the effects of predispositional, situational and outcome variables may be confounded with one another (Aldwin, 1994). Clarifying these interrelations is complicated by the highly overlapping references in transactional theory to appraisal, emotion and coping making the accurate differentiation of these components problematic. Moreover, these processes are not immediately represented in awareness

and are understood to occur extremely rapidly and interdependently to the point where it may become difficult to differentiate whether a thought or behaviour is representative of an appraising or coping process (Lazarus, 2001; Scherer, 1993). Appraisal theories, and similarly the transactional model of stress provide a structural analysis but do not encompass the almost ongoing interactions between and variation in appraisal and response patterns (Lazarus, 1999; Scherer, 1993). Essentially these critiques point to the reductionist nature of such theories which simplify highly complex processes to a sequence of component parts.

## 5. CONCLUDING COMMENT

The conceptual advances reviewed in this chapter point to the central role that emotion and motivational factors play in relation to appraisal, and consequently in shaping the stressful transaction. In particular, the role of goals as a significant person variable and as central to primary appraisal has been highlighted. There is no doubt that within the current conceptualisation of the transactional model appraisal (with its antecedent emotions and underpinned by motivation) is “the theoretical heart of psychological stress” (Lazarus, 1999, p. 61).

Thus far the literature review has explored the conceptual foundation and evolution of Lazarus’s transactional model. Some of the general conceptual shortcomings of the transactional model which largely define the scope of this study were addressed. It must be emphasised however, that although flawed, the transactional model

acknowledges the multi-dimensional nature of stress and offers a current, dynamic theory and methodology within which stress can be understood as a process. Within current psychological literature, the transactional model provides the most comprehensive and broadly applied framework for researching stress and is still recognised as the most significant model in the field.

This chapter has served to illustrate the refinement and expansion of knowledge regarding appraisal, emotion and motivation within the bounds of the stressful transaction. It has provided a justification for the foci of this research within the transactional framework - i.e. appraisal, motivation and emotion. The literature review proceeds with an exploration of the possibilities of applying understandings of the construct of motivation within the field of personality psychology to the transactional model.

# CHAPTER FOUR - MOTIVATIONAL FACTORS AND THE APPLICATION OF PERSONAL STRIVINGS TO THE TRANSACTIONAL MODEL

Lazarus views the development of his more recent theorisation as a foray into unifying the fields of stress and emotion and elaborating on their interdependence (see Lazarus, 1999). It can be argued that it also suggests a similar interdependence between stress and motivation. Just as Lazarus holds that "where there is stress there are also emotions" (Lazarus, 1999, p35), similarly his theory reflects that where there is stress there is also motivation. Whilst explicitly and repeatedly emphasising the role of motives, Lazarus overlooks the implications of this emphasis for the fields of stress and motivation respectively, and it is at this interface that the present study is located. Just as scholars in the field of stress research overlook research into emotion, so too do they neglect to focus on motivation. The implications of the field of motivation for the understanding of stress are examined in further detail in this chapter. In particular, the notion of personal strivings is described, and proposed as a means of exploring the relation between stress and motivational factors. Since the study is located within the transactional model of stress, reference as to how motivational factors relate to this framework will be made throughout the chapter.

## 1. MOTIVATIONAL FACTORS AND THE STRESS PROCESS

Given the identification of goals as a fundamental person variable and the link of motivation to primary appraisal in establishing a person-environment transaction's

significance and desirability, the transactional model holds that an event and its consequences are primarily evaluated in terms of their relation to goal attainment. The situation is evaluated particularly with regard to its relation to personal goals as well as to whether it is consistent (associated with benefit and challenge emotion) or inconsistent (associated with threat and harm emotion) with the achievement of these goals (Lazarus, 1993). Thus the subjective significance and effects of an event are viewed as largely dependant on the degree to which the event is appraised as impacting on motivational factors, including personal goals, hierarchies and beliefs.

It is generally asserted in stress research that processes related to goals and their management have a significant relation to wellbeing (Wrosch, Miller, Scheier & Brun de Pontet, 2007). Yet despite the growing emphasis on motivational factors in theory, a gap exists in the literature in terms of the exploration and operationalisation of motivational factors within the stress process. As illustrated in the previous chapter, explorations of motives within the stressful transaction are simplistic and unidimensional and do not offer an adequate elucidation of an element of the stressful transaction that is given such centrality in theory.

Exploration of motivational factors is consistent with the recent trend in stress research toward an elucidation of the individual-environment interaction as opposed to specific aspects of the stress process. As illustrated in the previous chapter, whilst many studies still have as their focus the cognitive processes which shape the stressful transaction, a growing number are considering more enduring elements of the individual

and their relation to the transactional model. In addition, this focus on motivational factors in relation to the stress process parallels a general revival of interest in motivational factors in cognitive and personality psychology (Emmons, 1989). As will be made clear in this chapter motivational factors represent an acknowledgement of and provide a means of exploring the link between predispositional variables and the psychological processes within the stressful situation.

## 2. THEORETICALLY CONTEXTUALISING THE PERSONAL STRIVINGS CONSTRUCT

This study chooses to explore the notion of motivation within the stress process by employing the construct of personal strivings. The notion of personal strivings employs a cognitive understanding of motivation and, as such, focuses on the individual's ways of thinking in order to understand what directs behaviour. In this respect it is highly congruent with Lazarus's transactional model. As was illustrated in the introductory chapter, this cognitive focus reflects a broader trend within the field of psychology and also parallels a general revival of interest in motivational factors in personality and cognitive psychology (Emmons, 1989; Lazarus 2001).

### 2.1. Locating personal strivings within motivational theory

Generally the study of motivation is understood to refer to "those processes that give behaviour its energy and direction" (Reeve, 2001, p.5). According to the theoretical

perspective, there has been a great deal of variation and debate with regard to what is understood as the core "processes" which shape behaviour with some researchers emphasising environmental or "external events" and others focusing on "internal experiences" (Reeve, 2001, p.5). External events refer to "environmental incentives that attract or repel the individual in engaging or not engaging in behaviour" (Reeve, 2001, p.6). With regard to internal processes, depending on the theoretical perspective and level of analysis, these processes have been variously understood to reflect needs, cognitions or emotions that direct behaviour. The perspective adopted in this study places emphasis on the role of internal cognitive processes in shaping motivation.

Within the field of psychology, the earliest explanations of the 'motive' concept rested on the notion of instinct - a genetically endowed and mechanistic understanding which had some value in explaining unlearned, biological impulses such as hunger. Whilst instinct theory served to label elements of motivation its explanatory value was severely limited and it was replaced by drive theory. Drive theory saw behaviour as being motivated by the needs of the individual to maintain an internal biological homeostasis. It allowed for the prediction of motivation on the basis of antecedent environmental conditions but, as with instinct theory, its scope was limited and it too was rejected. With the demise of drive theory, the appeal of grand theories that attempted to offer explanations of motivation in their entirety began to wane. Instead theorists began to focus on a diverse range of theories that were explanations of motivation limited to specific motivational phenomena. This shift toward "mini-theories" (Reeve, 2001, p.35) was given impetus by three historic trends in psychology. Motivation research reflected these trends in: 1)

rejecting a passive understanding of human nature; 2) focusing on people as active participants; and 3) shifting toward a cognitive understanding of human behaviour and delivering applied and socially relevant research (Reeve, 2001).

With the demise of grand theories of motivation and the shift into mini-theories motivation lost its stature as a focal field of study and instead became subsumed as a topic of investigation across a wide range of psychological fields (Reeve, 2001). This shift into mini-theories that are theoretically and practically enriching to the fields within which they are located brought with it a revival in the study of motivation. With regard to these mini-theories, many adopted a cognitive understanding of motivation, commonly operationalising motivation as goals, with some viewing motivation as a more generalisable construct and others adopting an individual-specific conceptualisation (Emmons, 1989). The more general or universal approach proposes a predispositional conceptualisation of motivation as a broad, overarching construct and includes units such as motive dispositions and imagoes (Emmons, 1989). Such approaches are based on the development of goal taxonomies, organising goals into general content categories such as enjoyment-based, self-esteem oriented, interpersonal and avoidance of negative emotion goal categories (Emmons, 1997). These approaches have the advantage of allowing for ease of comparison across individuals and studies (Emmons, 1997). However, a number of researchers have critiqued understandings of goals based on predefined listings, viewing these approaches as restrictive and not reflective of the highly individualised nature of people's goals (Emmons, 1997).

In contrast, the individual-specific perspective adopts a more circumscribed approach, which takes into consideration the specificity of individual, situational and behavioural factors. Such approaches have tended to be the more popular, and have received wider application in research. Individual-specific units can be described as bridging the gap between the dispositional motives (embodied by the universal approach), and the actual actions and behaviours of the individual. They serve as the connecting construct between fundamentally abstract goals and specific actions (Little, 1989). Emmons's construct of **personal strivings** is located within the individual-specific perspective.

## 2.2. Locating personal strivings within personality theory

This study focuses on the notion of personal strivings, which is moreover located in the field of personality psychology. Within personality psychology, in recent years there has been a strong movement toward adopting a cognitive individual-specific perspective as embodied by a focus on goals in relation to motivation (Emmons, 1996b). The present study reflects the current status of motivation studies in the field of personality, in that it focuses on the individual-specific goal unit of personal strivings - a construct located in a cognitively based mini-theory which views individuals as active participants and has a strong applied emphasis. The discussion will proceed with an exploration of the location of motivational constructs within the field of personality psychology in order to locate the personal strivings construct in relation to other cognitive processes.

Historically, the field of personality psychology has primarily focussed on two units: traits

and motives (Buss & Cantor, 1989). This unit choice has had profound consequences for theory, research and causal explanations within the realm of personality psychology (Buss & Cantor, 1989). From the late 1980's onwards both the trait and motive concepts have benefited from conceptual reanalyses. As discussed previously, more recent conceptualisations of motives are integrated with cognitive theory and have moved away from a primarily biological understanding, as reflected in concepts such as instincts, drives and needs (Lazarus, 2001). Whilst a focus on motivation has always been a key distinguishing feature of the field, the resurgence in the field of personality has been linked to a greater emphasis on motivational factors and the notion of middle-level units in particular (Emmons, 1997).

The notion of middle-level units within personality psychology contributed significantly to developments in the field (Buss and Cantor, 1989). Middle-level units are defined as cognitive processes which serve as the linking units between individual personality constructs and their expression in the environment. Thus they are 'middle' in that they fall somewhere between an idea of motivation as almost 'constitutional' and in this sense stable across time, and an idea of motivation as being entirely context dependant and in this respect highly fluid. Goal constructs are typical middle-level units.

Prior thinking in personality psychology tended to address either stable or situational units, overlooking variables that bridge the gap between personality and context. Individual-specific understandings of motivation are defined as middle-level units and are perceived as being both deeply embedded in personality and largely defined by

context (Buss and Cantor, 1989). Such a conceptualisation suggests a shift away from a dualistic understanding of the relation between stable and situational variables, toward a more unified notion of personality. Middle-level units thus represent a possible means of linking individual-based and situational variables, and have implications for allied areas of research, including investigations into the stress process. An emphasis on these units is congruent with cognitive models of stress and is easily applied to process-oriented models such as the transactional framework. These middle-level units also offer a means of extending the understanding of person-based variables within the transactional model. For researchers such as Emmons, the shift toward middle-level units as operationalised in his theory of personal strivings, represents the "personalization of motivation" (Emmons, 1997, p. 492) and is viewed as the most significant development in approaches to motivation within personality psychology, with wide implications for allied fields.

### 2.3. Goal theories

Goal theories embody the individual-specific approach emerging out of motivational theory and, within personality psychology, can also be classified as middle-level units of analysis (Emmons, 1996b). With regard to goal theories, the study of motivation is understood as "the study of people's goals and the processes that guide the choice and pursuit of these goals" (Dweck, 1996, p.69). Goal theories are located in a cognitive perspective on motivation in that they focus "on mental processes (thoughts) as causal determinants to action" (Reeve, 2001, p. 181). Motivational units are defined as

inclinations concerned with and striving for “a certain class of incentives or goals" and "are invoked to explain directional behaviour" (Emmons, 1989, p.32). Personal wellbeing is viewed as dependent on the progress toward meeting goals, with human-beings directing their lives toward the pursuit of goals (Emmons, 1996). Attainment of goals is desirable, giving rise to positive affect, and non-attainment is undesirable giving rise to negative affect (Kruglanski, 1996 cited in Emmons, 1996). Goal theories make a number of assumptions (Pervin, 1983 cited in Emmons, 1996). These include: 1) Goals are viewed as objectives that people either strive to meet or avoid, with behaviour being viewed as ordered around the attainment of goals; 2) Goals are understood to impact on affect and cognition as well as behaviour; 3) Goals are conceptualised hierarchically with super-ordinate and subordinate goals and with the various elements of the hierarchy impacting on each other; and 4) Goals are viewed as being consciously accessible, although it is not assumed that a person is necessarily conscious of a goal whilst actively pursuing it. On the basis of these assumptions, goal units are clearly located within an idiographic framework and can be “termed ‘middle-level’ in that they are typically at a middle level of abstraction in a structural hierarchy, can be concretized with reference to specific activities and situations and can be generalized with reference to higher-order themes and meanings in life” (Emmons, 1996, p.314). The location of these constructs and the congruence of their underpinning assumptions with the transactional theory of stress make them the perfect vehicle for the exploration of the role of motivation within the transactional model.

Examples of these goal-based motivational, middle-level idiographic units include life

tasks, current concerns, personal projects and personal strivings (Emmons, 1997). These units tend to vary in terms of the level of abstraction, specificity in relation to particular tasks and the breadth of the construct (Emmons, 1997). Goal units are generally analysed both nomothetically and idiographically, with goals being generated idiographically and then categorised according to generic dimensions that allow for cross-individual comparisons (Emmons, 1996, 1997). According to Emmons "it is these nomothetic properties which tie these concepts to cognition, emotion and action." (1997, p. 499), for these general content categories transcend the specific content of these goal units and allow for the generation of generalised statements linking goals to emotion, cognition and action-based outcomes. Goal structures provide an essential theoretical framework for understanding the links between motives, affect, cognition and behaviour. They are also highly convenient units of analysis for research exploring the relations between motivation and emotion given their hierarchical structure, the fact that they tap individual differences; are discriminating, coherent and flexible; link to both more abstract and concrete levels of motivation and are viewed as accessible to consciousness and amenable to measurement (Emmons, 1997; 1996).

Of the range of middle-level units related to motivation that have been identified, personal strivings and personal projects in particular have been widely applied. Both personal projects and personal strivings are fundamentally idiographic, but also allow for analysis within nomothetic constructs (Turton, 1993b). In this regard, they tap the uniqueness and specificity of an individual's goals, yet locate and analyse these goals within more universal frameworks and characteristics. Emmons (1991) thus holds that

constructs such as personal strivings and personal projects offer a possible solution to the difficulties previously encountered in operationalising motivational factors. In terms of their definitions, Emmons's and Little's concepts differ with regard to their level of abstraction. Personal projects encompass a wider range of goals at different levels of abstraction, whereas personal strivings remain within a more specific, super-ordinate domain (Turton, 1993b). Essentially though they are very similar concepts, located in the same body of literature, but proposed by different authors using different terminology. For the purposes of this study Emmons's notion of personal strivings is selected given that the researcher holds that it has a stronger conceptual basis, is more extensively researched and has useful nomothetic aspects such as the construct of goal conflict. The construct of personal strivings (Emmons, 1989) is also one of the most widely utilised units within the idiographic approach.

## 3. PERSONAL STRIVINGS

Emmons developed his construct of personal strivings from the mid 1980's onwards. The construct was initially developed in order to offer an alternative personality unit which would complement trait-based understandings and also account for individual differences in subjective wellbeing (Emmons, 1996). The development of the construct and related research in the field seem to have reached a peak in the early to mid 1990's with a tapering off of research thereafter. Emmons seemed to shift his focus at that point into the links between spirituality and motivation and constructs such as gratitude. The notion of personal strivings as well as other middle-level units appears to have

waned in popularity and the powerful relevance of these constructs to personality research and stress studies in particular has not been given the attention it warrants. Despite the lack of current research into personal strivings and related constructs, the researcher holds that personal strivings is a highly relevant construct dove-tailing with the most recent developments in the transactional model.

Underpinning the relevance of the construct for this research study, Emmons (1989) has proposed the application of the personal strivings construct to the realm of stress research. Hence this chapter will proceed with a specific focus on the construct of personal strivings, beginning with a brief elucidation of its possible links to the stressful transaction.

**3.1. Personal strivings and the transactional model**

In reference to and in agreement with Lazarus's notion of appraisal, Emmons (1991) argues that an event is appraised with regard to the significance that it holds for the issues that motivate the individual. Emmons (1991) states that "events are appraised with respect to the significance that they hold for a person's personal strivings." (p. 454) and thus suggests that the importance of an event is perceived in relation to its impact on personal strivings (Emmons, 1996b). Hence for both Lazarus and Emmons, it is the extent to which an event impinges on an individual's goals, as indicated by the process of appraisal which determines the impact of the event on a person's wellbeing. Thus, although coming from different theoretical frameworks, Emmons and Lazarus recognise the relation of goals to appraisal as central and furthermore emphasise their impact on

wellbeing as conceptualised as the emotional outcome of an event. Congruent with Lazarus (1999), Emmons views personal strivings as foreshadowing an individual's emotional wellbeing (Reeve, 2001). For Emmons, goal structures not only represent a powerful tool for exploring actions but also have a direct relation to affect (Emmons, 1996). This resonates with Lazarus's more recent focus on goals in the generation of emotion within the stressful transaction and further supports the links between Lazarus's and Emmons's theories.

Emmons further proposes "that personal strivings offer one solution to the problem of determining a person's commitments" (Emmons, 1991, p. 454). As such the concept of personal strivings provides one possible solution to the operationalisation of motivational factors, such as personal goals, upon which appraisal is based. In early research within the transactional framework goals were investigated on the basis of abstracted, general measures of appraisal, not clearly connected to the individual's motivational system (Folkman & Lazarus, 1985). In later research, where measures were related to the individual's motivational system, they tended to be unidimensional and lacking in conceptual and methodological sophistication. Emmons suggests that by utilising the concept of personal strivings, a more refined, concrete and specific understanding of the relationship between motivational factors and cognitive appraisal within the stress process may be developed.

As is clear from the previous chapter, such an explicit linking of motives to the transactional model has not been attempted. Whereas most of the research within

Lazarus's framework is situationally based and while Emmons recognises the significance of appraisal in relation to personal strivings in the context of an event, most of the research conducted with regard to personal strivings is focussed on the relation of features of personal strivings to long term subjective wellbeing and is not explicitly rooted in a situational or interactional framework (Emmons, 1996). There are however a small number of studies (elaborated upon in chapter 5), which explicitly link strivings and the transactional model, but within a personal strivings framework. Whereas these studies apply elements of Lazarus's model in order to better understand motivation, this study will attempt the corollary - applying elements of Emmons model in order to better understand a transactional conceptualisation of stress. These studies are based on what Emmons terms "interactional models" (Emmons, 1996, p. 318) in that they explore the relations between strivings, specific stressful life events and wellbeing and have primarily employed Lazarus's transactional framework in exploring these relationships. Emmons's (1996) interactional model suggests that goals mediate the impact of life events on subjective wellbeing, and is thus entirely congruent within the transactional approach. Personal strivings have therefore already been located within a transactional framework, but Emmons does not offer any suggestions regarding the processes that may mediate between goals and subjective wellbeing. It is these processes, in the form of appraisal, that serve as the focus of Lazarus's transactional model and could serve to enrich understandings of personal strivings. It is precisely the relationship between goals, appraisal and wellbeing that serves as the focus of this study.

### 3.2. Defining personal strivings

The concept of personal strivings is simply defined as "what a person typically or characteristically is trying to do" (Emmons, 1991, p. 455). Personal strivings refer to the types of goals that a person typically wishes to accomplish across a variety of situations, yet according to Little (1989) and Emmons (1989, 1996) may be expressed in relation to specific situations. For example a student may have a cross-situational striving of "conducting myself ethically", which could manifest as the goal of “not cheating during exams” in a specific situation. Emmons perceives personal strivings as uniting different goals or actions around a common theme or quality (Emmons, 1989, 1996). Personal strivings are thus conceptualised as highly abstracted and over-arching goals which unite more specific goals around a common theme or intention (Emmons, 1996; Turton, 1993b). They “exist as superordinate aspects of the self that organize and integrate the many different goals a person seeks” (Reeve, 2001, p.196) with each individual being characterised by a unique set

of personal strivings (Emmons, 1997). As such, personal strivings reflect an underlying personality disposition, in contrast to goals, which reflect objectives within a specific situation (although the two are clearly related). They provide a means of revealing the organising principles that underpin an individual’s goals (Reeve, 2001). Given the role of strivings in facilitating a coherent sense of self, conflict between an individual’s different personal strivings would serve to strain this sense of coherence (Carver, 1996). Personal strivings are placed by Emmons (1989) on the third of four levels of a hierarchical model of motivation (Emmons, 1989), as represented in the figure below:

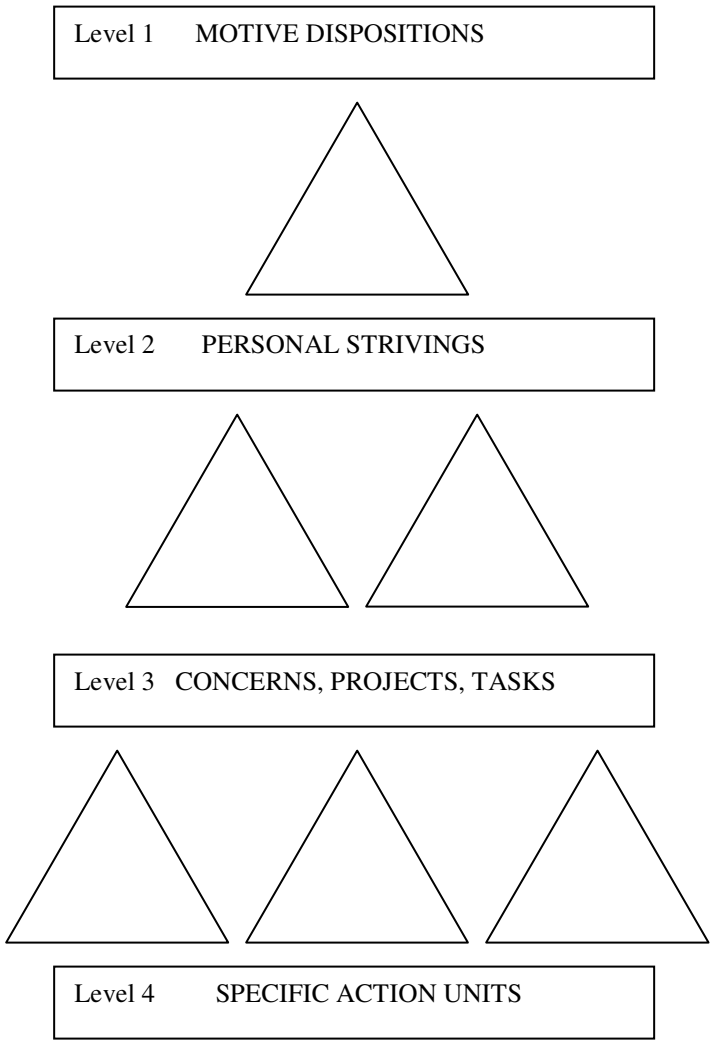



**Figure 4.1 - Hierarchical model of motivation (Emmons, 1989, p. 93)**

The dispositional motives that personal strivings reflect are placed directly above them. For Emmons personal strivings are underpinned by and do not replace an underlying motivational orientation. Personal strivings are viewed as more discriminating than these motive dispositions and more stable than the specific concerns, projects, tasks and ultimately, action units that they generate (Emmons, 1996). Personal strivings are perceived as generating specific goals, concerns projects and tasks which are themselves expressed at the fourth level as "action units" (Emmons, 1989, p.93).

Hence personal strivings can be described in terms of bridging dispositional motives to actions and behaviours. For example, an individual may have an overarching motive "to be successful". Within the examination period, this motive disposition may have been expressed in terms of personal strivings such as "doing well academically". This, in turn, may have involved certain tasks and concerns including "studying hard" and "not socialising too much". These tasks and concerns may then have been expressed in terms of specific actions such as "studying six hours daily" and "turning down an invitation to go out with friends". It is clear from the above description that the notion of personal strivings locates the origin of goals in language structures within a rational and logical framework. As such this understanding of motivation assumes that these motives are accessible to consciousness and verbal report (Reeve, 2001).

On the basis of this hierarchical model, it is clear that personal strivings fall within a middle-level unit structure as they connect goal-directed behaviours and concerns with an embracing and abstract "superordinate striving" (Turton, 1993b, p.26). Emmons perceives personal strivings as reflecting enduring, characteristic motivating factors, as opposed to lower-level units characterised by more context and time-specific goals (Turton, 1993b). Personal strivings thus provide the context within which specific goal-directed behaviours and decision-making occurs. The construct of personal strivings thus resonates with Lazarus's understanding of goals and goal hierarchies, offering a means of operationalising Lazarus's rather vague and generalised references to such.

### 3.3. Personal strivings and control theory

While there are a wide variety of models which offer a means of understanding how goals are translated into specific action, Emmons (1997) embraces control theory as a meta-theoretical perspective to explain goal-directed actions. Control theory is the most widely applied of the meta-theoretical models in this area (Schwarz & Bohner, 1996). The “control theory of behavioral self-regulation” (Powers, 1973 cited in Emmons, 1996, p315) serves as a means of interpreting what guides personal strivings (Carver and Scheier, 1994). Control theory views behavior as a process of discrepancy reduction working as a negative feedback loop, whereby a person acts to reduce the gap between a desired state or goal and their current situation (Emmons, 1997). The core element of this theory that is relevant for the personal strivings construct is the notion of working toward a goal, based on a feedback process - “information that provides individuals with a basis for decisions about changing either the course of their behavior or the goals themselves” (Emmons, 1997, p.490).

Control theory holds that action is regulated by different layers of reference values organised in a hierarchy ranging from general abstract concepts to discrete actions (Emmons, 1996b). This hierarchical structure also reflects a hierarchy of feedback loops, whereby super-ordinate feedback loops serve to define reference values for subordinate feedback loops (Schwarz & Bohner, 1996). As such, strivings are defined as a reference value in that discrepancies between a current situation and the reference value of a particular striving motivates behavior through attempts at discrepancy reduction (Emmons, 1996, 1997 & Reeve, 2001). Based on commitment to a personal

striving the individual directs tasks and specific actions toward reducing the perceived discrepancy between the personal striving and current behavior (Reeve, 2001). The goals that emerge from personal strivings provide the individual with something to accomplish, and current behavior can be appraised within the context of progressing toward (or not progressing toward) the meeting of the striving (Reeve, 2001). Hence this model views goal pursuit as "a movement downward from goals that describe an abstract desired end state to goals that specify a distinct behavior. Moreover, at all levels of abstraction, the same principle is thought to account for progress toward goal attainment (i.e. the negative feedback loop)" (Gollwitzer, 1993 cited in Schwarz & Bohner, 1996, p.128).

The centrality of goals in directing action and shaping cognition and affect within control theory resonates with the perspective of the transactional framework with its notion of cyclical or reciprocal relations. The description of self-regulation is congruent with Lazarus's notion of a cyclical process of appraisal and reappraisal within a stressful transaction. With regard to the notion of a negative feedback loop, Lazarus may identify other elements which impact on appraisal, and hence the emotions, and other outcomes emerging out of a person-environment transaction. It is certainly most congruent with his theory that the "stress" response is to a large extent related to the degree that the individual is able to reduce the discrepancy between goals and a current state, in the context of a particular person-environment transaction.

### 3.4. Personal strivings and emotion

In his theoretical discussions Emmons makes reference to the impact of personal strivings on emotion and general wellbeing (Reeve, 2001). As discussed in the section on personal strivings and stress, personal strivings are understood by Emmons to predict an individual's emotional wellbeing. In particular Emmons has highlighted the content and characteristics of personal strivings as being predictive of long-term emotional wellbeing and the extent to which an individual experiences positive and negative emotions (Emmons, 1996; Reeve, 2001).

Emmons focuses his understanding of the impact of goals not only in terms of their relation to cognitive and behavioural outcomes, but also to affective outcomes (Emmons, 1996). As referred to in the previous chapter, this emphasis reflects the continuing dove-tailing of research on affect and cognition (Klinger, 1996). In common with a number of other emotion and motivation theorists such as Pervin (1983), Klinger (1977) and Kruglanski (1996) (cited in Emmons, 1996) Emmons views affect as central to goals. In Bargh and Gollwitzer's (1996) text on motivation and its links to cognition and action, Schwarz and Bohner in a chapter exploring the links between affect and goals highlight that affective states influence cognitive processes and that cognitive processes in turn shape emotion, hence viewing the relations between goals and affect as bidirectional. They cite Frijda (a prominent emotion theorist referred to in the previous chapter) as stating "'emotions arise in response to the meaning structures of given situations, [and] different emotions arise in response to different meaning structures. In general, events that satisfy the individual's goals, or promise to do so,

yield positive emotions; events that harm or threaten the individual's concerns lead to negative emotions.'" (Frijda, 1988, cited in Schwarz & Bohner, 1996, p.120).

This perspective, common across motivation and emotion theorists, is certainly congruent with Lazarus's view of the relations between goals and affect and also resonates with Emmons perspective. Emmons identifies at least three ways in which affect is central in relation to goals: (i) in predicting goal commitment; (ii) in energising behaviour directed toward goals; and (iii) in providing the individual with feedback regarding the status of goals. Emmons further links his understanding of motives and affect to the work of emotion theorists, citing the work of Lazarus and others, in highlighting the widespread consensus that "goals and related constructs such as concerns and commitments play an essential role in determining the quality and intensity of affective experience" (Emmons, 1996, p.313). Hence both Emmons and Lazarus adopt a reciprocal or bidirectional perspective but place particular emphasis on the role of goals in shaping affect.

There is however, some variation in the way that affect per se and the influence of the situation in which the relations between goals and affect play out, are examined by the two theorists. Within motivational theory, for Emmons the primary emphasis with regard to emotion has been on long-term individual differences in terms of the notion of subjective wellbeing (Emmons, 1996), although there are one or two studies that focus on the relation between personal strivings and affect (see Emmons, 1986). In focussing on subjective wellbeing Emmons has conceptualised the notion of subjective wellbeing

broadly, with wide variation in terms of its operationalisation and conceptualisation. In contrast (as illustrated in the previous chapter), although considering long-term outcomes as part of his model, Lazarus's primary emphasis has been on discrete short-term emotional states and the micro-processes which shape the relations between affect and emotion. Within these respective domains, personal goal systems and goal-based appraisals are explored as precursors of long-term positive and negative affect on the one hand, and discrete emotional states on the other. Emmons appears to view this discrepancy as a matter of variation in interest and emphasis, with the implication that these contrasting perspectives are complementary rather than contradictory (Emmons, 1996).

Perhaps a further explanation for this variation in emphasis lies in the fact that models such as Lazarus's have a primary focus on cognitive micro-processes that are situationally based and hence focus on emotion within a situation. In contrast motivation theories, such as the personal strivings approach, while linked to a specific context, are clearly embedded in long-term individual-difference characteristics, and hence emphasise more enduring emotion states. There are of course notable exceptions such as Klinger (1996), who attempts to unpack the micro-processes which shape the relations between goals and affect within the framework of his construct of the "current concern". His mapping of the relations between emotion and cognition is resonant with Lazarus's conceptualisation. The emphasis of goal theories on the long-term impact of relations between goals and affect also has implications for the primacy given to other situational factors. In the language of emotion theorists such as Frijda

and Lazarus, the relation of goals to affect is intimately linked to contextual features of the 'event'. The primacy of appraisal in understanding the relations of affect to goals across emotion theories implicitly attaches significance to how the situation is perceived. Despite reference to events and appraisal and some application in terms of the development of interactional models (see chapter 5), this contextual sensitivity is largely lacking from Emmons's goal theory. The relation of goals to wellbeing is mapped almost independent of the interaction of goals with environmental influences. In contrast, Lazarus's theory offers a useful means of enriching understandings of the relations between strivings and affect by incorporating the intervening psychological process of appraisal. While Emmons's theory has as its focus the relation of striving to affective wellbeing, it appears to overlook the psychological processes that emerge out of the person-environment transaction and intervene between motive states and affective outcomes. Again, it seems the approaches have complementary strengths.

It appears that Emmons's focus on the relation between goals and affect is highly pertinent and congruent and further supports the relevance of the personal strivings construct to the transactional framework. In addition, it seems that Lazarus's model could in turn serve to enrich Emmons's conceptualisation of the relation between affect and goals by offering a means of exploring the relation of within-situation cognitive processes to more enduring measures of wellbeing. Given this appreciation, this study measured appraisal in relation to affect within the situation and also measured a more enduring indicator of wellbeing (i.e. aspect of mental health) by means of the General Health Questionnaire (GHQ).

### 3.5. Nomothetic constructs

Within the personal strivings approach “personality is organized into idiographically coherent patterns of goal strivings.” (1996, p.315). Hence, in terms of his notion of personality organisation, for Emmons “people are more than just collections of personal goals.” (Emmons, 1996, p.331). An understanding of the impact of personal strivings on affect and wellbeing is incomplete if it does not consider both the level of unity, coherence or integration between strivings and the relationship of these dimensions to other aspects of personality (Emmons, 1996). Emmons emphasises the importance of bringing together and integrating various personal strivings in terms of an “overall organizing principle” (Emmons, 1996, p.331) and views nomothetic constructs as largely serving this purpose. For Emmons it is not merely having goals and moving toward them which influence wellbeing, but also a host of features, reflected by various nomothetic constructs, that account for the inter-relations between the various strivings and levels of a goal hierarchy. The complexity of Emmons approach and understanding is in stark contrast to Lazarus’s rather simplistic and unidimensional treatment of goals and goal hierarchies. As will be illustrated below, Emmons’s notion of personals strivings, and goal conflict in particular, provides a means of fleshing out Lazarus’s passing allusion to the significance of goal hierarchies and goal conflict.

Nomothetic constructs which have been identified as significant by Emmons (1996) include: 1) goal content or the individual features of goals within a striving system (e.g.

achievement and intimacy goals); 2) goal orientation or the manner in which goals are consciously represented and described by the individual (e.g. abstract and concrete goals); and 3) goal parameters which describe the nature of the interrelationships between goals within the striving system (e.g. conflict, complexity).

Goal content literally refers to the content of what an individual is trying to achieve (Emmons, 1996). Emmons and associates categorise personal strivings into twelve content categories. These include the "Big three" (McAdams, 1994 cited in Emmons, 1996, p316) motive dispositions of achievement, affiliation/intimacy and power and higher order categories including independence, self-presentation and generativity (Emmons, 1996). As opposed to accessing underlying motives this method of coding, groups strivings together on the basis of overt similarities (Emmons, 1996)., Goal orientation "refers to individual differences in the mental representations of goals" (Emmons, 1996, p. 319) both in terms of goal setting and striving toward meeting goals. The three primary orientations within this nomothetic construct are the level of abstraction of personal strivings, the relative degree of autonomy of goals in terms of whether a goal is extrinsically or intrinsically motivated, and approach/avoidance or whether an individual is striving toward a positive goal or striving to avoid a negative goal (Emmons, 1996).

The primary emphasis of this study is on the nomothetic construct of goal parameters and in particular the goal parameter of **goal conflict**. For Emmons goal parameters refer to the dimensions of goals that theorists have identified as linking goals to affect

and cognition. Goal parameters encompass both structural and functional features of a striving system (Karoly, 1991 cited in Emmons, 1996) and include goal conflict and complementarity, ambivalence, goal commitment, goal differentiation, expectancies of success, past goal attainment and clarity of means for achieving goals (Emmons, 1996). The structural features focus on the structural relations between strivings within a system. The core structural attributes provide an indication of the extent to which various strivings in a person's striving system conflict or complement, contradict (i.e. ambivalence) or impact (i.e. differentiation) on each other (Emmons, 1989; 1996). The dimensions of conflict/ambivalence and differentiation "stand out as especially powerful predictors of subjective wellbeing" (Emmons, 1996, p.325).

### 3.5.1. Goal Conflict

It is the structural dimension of goal conflict which is the focus of this study as both Emmons and Lazarus highlight this dimension and locate it within their conceptual frameworks. Goal conflict, as a goal parameter, is overtly identified by Emmons as playing a significant role in the relations between goals, affect and cognition (Emmons, 1996). In fact for Emmons "Among all the goal attributes … perhaps none is more important then conflict" (1997, p. 502). Emmons also emphasises the pervasive and enduring emphasis on goal conflict across personality psychology. Beginning with Freud, theorists and researchers, including other goal theorists such as Cantor and Blanton (1996) have focussed on motivational or goal conflict and identified it as central to wellbeing. Across these varying conceptualisations goal conflict has been associated

with poor emotional wellbeing including tension, confusion, anxiety, depression and hostility (Emmons, 1997). Lazarus (1999) highlights conflict between goals as having a primary impact on the emotional outcome of a stressful transaction. Goal conflict and the related notions of ambivalence, complexity and complementarity will be described in further detail below.

Conflict between strivings is defined as occurring when "one striving is seen by the person as interfering with other strivings in the individual's striving system" (Emmons, 1989, p.104). It is viewed as “an inevitable by-product of motivational life” (Emmons, 1996, p. 325), in the sense that people are bound to have multiple desires, some of which will obstruct the achievement of others. For example, an individual may have entered an examination period with the goals of “doing well academically” and “being popular socially”. In his/her attempts to achieve academically he/she may compromise the goal of being popular socially. Thus attempts at the achievement of one striving may negatively impact on the achievement of the other. Emmons views societal and cultural influences as central to the generation of conflict. For instance, in the example cited above, societal expectations may demand success both socially and academically. According to Emmons (1999) goal conflict has profound ramifications for individual wellbeing, given that it represents contradictions at a high level in the motivational hierarchy and hence reflects conflict in core values and in one’s sense of self. Hence this sort of conflict can be immobilising and precipitate negative affective responses.

Emmons’s understanding of goal conflict is clearly congruent with Lazarus’s limited explication of this concept within the transactional model. For Lazarus goal conflict also

"involves the presence simultaneously of two incompatible goals or action tendencies" (Monat & Lazarus, 1991, p.4). Clearly then Lazarus is referring to what Emmons terms goal conflict as opposed to Emmons's notions of ambivalence or complementarity, or complexity for that matter. Lazarus also views goal conflict as leading to negative emotions and crucial to the emotional outcome of a situation (Monat & Lazarus, 1991). In fact Emmons (1999) quotes Lazarus (1991), lauding his coherent explication of the links between conflict and distress. As Lazarus (1991) states: "Whereas integration is tantamount to mental health, disconnection among the constructs of the mind is tantamount to psychopathology, dysfunction and distress. The three constructs of the mind - cognition, emotion and motivation - should generally be compatible, ideally in harmony; the mind as a system must also be in reasonable touch with environmental conditions; and actions should flow from this harmony." (p.460-461). Lazarus, however, points to the location of goal conflict within a given situation. In particular he holds that in any person-environment transaction the individual would have to decide which of his/her goals are least and most important. Unlike Emmons, Lazarus emphasizes goal conflict as being shaped by the person-environment transaction. He adopts a transactional, or in Emmons terms "interactional" understanding of goal conflict. It is this understanding which underpins the application of goal conflict in particular to the transactional model and, whilst not highlighted by Emmons, is nevertheless congruent with his theoretical perspective as also evidenced by some studies (see chapter 5).

It is the degree of coherence in relation to an "overall life purpose" (Emmons, 1996, p.

332), which represents the organising principle linking specific goals and relating these goals to future outcomes such as personal wellbeing and the achievement of goals. Hence the notion of "goal conflict" in particular, in reflecting the incoherence and lack of integration in a striving system at a high level in the motivational hierarchy, is viewed as a strong predictor of future wellbeing (Emmons, 1996). For Emmons, conflict in strivings have profound implications for the individual given that striving are not merely behavioural specific objectives, but rather represent overarching motives, reflective of a person's values and central to their self-concept (Emmons, 1999). Competing and contradictory motives at this level could lead to failure to act or even immobilisation and associated negative affect (Emmons, 1999).

Emmons (1999) would view the resolution or at very least the reduction of goal conflict as central to the restoration of wellbeing. Emmons holds that competing strivings are not easily resolved and that conflict at such a self-defining level cannot be resolved through distraction. In addition, such strivings are not immediately available to awareness. It requires some self-reflection (such as a process of generating and comparing strivings) for an individual to become aware of conflicting strivings. Once an individual has developed such an awareness it is possible, as Lazarus suggests, that he/she could select or prioritise one goal and inhibit emphasis on the other. However Emmons would argue that such a course of action would ultimately fail. One cannot indefinitely suppress a motive central to the self (Emmons, 1999). Emmons (1999) would view a process of resolution, of personality integration and maturation, as central to ultimately resolving such conflict and points specifically to the role of spirituality in

facilitating such integration.

Whereas conflict between strivings refers to the achievement of one goal conflicting with the achievement of another, **Goal Instrumentality** or **Goal Complementarity** refers to strivings that affect each other in an instrumental way. Complementarity between strivings (or what Emmons refers to as instrumentality) is defined as a scenario whereby the achievement of one striving is perceived as complementing the achievement of other strivings within an individual's striving system (Emmons, 1989). For example, an individual may have a striving of “doing well academically” and “pleasing my parents”. In achieving his/her goal of doing well academically, the goal
of pleasing his/her parents is also facilitated. Emmons (1986) would hold that complementary strivings are associated with increased wellbeing; however this is not entirely supported by the limited research in this area (see chapter 5).

When neither an instrumental nor conflicting relationship exists between strivings, strivings can be described as being independent of each other. Such a striving system is characterised by greater differentiation between strivings and therefore greater complexity. In contrast, greater similarity between strivings would suggest simplicity of the striving system. Hence the complexity of systems of strivings refers to the degree of independence (high complexity) and interdependence (low complexity) in the striving system. For example, a student may have a striving of “doing well academically” and “living a healthy lifestyle”. The achievement of the goal of doing well academically has no impact on, or is independent of, the goal of living a healthy lifestyle. An individual

with many such unrelated goals would have a striving system characterised by high goal complexity.

The various nomothetic constructs described above are what meld personal strivings to cognition, emotion and action (Emmons, 1997). Their centrality to the application of the personal striving framework to research into transactional theory cannot be overstated. Having provided an overview of the core conceptual constructs of motivational theory relevant to this study, the chapter will proceed with a discussion of the limitations of personal strivings theory.

## 4. LIMITATIONS OF PERSONAL STRIVINGS THEORY

### 4.1. Motives and conscious awareness

Emmons's approach to personal strivings assumes the accessibility of motives to the conscious mind. While Emmons acknowledges that level one motive dispositions may not be easily accessible via initial direct inquiry, he nevertheless holds that such motives can be identified through picture story and Thematic Apperception Test type methods (Emmons, 1997). Emmons views other motive levels such as personal strivings as being directly accessible to the conscious mind. Although his perspective is shared by many goal theorists, there are others who hold that there is ample evidence to suggest that often the impulses that direct behaviour are not consciously accessible (Reeve, 2001). Human motives are not always immediately apparent and the notion of personal

strivings, accessed via self-report methods may be limited in this respect. The notion that motives may be hidden has led many motivational researchers to draw on measures that tap indirect behavioural and physiological indicators (Reeve, 2001) and hence offer a means of bypassing the cognitive filter which implicitly shapes constructs such as personal strivings and the methods used to measure them. For Emmons, however, even underpinning motive dispositions that are biologically and affectively based can be accessed by cognitive means. Hence there is no need to bypass the cognitive filter, which within Emmons framework, could be understood to provide the structure within which motives have relevance and relate to people's day-to-day actions and wellbeing (see Emmons, 1997). Emmons seems to hold that the relation of underlying motives to action must be mediated by conscious thought.

Other motivational theories hold different perspectives on the role of conscious thought with the two primary alternatives being: 1) that conscious thought is reflected in action but that action may also be shaped by unconscious motives; and 2) that whilst behaviour can occur without any conscious thought processes, conscious thought can also amplify unconscious motives thereby leading to action (Sorrentino, 1996). Yet other theorists hold that automatic and conscious processes occur simultaneously, and that both influence cognition, affect and action (Sorrentino, 1996). A further view is that unconscious motives, in the form of habit, direct most behaviour, unless the situation is very important and in such instances the individual makes a conscious decision to control the situation (Sorrentino, 1996). Clearly then there are a range of possibilities with regard to the role of conscious awareness in relation to motives. In adopting Emmons's theoretical perspective, which is congruent with the view of Lazarus, it is

nevertheless important to remember that this perspective has its limitations and reflects one of many possible positions. It is important to keep in mind the perspectives that give greater credence to unconscious motives as well as motives that do not have their origins in language structures (Reeve, 2001). However, such formulations are not easily accessible to mainstream research methods. Clearly theorists hold varying perspectives on the extent to which motives are available to awareness and verbal report (Reeve, 2001) and hence it is useful to consider the limitations of Emmons's perspective and the cautionary note which the following quotation suggests: "All of this again would seem to indicate that we have an incomplete picture of what determines information processing and performance if we do not look at both conscious and nonconscious forces as they interact with each other" (Sorrentino, 1996, p.635). While adopting Emmons's perspective, as a useful and valid approach, congruent with Lazarus's framework; the study is conducted with an awareness of the limits of this approach.

## 4.2. A reductionist and mechanistic understanding of human goals and motivation

While Emmons does acknowledge that goals are underpinned by broader constructs which he terms "motive dispositions", in the application of his theory his focus is limited to the personal strivings construct and its link to outcome variables. He offers very little in terms of a contextual understanding, even in the discussion of his research findings. Emmons himself highlights this lack of contextual understanding as a limitation across

goal theories. For, as Emmons (1997) puts it, “the whole person is missing” (Emmons, 1997, p.506) from such approaches. Although ostensibly idiographic, the goal unit of personal strivings still reflects a reductionist approach to understanding goals in relation to the individual. The goal units are not sufficiently located in the context of the person and there is very little elaboration of their relation to underpinning motives and other features of the individual’s personality.

The failure to consider the interaction between various elements linked to motivation is also true of the manner in which Emmons elaborates on the various nomothetic constructs relevant to personal strivings. For instance with regard to goal conflict, the theory does not offer much explanation as to the mechanisms by which goals in conflict with each other may actually impact on each other. It merely offers a means of measuring these relations. Cantor and Blanton (1996), in their discussion of the pursuit of life tasks, offer an explanation of the process by which conflicting life tasks may impact on each other and in turn on the wellbeing of the individual. They adopt a process-oriented approach, writing about the “dynamic interplay among multiple pursuits” (Cantor & Blanton, 1996, p. 345). They propose that strategies for pursuing one task may spill over and have positive or negative consequences for the achievement of another task. Strategies developed to pursue a task in one area may obstruct or enhance the achievement of a goal in another domain. They highlight the impact of such strategies on affect and underpinning personality styles, such as optimism and pessimism, to explain the process and impact of goal conflict. Hence, unlike Emmons, they offer a dynamic process-oriented understanding of the relations

between goals, underpinning person variables, affect and outcome variables, which provides a clearer sense of the "whole person". Yet given the focus of this study on specific cognitive processes, broader approaches such as these were not considered appropriate in operationalising the motivational aspects of stress.

### 4.3. Defining personal strivings

According to Emmons (1997), "the majority of the goal units (including personal strivings) are not explicit with regard to category width" (p.498). In other words, while personal strivings are understood to encompass a broad and fairly abstract range of personal goals, given that they are proposed to occupy a relatively high level in a motivation hierarchy, the personal strivings generated between and across individuals may vary markedly in terms of their level of abstraction and specificity. The width of the construct has implications for defining goal attainment or what is an acceptable goal outcome (Emmons, 1997). In practise then it may be difficult to distinguish between the various levels of the goal hierarchy or to ensure that individuals generate personal strivings when requested to do so, as opposed to generating motive dispositions or life tasks. Hence in relation to the present study, this limitation highlights the ambiguity of the hierarchical nature of goal theories. Thus while the term personal strivings is used, it is quite possible that participants' subjective interpretation of what a personal striving is may vary quite markedly and may incorporate different hierarchical levels in relation to Emmons's model presented in section 3.2.

The limitations of Emmons's theory of personal strivings and its applications are similar to critiques of the transactional model. As such, these limitations underline the tendency of cognitive models to be somewhat mechanistic and reductionistic, as opposed to pointing to specific problems with Emmons's and Lazarus's theories. Nevertheless, the personal strivings framework offers a useful and relevant framework for the elaboration of the role of motivation within transactional theory. It provides a workable basis for accessing a widely accepted manifestation of motivation (i.e. goals) and allows for the entertainment of both cognitive and affective processes as implicated in motivation. The notion of personal strivings has been suggested theoretically and also been used in some previous studies of the stress process (see chapter 5) and allows for the location of the findings of this study relative to prior research.

## 5. CONCLUDING COMMENT

This chapter has presented a discussion of goals and goal systems as means of operationalising motivational factors within the stress process. It pointed to advances in cognitive personality psychology, particularly in terms of the development of middle level units, which encompass motivational factors. Personal strivings as middle level, idiographic motivational units, were addressed in further detail, given that Emmons (1991) provides a rationale for relating this construct to the transactional notion of stress. The congruence and complementarity between the personal strivings and transactional frameworks was emphasised. Personal strivings were described as the goals a person typically attempts to achieve across a variety of situations. The

characteristic of goal conflict was identified as an important construct with specific relevance to the transactional model. Although some critical reflection on aspects of theorisation was provided, the validity of applying personal strivings as a central element of stressful transactions was argued.

## CHAPTER FIVE - APPRAISAL AND MOTIVATION STUDIES RELATING TO STRESS RESEARCH

The literature review thus far has provided a conceptual overview and elaboration of the stress and motivation fields and the interface between these two fields that the current study intends to explore. The review will proceed with a discussion of relevant research findings across the fields under investigation in order to refine the empirical basis for the study. Specifically, relevant research findings within the stress, appraisal and motivation literature will be explored and empirical gaps and methodological shortcomings within the literature will be elaborated upon. Whilst straddling a number of broad fields with extensive bodies of research, the research quoted in this study is nevertheless quite specific, given the refined focus of the topic under investigation.

The researcher conducted a thorough review of the literature and attempted to locate a more consistent pool of studies using a range of search engines. What became apparent from these searches is that the interest in motivational relevance and congruence and in goal conflict was driven by particular researchers and their associates - Lazarus and Smith primarily with regard to appraisal and stress and Emmons with regard to goal conflict. Lazarus has sadly passed away, with the other researchers shifting their research focus so that the interest in these topics has not been sustained. Perhaps the question to ask relevant to this study is - why was a research momentum not generated around these topics?

The fields of motivation and moreover stress and appraisal are extremely broad and

lack cohesion. In reviewing the stress literature the researcher came across an enormous range of applied and theoretical research tapping the vast number of dimensions relevant to the stress construct. The motivation and appraisal fields, whilst somewhat less unwieldy, are nevertheless also characterised by a potpourri of research exploring diverse aspects of these constructs. It would appear that within this complex mix the theoretical questions this research thesis addresses have not been extensively studied. In addition, as indicated in the appraisal and stress studies in particular, a focus on appraisal brings with it a range of methodological challenges, which perhaps makes other areas of stress research more appealing.

Having contextualised the broad research landscape of fields relevant to the current study, the discussion of relevant research is elaborated upon. The studies reviewed cover a broad time span and represent seminal studies and a selection of relevant articles across the appraisal and motivation literature. Central findings and core studies within each area of investigation will be presented. Studies addressing appraisal and stress are first discussed and thereafter research in the field of motivation (and more specifically, regarding goal conflict) is presented.

## 1. RESEARCH RELATING TO APPRAISAL

The primary areas of investigation addressed in this section are general research referring to the constructs of relevance and congruence, research elaborating on the antecedents of appraisal constructs and studies regarding the relations between

appraisal and stress.

### 1.1. Relevance and congruence - general studies

This section discusses studies illustrating the application of the motivational relevance and congruence constructs in research settings, and general trends with regard to their links to emotion.

In a study that has served as a methodological and conceptual reference point for many other studies, Smith and Lazarus (1993) looked at the role of appraisal components and core relational themes in the generation of anger, guilt, fear/anxiety and sadness. Participants (193 undergraduate students) were required to imagine themselves in a situation tailored to elicit appraisals associated with anger and sadness. The scenario was then taken a step further in such a way as to elicit appraisals theoretically associated with all the emotion categories that this study addressed. Appraisal components, core relational themes and emotions were measured. Appraisal components were assessed using a 7 item scale measuring motivational relevance, incongruence, accountability, problem-focused coping potential, emotion-focused coping potential and future expectancy. Motivational relevance and incongruence were measured along a Likert scale ranging from 1(not at all) to 11(extremely). Emotions were measured on the basis of a 33 item adjective scale with groups of items representing the various emotions. Multiple regression and path analyses were conducted. The findings of relevance to this study indicated strong support for the

theoretically proposed appraisal-emotion associations with regard to anger, guilt and fear/anxiety. The associations were not as strong with regard to the emotion of sadness. Specifically with regard to motivational relevance and congruence the findings of the study mirrored the theoretical assumptions, in that across both steps and the measured negative emotions motivational relevance and motivational incongruence were high.

Smith, Haynes, Lazarus and Pope (1993) explored the contributions of appraisal in the generation of emotion. Subjects (N=136) generated vignettes based on prompts from the researchers and then reported on the attributions, appraisals (primary, secondary and core relational themes) and emotions regarding this recalled event. The findings of relevance to this study indicated the explanatory value of the combined appraisal construct - primary, secondary and core relational themes - with regard to a range of emotions. More specifically appraisal components (primary and secondary) accounted for 14% of the variance with regard to fear-anxiety, 42% with regard to anger, 27% in relation to guilt, 46% of sadness, 29% in relation to hope-challenge and 55% of the variance with regard to happiness.

David, Schnur and Belloiu (2002) conducted a study based on Smith et al's (1993) research. David et al (2002) explored the relation of appraisal, attribution and irrational beliefs as proximal antecedents to emotion in a sample of 120 undergraduate students. On the basis of one of four negative prompts such as "You received a low grade on an exam in a course that mattered to you" (David et al, 2002, p.109), subjects were asked

to generate a description of a past event that related to the prompt. They were then required to complete a questionnaire, which included a measure of irrational beliefs, of attributions, appraisal components and an adjective checklist measure of emotions, all relating to the recalled event. They looked at 4 pairs of negative emotion based on Ellis' (1994 cited in David et al, 2002) cognitive theory of emotion in terms of the functional and dysfunctional manifestations of each emotion - concern/anxiety, sadness/depression, remorse/guilt and annoyance/anger. They assessed appraisal by slightly modifying the Smith et al (1993) measure using a single item, 9 point scale measure for motivational relevance, a two-item, 9 point scale measure for motivational congruence and single-item 9 point scale measures for the secondary appraisal dimensions. Results were analysed using regression procedures. The findings of primary importance for this study point to the centrality of motivational relevance and congruence in relation to the identified emotions. With regard to the emotions of anxiety, concern, depression, sadness, guilt, remorse, anger and annoyance; high motivational relevance, low motivational congruence and specific secondary appraisal components (depending on the particular emotion) accounted for between 11 to 61% of the variance for each emotion.

The studies described in this section provide evidence for the proposed appraisal patterns put forward by Smith and Lazarus (1993) in relation to specific emotions.
They point to the utility of understanding emotion in relation to core relational themes and appraisal. In addition, Smith and Lazarus's (1993) and David et al's (2002) study endorse the association of high relevance and low congruence with negative emotional

experiences. These studies also indicate the relevance of secondary appraisal components and core relational themes and utilize a nuanced conceptualization of emotion. In addition David et al offer the interesting contribution of recognizing the possible functional manifestations of negative emotion, for instance, in distinguishing between sadness and depression, remorse and guilt.

These studies were however limited in terms of the multiple variables they analysed relative to their sample size. In measuring appraisal components they used single to two item measures which offered a general single point in time overview of the associations between these components and emotion; but do not explore temporal variations, relate appraisal to specific features of the individual (for instance goals with primary appraisal) or identify the relative contribution of the various appraisal components in depth. In addition all three studies are based on imaginary or retrospectively generated scenarios prompted by the researchers. While such scenarios have been widely utilized in stress research and there is some evidence to support their validity as accurate indicators of people's emotional experience (see Smith & Lazarus, 1993, p.262), there is nevertheless considerable debate as to whether in responding to such scenarios subjects treat the task as an intellectual exercise or are really emotionally engaged.

The current study focuses on an ongoing real-life experience, providing greater clarification as regards the role of primary appraisal processes. Whilst the above studies further clarify the relative contribution of the various appraisal components to the

generation of emotion generally, this study applied these constructs to a real-life stressful transaction, enhanced the measure of primary and focused specifically on the primary appraisal components of relevance and congruence, enhancing the assessment of these components.

In this regard Nguyen and McColl Kennedy's (2002) study is relevant in that it also focuses on primary appraisal components and applies them to a real-life setting in exploring service delivery and customer anger. Although the design, methodology and reporting of this study are weak, the results were nevertheless interesting in exploring the relationship between primary appraisal and emotion in a real life context. They used only the primary appraisal components of Lazarus's model of emotion and looked at the links between these components, the perceived cause of the bad service and customer anger, analyzing 10 semi-structured interviews with customers who had experienced bad service. On the basis of the interviews they illustrated that increased relevance, increased motivational incongruence of the event and high ego-involvement were associated with increased customer anger.

The focus (as in Nguyen and McColl's study), on the contribution of primary appraisal dimensions within the current study, is in keeping with Smith and Lazarus (1993) who point to the utility of identifying the links between specific appraisal components and the generation of emotion. The current study also adopts a more sophisticated approach to the measurement of motivational relevance and congruence and scrutinizes the possibly reductionist assumption that the experience of negative emotion is consistently

associated with high relevance and low congruence (i.e. incongruence).

### 1.2. Antecedent variables and appraisal

With regard to appraisal research, whilst there are a range of studies and models linking appraisal and emotion, given the focus of most of this research on micro-processes, there is minimal research exploring the role of antecedent variables and motivational correlates of the appraisal process (Smith & Kirby, 2001) as well as a related neglect of outcome variables. Smith and Kirby (2001) highlight the centrality of the relational nature of appraisal in terms of reflecting both situational aspects and features of the individual, and view this as the feature of appraisal that gives it explanatory power with regard to individual, context and time-related variations in emotional responses. Hence they point to the need for studies that go beyond appraisal and its emotional correlates, to incorporate antecedent variables.

Of interest to this study is research conducted by Smith and Pope (1992) and Griner and Smith (2000) which assessed relational antecedents specific to the appraisal component of motivational relevance. These studies explored the relations between the predisposition toward an affiliative or achievement motivational orientation and the rating of the motivational relevance of a situation relevant either to the affiliation or achievement domain. The findings of the Smith and Pope (1992) studies indicated that pre-existing achievement concerns correlated positively with motivational relevance with regard to situations relevant to the achievement domain, but prior motivational

orientation did not correlate with situations relevant to affiliative concerns. Griner and Smith's (2000) study indicated that highly affiliative individuals, in contrast to those with low affiliation orientation, perceived the motivational relevance of an affiliative activity as higher and had lower scores on feelings of boredom and higher scores on feelings of interest.

The above studies indicate that the appraisal of motivational relevance is not only influenced by the relevance of one's goals to a particular situation but is also a function of the degree of **prior** commitment or investment that the individual holds with regard to their goals. This research points to the need to consider motivationally based antecedent variables in understanding motivational relevance and its links to affect and situational features and highlights the relevant, theoretically consistent role that such antecedent variables may play in further elaborating on the relations between appraisal and emotion.

The current study reflects these priorities in exploring the role of motivational antecedents as operationalised by the personal strivings characteristics of goal conflict and complementarity. As discussed in the previous chapter, personal strivings are generally viewed as middle-level units of personality, and are understood to reflect both more stable dispositional (or prior) features of the individual as well as more situation specific elements. Within the field of appraisal theory the impact of these particular antecedent variables, i.e. personal strivings dimensions, on appraisal processes has not been explored.

### 1.3. Appraisal and stress

Many studies in the stress and appraisal arena do not employ measures of congruence and relevance, but rather still utilize Lazarus and Folkman's original conceptualisation of appraisal. These studies will largely be referred to in sections 1.3.2. and 1.3.3., given the absence of studies in these areas that incorporate more recent advances in the transactional model.

#### 1.3.1. Appraisal, affect and stress

Bennett, Lowe and Honey (2003) report on two studies regarding the relations between appraisal, affect and stress. The first study attempted to clarify the consistency of reporting with regard to the associations between appraisal, core relational themes and emotion. Sixty-nine subjects (undergraduate students) were required to fill out a questionnaire in which they were asked to recall a stressful event that had occurred in the past four weeks and the associated appraisals, core relational themes and emotions. This was repeated one week later. Scores were generally consistent and internal reliabilities were generally high with alpha scores of 0.75 for motivational relevance and congruence. According to Bennett et al (2003) these findings support the reliability of self-report, questionnaire methods in the generation of models and the gathering of appraisal and emotion-based data. Nevertheless the reliability of these reports as reflective of the subject's experience at the actual time of the stressful event

cannot be assumed and may merely reflect retrospective reinterpretations of the stressful event.

The second study combined the data from the first administration of the questionnaire with additional questionnaires from undergraduate students to form a total of 156 subjects. The study aimed to assess Smith and Lazarus (1993) theoretical model of the relations between appraisal, affect and core relational themes. Appraisal components were measured using a 15-item questionnaire based on the measure developed by Smith and Lazarus (1993). Primary and secondary appraisal dimensions were measured along a nine-point Likert scale. Motivational relevance was assessed using 2 questions such as "'How important was what was happening in this situation to you?'" (Bennett et al, 2003, p.513) and motivational congruence consisted of 3 questions, for example "'To what extent were there negative aspects to the situation - things you didn't want, or were displeased about?'" (Bennett et al, 2003, p.513). Hierarchical multiple regressions were conducted, looking at appraisal components and core relational themes respectively. With regard to the emotions of anger, guilt, anxiety and sadness, the components of appraisal explained between 18 to 48 percent of the variance for each emotion. Motivational relevance did not account for any of the variance with regard to guilt and anger, but did explain some of the variance for anxiety and sadness. Motivational incongruence as well as specific secondary appraisal dimensions (depending on the emotion) and relational themes were contributing variables in accounting for the variance across the listed emotions.

Orbell and Hagger's (2004) study was conducted amongst 1085 women who, following an abnormal cervical smear, went for a further medical procedure (i.e. a colposcopy). Appraisals and emotional responses were measured retrospectively following the colposcopy, and single item questions were used to measure the components of primary and secondary appraisal. The conceptualization and measurement of appraisal and emotion was based on Smith and Lazarus's (1993) formulation. Findings of relevance to this study included that the diagnosis received and the combined influence of appraisals accounted for between 3 and 15% of the variance across emotions. The relation of motivational relevance and motivational congruence to various emotions was consistent with theory. In addition, secondary appraisal components were generally found to play a theoretically congruent role in the generation of various emotions.

Waibel-Duncan and Sandler (2001) explored the emotions and anticipatory appraisals of 47 girls and 109 guardians of these girls, awaiting an anogenital examination following the reporting of alleged sexual abuse. This study used a current real-life event with questionnaires being administered at a clinic in the anticipatory phase prior to the clinical examination. The questionnaire was developed by the researchers and consisted of 7 items measuring the 7 components of appraisal discussed by Smith and Lazarus (1993) (including primary appraisal components of relevance and congruence) as well as items measuring appraisal themes and emotions of anger, guilt, sadness, anxiety and gladness/hope. The authors stated that their measures had good face validity and were endorsed by Smith. The findings of relevance to this study included

that participants reported moderate to high scores on relevance and congruence. Across the sample, the relations between hope/gladness and motivational relevance and congruence were consistent with those established in the Smith and Lazarus (1993) study, but sadness and anxiety were not correlated with relevance and congruence. This may be a function of the methodological weaknesses of this study, possibly also reflecting that the emotions of anxiety and sadness that subjects felt were not specific to the anogenital exam but were a function of a broader, more pervasive stressful/traumatic events relating to the circumstances of alleged sexual abuse.

Overall these findings illustrate the application of CMRT to stressful scenarios and real-life events and, on the whole, endorse the links between appraisal components and emotion, but are not as consistent across all the studies as the theory would suggest. Bennett, Lowe and Honey (2003) explain the lack of consistent association with motivational relevance in their study by stating that they had requested that subjects recall a *stressful* event. As such, they would hold that there was limited response variability in that all the events reported by subjects were motivationally relevant and motivationally incongruent, undermining the strength of correlations between these measures and the emotions concerned. This limitation was also identified with regard to the Waibel-Duncan and Sandler (2001) study. In addition this lack of association may indicate that general categories of emotion lack the specificity that would allow for clearer understandings of the impact of appraisal on emotion within the stressful transaction. These limitations point to the need to consider features specific to the stressful transaction in order to adequately explore the application of appraisal and

emotion to this setting. These studies also failed to take into account any temporal dimension with regard to appraisal in relation to a stressful event, presenting it as a once-off universal indicator. Their methods of measuring appraisal were simplistic and certainly the analyses conducted in the Waibel-Duncan and Sandler (2001) study were limited.

Waibel-Duncan and Sandler (2001) do, however, make some interesting comments in the discussion of the limitations of their study and pointers for future directions. In citing Smith and Pope (1992) they talk about the need to consider the antecedents of motivational relevance, including a person's goals, seeing this line of investigation as central to understanding an individual's emotional response to the stressful event of an anogenital examination. Waibel-Duncan and Sandler (2001) also point to the need to recognize the complexity of the motivational congruence construct. In recognizing the relationship of motivational congruence to motivational antecedents they illustrate that the experience of what appears to be an undesirable event may be congruent with goal achievement and hence a seemingly unpleasant event may be viewed as desirable. They hold that this direct link to goals may be more suitably accommodated through the separate assessment of the congruence of the event with each of an individual's personal goals. They further suggest that in order to enhance response variability, each goal should be assessed along a continuum from high congruence to high incongruence. This recommendation could also apply to the motivational relevance construct. Orbell and Hagger (2004) also point to the need for the development of a more sophisticated, multi-item appraisal measure. The method of the current study

resonates with these recommendations.

### 1.3.2. Associations with antecedent and outcome variables

Oliver and Brough (2002) point to the emphasis of transactional theory on situational aspects and highlight the need for further research exploring the role of dispositional variables in relation to the stress and appraisal process (Hemenover & Dienstbier, 1996; Smith & Rhodewalt, 1986 cited in Oliver & Brough, 2002). Despite the overall neglect of this aspect, a number of studies have researched **antecedent** variables in relation to the stressful transaction (Cox & Ferguson, 1991; Lazarus, 1993). These research endeavours tend to focus on the individual's "attributions and belief states within a situation" (Cox & Ferguson, 1991, p.14). Identified variables associated with managing stress effectively include hardiness (Cox & Ferguson, 1991, Florian, Mikulincer & Taubman, 1995; Lazarus 1993, Smith et al, 1993); locus of control (Cox & Ferguson, 1991; Lazarus, 1993, Valentiner, Holahan & Moos, 1994); self-efficacy (Bandura, 1982) and perceived social support (Valentiner et al, 1994). Cox and Ferguson hold that many of these variables reflect the individual's "perceived control" (Cox & Ferguson, 1991, p. 14) over a situation, with increased control being associated with higher levels of resilience. For instance Rodney (2000) explored the relations between hardiness, primary appraisal (as in threat and challenge appraisals) and coping in 102 nurses working with aggressive patients with senile dementia. He found that only patient aggression and appraisals of the aggression as threatening were significantly associated with nurse stress. Other research has pointed to the role of predispositional

variables such as prior mental health status and negative affective states, as impacting on how the individual manages the stressful situation (Aldwin, 1994; Oliver & Brough, 2002). For example, depressed individuals or individuals with high levels of emotionality have been found to be more likely to perceive an everyday event as stressful (Aldwin, 1994). With regard to research linking motivational antecedents to the stress process, there is a paucity of studies in this area and no studies linking motivational antecedents directly relevant to the current study (i.e. goal conflict or complementarity) could be located.

With regard to the study of **outcome** variables in relation to the stressful transaction, a range of variables have been employed in operationalising these outcomes. Previous research has shown that cognitive appraisal affects both psychological and physiological responses to a stressor (Tomaka et al, 1993). Some studies have utilized the notion of encounter outcomes - the extent to which the stressful transaction was resolved favourably - (Folkman et al, 1986) and goal outcomes (Stein, Folkman, Trabasso & Richards, 1997) as a measure of the impact of the stressful transaction. A number of studies have explored the associations between appraisal and psychological wellbeing (Lazarus, 1999; Stein et al, 1997). These studies have utilized a range of measures of psychological wellbeing ranging from analysis of narratives (Stein et al, 1997) to the use of conventional measures of wellbeing such as the General Health Questionnaire (GHQ) (Oliver and Brough, 2002). For instance, Stein et al (1997) found that of the bereaved partners (N=30) of people who had died from AIDS, those who reported more positive appraisals also experienced more positive outcomes with regard

to their state of mind and wellbeing, reduced depressive symptomology, more future-oriented goals and a quicker recovery.

The following two studies were largely located within Lazarus's earlier conceptualization of the transactional model and incorporate both an antecedent and longer term outcome variable.

In an early study in the area Folkman, Lazarus, Gruen & DeLongis (1986), explored the relations between the personality features of mastery and interpersonal trust and coping, appraisal, physical health and psychological symptoms. These constructs were measured in a population of 150 adults across 5 stressful transactions and then averaged. Findings of relevance to this study include generally low correlations between primary appraisal measures across the 5 measurement points, indicative of the influence of situational factors on primary appraisal. Appraisal had a weak but significant association with physical health, suggesting that the more subjects had at stake the poorer their physical health. Mastery, interpersonal trust and appraisal were significantly associated with psychological symptoms on the Hopkins Symptom Checklist.

Oliver and Brough (2002) explored the relations between negative affect, primary appraisal and psychological wellbeing. In contrast to the situational understanding of affect utilized in this study, they identified negative affectivity as a stable antecedent variable that reflected individual variations in negative affect and sense of self. One hundred and sixty eight community mental health support workers were asked to recall

a stressful event that had happened in the past few weeks, and then filled in a questionnaire that included a modified stress appraisal measure based on the threat challenge notion of primary appraisal (Peacock & Wong, 1990 cited in Oliver & Brough, 2002), the neuroticism scale of the Eysenk Personality Inventory as a measure of negative affectivity, and the 12 item GHQ (this study utilized the GHQ 28). Negative affectivity, primary appraisal and psychological wellbeing were all significantly positively associated with each other. In addition, the association between negative affectivity and psychological wellbeing was partially mediated by primary appraisal.

The above studies indicate that the more subjects had at stake in the stressful transaction, the higher their level of symptomology. They also highlight the need to consider antecedent variables in understanding appraisal and its impact on wellbeing. In focusing on a meditational model, the Oliver and Brough study further suggests the need to consider interrelationships between antecedent, appraisal and outcome variables. Limitations of these studies include a cross-sectional research design that did not allow for certainty with regard to causal directionality. They also refer to primary appraisal in general terms as high or low, having strong or weak associations and it is unclear from the articles what the researchers meant by this. The current study takes the exploration of primary appraisal exponentially further in exploring its relation to other antecedent variables and elaborating on the interrelationships between antecedents, appraisal and wellbeing. It also offers a more sophisticated understanding of primary appraisal that considers the role of time and incorporates longitudinal dimensions in the research design.

### 1.3.3. Appraisal, affect and stress - variations over time

Most studies in stress research tend to focus on appraisal and emotion at one point in time (Skinner and Brewer, 2002). Yet as pointed out by Skinner and Brewer and discussed by Lazarus, events such as exams are characterized by different phases. They point to the necessity of mapping these time-related patterns of affect and cognition, viewing this as central to a comprehensive understanding of the individual's response to a stressful transaction. Hence studies that have focused on temporal patterns of appraisal and emotion are of relevance to the current study.

In a seminal study in the area, Lazarus and Folkman (1985) explored the stressful transaction as a dynamic and changing process within the context of a real-life examination setting. Questionnaires were administered to undergraduate students participating in a course prior to an examination (Time 1, N=189), following the exam but prior to results being announced (Time 2, N=140) and following notification of results (Time 3, N=136). This was a course in which participants generally performed well and was viewed as not particularly challenging by the researchers. The emotions (using the scale utilized in the current study), appraisals and coping styles of participants were assessed, with the findings regarding emotion being of particular relevance to the current study. There was a range in scores for threat emotion (time 1 score: 5, time 2 score: 4.4., time 3 score: 1.8), challenge (time 1: 4.9, time 2: 4.8., time 3: 3.4), harm (time 1: 2.1, time 2: 3.1., time 3: 3.8) and benefit (time 1: 1.7, time 2: 4.7., time 3: 5.6)

emotions across the stages. Other findings regarding emotions included that threat and challenge emotions remained high at times 1 and 2, but dropped significantly by time 3. Harm and benefit emotions were significantly elevated from time 1 to time 2 but remained consistent at time 3. Ninety four percent of participants reported both threat and challenge emotions at time 1 and there were no significant correlations between threat and challenge at times 1, 2 and 3. There was no correlation between harm and benefit emotions at time 1, but by time 2 harm and benefit emotions were negatively correlated, with this association strengthening by time 3. Folkman and Lazarus (1985) view these results as endorsing the probability that people are likely to experience both positive emotions such as challenge, as well as negative emotions such as threat, in situations characterized by greater ambiguity (such as time 1). As ambiguity decreases and clarity with regard to the outcome of the situation increases, they would see subjects as more likely to experience either positive emotions as in benefit or negative emotions as in harm. Folkman and Lazarus (1985) view the findings of this study as highlighting the process-oriented nature of stress, the fact that people may experience conflicting emotions and that there are significant individual differences in emotion across all stages of the stressful transaction

A number of studies have focused specifically on the anticipatory phase of a stressful transaction. This anticipatory phase (which is congruent with the time 1 administration of this study) is understood to be characterized by a great deal of uncertainty and ambiguity and hence may be associated with a wide range of emotions (Folkman & Lazarus, 1985; Skinner & Brewer, 2001). For instance, in the context of an examination

the exact information covered and complexity of the exam are not known at this point in time. Lazarus (1991) and Lazarus and Folkman (1984) make the observation that a time distance away from an event allows for the possibility of further appraisal and coping attempts to limit or avoid entirely any possible threat. With an event approaching, appraisal would intensify (Lazarus & Folkman, 1984) and the threat would be viewed as more pressing. Consistent with these proposals is the finding that threat-based appraisals and anxiety intensify as the stressful event approaches. Specifically, with regard to a study looking at subjects participating in an upcoming important sports event, the perception of significance of performance and anxiety increased and the expectation of success and sense of self-confidence decreased from two days prior to the competition (see Jones, Swain and Cale, 1991 cited in Skinner and Brewer, 2002). Other studies report that from 3 to 5 days before an exam, students' anxiety increases (Lay, Edwards, Parker and Endler, 1989 and Raffety, Smith and Ptacek, 1997 cited in Skinner and Brewer, 2002). Skinner and Brewer point to the range of emotions that have been identified with regard to this anticipatory period, ranging from negative, such as worry, fear and anxiety, to positive, such as hope and eagerness (Folkman & Lazarus, 1985; Smith & Ellsworth, 1987 cited in Skinner and Brewer, 2002). They point to the fact that positive emotions are understood to serve adaptive functions but have been largely overlooked in research.

Skinner and Brewer (2002) report on a study which utilized Lazarus's earlier conceptualization of the stressful transaction and explored time-related appraisal and emotion patterns in the anticipatory phase of a real-life stressful achievement event - an

examination. They explored appraisals of threat and challenge and their link to anxiety and positive emotions. One hundred and eighteen first year psychology students filled out questionnaires one week before, the night before, and 5-10 minutes before an examination. The questionnaire included an event-specific measure of appraisal divided into threat and challenge appraisals. This measure was developed for the purposes of this study and incorporated components of existing scales. Emotions of anxiety and excitement were each assessed with 3 items across a 6 point Likert scale. The findings of relevance to the current study include the observation of: generally moderate levels of threat and challenge appraisals and mild levels of excitement and anxiety. Threat appraisals were associated with elevated negative emotion and challenge appraisals with increased positive emotion and lower perceptions of threat. Across all time points there was a decline in calm feelings and a shift toward anxiety with no variation in the intensity of excitement experienced.

Skinner and Brewer (2002) emphasise that their findings point to the need to consider both threat and challenge appraisals and emotions in terms of exploring the stressful transaction. The current study attempts to do this. In addition Skinner and Brewer's study provides some context for understanding the experience of subjects at the first administration of questionnaires in relation to the current study. Their study shares many of the limitations of similar studies in this field - the number of variables relative to subjects was small, the measures were developed specifically for the study and hence have questionable reliability and validity and the study was based on self-report measures.

In a methodologically poor study, Devenport and Lane (2006) explored the appraisals (i.e. challenge, threat, benefit and harm) and coping of 60 Honours level students. In the weeks leading up to the submission of their dissertations questionnaires were administered 4 times over a 6-week period. The results significant to this study indicated that students appraised the situation as stressful but there was no significant variation in appraisals over this time period. There were, however, large individual differences in appraisal scores, and males were more likely to perceive the dissertation as threatening and less challenging in contrast to females.

Studies mapping variations in appraisal and affect across time, tend to be characterized by rather unwieldy methodologies with (to varying degrees) a wide range of variables relative to their sample size. As discussed in other sections of this chapter the measurement of appraisal is limited and the findings lack specificity and are not linked to antecedent or outcome variables. Overall these findings indicate the need to consider temporal aspects in the study of the associations between appraisal and affect within the stressful transaction. Generally the studies indicate variations in the patterns of appraisal and emotion over time. These changes over time reflect changes in the person-environment transaction and an exploration of these variations is viewed as essential to the adequate understanding of the stressful transaction (Folkman & Lazarus, 1985). Hence the current study accommodates this dimension in attempting to map variations in primary appraisal and emotion and their associations with antecedent and outcome variables, across the stressful transaction. In addition, unlike other

studies in this area, it incorporates advances with regard to the conceptualization of primary appraisal.

### 1.4. Concluding comments: Appraisal and stress research

The studies reviewed reflect the revisions to Lazarus's early theory to varying degrees, support the role of appraisal as the cognitive antecedent of emotion, and indicate the association of appraisals with various emotions within the stressful transaction. The necessity of understanding the role of antecedent and outcome variables has also been highlighted. Studies have further found that the interaction between the environment and appraisal within the stressful encounter should be viewed as a process, unfolding over time (Folkman & Lazarus, 1988; Tomaka et al, 1993). The review indicated that there is little research utilising the motivational relevance and congruence conceptualisation and even fewer studies that explore the role of antecedents to these situational components of the stressful transaction. The research that is available addresses congruence and relevance in simplistic and unidimensional terms, assuming that a once-off measure of high relevance and low congruence is the standard pattern for negative affective outcomes. No sense of variation or a more complex understanding, perhaps including variations across time was entertained in such research. As indicated throughout this section, the current study built on and integrated a range of developments in the stress and appraisal literature. It also responded to gaps in the literature and limitations in research in this area. To this end, it utilised conceptual and research developments emerging out of the motivational literature.

## 2. RESEARCH RELATING TO GOAL CONSTRUCTS

The studies covered in this section emerge out of the motivational literature. Studies that explore the links between appraisal and goals are initially discussed. Thereafter research addressing the relations between goal conflict and goal complementarity and wellbeing are explored, followed by studies that have attempted to link goal constructs to the stressful transaction. Finally research that directly explores the relation of goal conflict to understandings of stress is presented.

### 2.1. Personal goals and wellbeing

The studies in this section address the constructs of goal commitment and goal attainability in terms of influences on wellbeing. The researcher holds that the notions of commitment and attainability relate to the motivational relevance and congruence constructs. The goal commitment variable is congruent with the motivational relevance construct in that both reflect the loading (importance) subjects attach to their goals; relevance with regard to the significance of a particular event in relation to one's goals and commitment with regard to the degree of energy the person invests in the goals. In addition, the notion of goal attainability has some overlap with Lazarus's motivational congruence construct in that an aspect of goal attainability is the likelihood of success or the compatibility of the situation with goals, and motivational congruence explores the attainability of a goal in relation to whether or not a specific event provided opportunities

for the achievement of the goal. This link needs to be viewed with some caution given that these are overall assessments related to subjects' goals whereas appraisal-related assessments are event-specific and related to the stressful transaction.

Brunstein (1993) looked at 88 undergraduate students across a semester and explored the degree to which goal commitment, attainability and progress toward achieving goals were related to wellbeing. The subjects generated a list of their personal goals at the beginning of the term and then these goal constructs and subjective wellbeing were measured at four points across the semester. With regard to goals, subjects were asked to generate 6 long-term goals of high priority to them over the next few months. Whilst not exactly overlapping the personal strivings construct, this measure of goals did assess higher level rather than behavioural, time-limited intentions. Wellbeing was measured using a life satisfaction scale and a mood scale. Goal commitment (the extent to which subjects were determined to meet their goals), attainability (whether the environmental conditions were supportive or unsupportive of reaching goals) and achievement were measured.

The findings indicate that the impact of goal attainability on subjective wellbeing was moderated by goal commitment. Subjects who had both high goal commitment and goal attainability manifested positive effects on wellbeing across time. In contrast, those students with high levels of goal commitment who reported poor conditions for attaining these goals had reduced levels of wellbeing. These findings are in line with Lazarus's theory in that high relevance and high congruence would be assumed to be associated

with positive outcomes and high relevance low congruence with negative outcomes. Brunstein (1993) notes that this finding is contrary to the view that high goal commitment alone is sufficient for high levels of subjective wellbeing. Rather what Brunstein proposes is that goal commitment is an underpinning factor that defines the degree to which wellbeing is shaped by the pursuit of goals. Essentially a high degree of goal commitment in combination with "negative appraisals of goal attainability "(Brunstein, 1993, p. 1068), may have a negative impact on subjective wellbeing. In addition, steps toward goal achievement served to partially mediate the effect of the goal attainability commitment interaction on subjective wellbeing. Such findings make heuristic sense. Whether a subject progresses or does not progress toward achieving his/her goals directly influences the impact of goal attainability and commitment on wellbeing.

In a follow-up study, Brunstein, Schultheis and Grassmann (1998) extended their focus to incorporate an emphasis on motives - unconscious emotionally based incentives. Brunstein et al speculated that only with regard to goals congruent with unconscious motives (i.e. motive congruent goals) would the goal commitment/attainability interaction influence emotional wellbeing. One hundred and twenty seven student subjects participated in the study, in which 4 goals were listed and assessed with regard to appraisals of goal commitment, attainability and progress. A picture-story exercise was used to tap unconscious motives and a mood adjective checklist assessed emotional wellbeing. All the self-report instruments were administered at 4 points across a 4-month period. Regression analyses and mediational analyses were conducted.

Findings did indeed indicate that only with regard to motive congruent goals did the attainability/commitment interaction influence emotional wellbeing. Moreover, reported appraisals of poor conditions for achieving motive congruent goals and high commitment to motive incongruent goals were associated with poor emotional wellbeing.

Limitations of these studies include a restricted notion of wellbeing and the fact that both studies were conducted on students, possibly limiting generalisability. They had a wide range of repeated measure variables relative to sample size and the follow-up study used a combined cognitive/affective measure of wellbeing not allowing for sufficient differentiation of these distinctive outcomes.

Both the Brunstein studies highlight the importance of goal appraisals in relation to wellbeing. Specifically the degree of commitment (overlapping with motivational relevance) and the degree of attainability (overlapping with congruence) are linked to wellbeing in these studies and the suggestion of the role of motive congruence has interesting implications for the current study. A finding of particular interest is that high commitment and low attainability was associated with poor outcomes for emotional wellbeing. This has potentially interesting parallels with high relevance, low congruence combinations which this study attempted to investigate.

**2.2. Goal conflict studies**

Research into personal strivings has primarily focussed on the relation of personal strivings to emotional processes, and psychological and physical wellbeing (Emmons, 1997). Emmons is recognized as one of the first theorists to assert the link between goals and wellbeing (Baumann, Kaschel & Kuhl, 2005; Wrosch, Miller, Scheier & Brunde Pontet, 2007). According to Emmons (1991) personal striving characteristics have been found to account for a higher percentage of variance in subjective wellbeing than personality traits. The vast majority of research into personal strivings has focused on goal parameters and subjective wellbeing (Emmons, 1996). This is congruent with Emmons perception of the central role that goal parameters play in linking strivings to emotion, cognition and behaviour (Emmons, 1996). In particular, the striving characteristic of goal conflict has served as the focus of a considerable amount of research in the area.

A number of authors have pointed to the debilitating impact of goal conflict on processes of self-regulation (Bargh & Gollwitzer, 1994, Emmons, King & Sheldon, 1993, Gollwitzer, 1993; Karoly, 1994 all cited in Emmons, 1996). Emmons, King and Sheldon (1993) cite a range of general studies that indicate the links between psychological conflict and diminished wellbeing. Emmons and King's (1989) study related conflict within and between strivings to both physical illness and psychological distress, both in the present and future. Conflict in interpersonal strivings has also been associated with reduced psychological wellbeing and physical illnesses (King & Emmons, 1991). Emmons holds that the impact of personal striving conflict may be highly debilitating, in that it relates to conflict at a high level within a motivational hierarchy (Emmons, 1997).

In attempting to follow actions that would allow for the meeting of one higher order goal an individual could be obstructed in the achievement of other goals. In fact, Emmons (1999) holds that of all the goal constructs, goal conflict has the most important impact on subjective wellbeing The overall finding is that conflict between and within strivings is associated with various measures of concurrent and prospective negative affect and physical symptomology, with failure to resolve chronic goal conflict being associated with poor wellbeing (Emmons, 1996). Having provided an overview of key findings, two core studies in the area will now be discussed.

Emmons (1986) explored the associations between a range of personal strivings characteristics (including goal conflict) and aspects of subjective wellbeing. Forty undergraduate students generated lists of their personal strivings and were required to assess each striving across a number of dimensions including goal conflict. In addition participants recorded their positive and negative affect and filled in a satisfaction with life scale a number of times during a 3 week time period. The study indicated that goal conflict was associated with negative emotion, and (together with the dimensions of probability of success and ambivalence) accounted for 46% of the variance with regard to negative affect. However less conflict and more instrumentality were not associated with positive affect, but were correlated with life satisfaction.

In their 1988 study, Emmons and King pointed to the lack of empirical research regarding the causes, evaluation and impact of goal conflict on cognition, affect and action. They attempted to respond to this lack by exploring the relations between goal

conflict and psychological wellbeing as reflected by positive and negative affect and psychosomatic symptomology. Emmons and King (1988) describe two studies which focus on these proposed relationships. The first study involved a heterogeneous sample of 40 undergraduate students. Each participant generated 15 strivings, rated the degree of conflict between strivings and responded to a range of measures of wellbeing. Subjects completed all the measures at an initial meeting and at a one-year follow-up. Emmons and King (1988) found associations between conflict and high degrees of neuroticism, depression, negative affect, psychosomatic complaints and a number of physical symptoms, including increased visits to health centres at follow-up after one year. They also noted that individuals whose goals were in conflict tended to ruminate or dwell on their goals and were less inclined to act on them. This immobilising behaviour only serves to reinforce the conflict, given that the individual will not take actions to resolve the conflict and is less likely to reach the goal (Emmons and Kaiser, 1996).

The findings described above with regard to goal conflict are consistent and indicate a strong association with negative outcomes. It is however important to note that there are some researchers that contest the presumed negative impact of goal conflict (Kehr, 2003). While by no means the dominant perspective, these authors hold that goal conflict can facilitate processes that are constructive such as the assessment of the relative importance of one's goals (Kehr, 2003). Even Emmons (1999) concedes to the possibility that goal conflict may have positive outcomes given certain circumstances. The primary limitations of the studies reviewed in this section include the use of

university student populations and the small sample size relative to the range of variables, which reduces the predictive reliability and strength of the statistical analyses. The current study takes the application of goal conflict further by locating it within the context of the stressful transaction.

### 2.3. Goal complementarity studies

Emmons (1992) highlights avoiding conflict and maintaining internal harmony or complementarity within the goal system as significant in relation to ensuring psychological wellbeing (Emmons, 1992). While a number of studies have focused on the role of goal conflict and have produced consistent findings, there are limited studies exploring the impact of harmonious or integrated goal systems, and these have produced somewhat inconsistent findings.

Emmons's 1986 study (which was discussed in greater detail in section 2.2.) found that less conflict and more instrumentality was not associated with positive affect but was correlated with life satisfaction. These findings indicate that the presence of a complementary goal system does not necessarily result in the experiencing of positive affect, although the finding linking goal instrumentality to life satisfaction does seem to indicate a link to positive outcomes.

Downie, Koestner, Herberg and Haga (2006) explored the pursuit of goals and the association with interdependent versus independent self-construals and goal conflict.

Goal conflict was measured with a 2-item Likert scale simply asking subjects to rate the overall degree of conflict and complementarity respectively, among the four goals they generated. In a sample of 85 students most reported low levels of goal conflict. The study indicated that subjects with interdependent self-construals (a more communal, collective view of the self) had higher levels of goal conflict and made less progress to meeting their goals. In contrast, independent (more individualistic) participants were more autonomous and made more effective progress toward achieving goals. Subjects with intrinsic motives (i.e. those with independent self construals) manifested low goal conflict which was associated with progress toward the achievement of goals. Downie et al (2006) view this as an indication of integration and harmony between goals and see this finding as endorsing Emmons (1986) proposition that subjects whose goals are complementary are more likely to meet with success. This study, in common with a previous study (Koestner, Lekes, Power & Chicoine, 2002), indicates that autonomous and integrated goals are associated with progress toward achievement of goals. Downie et al (2006) point to the possibility that goal integration or complementarity has a mediating role in explaining the positive effects of autonomous goal systems.

Segerstrom and Solberg-Nes (2006) explored links between optimism and goal conflict (which, as will be explained, in the context of their study actually was goal complementarity). Seventy seven undergraduate psychology students were asked to generate goals, assessed their goals on a number of dimensions including goal achievement, their commitment to each goal and the importance of each goal, and were

administered measures of optimism and wellbeing repeatedly across a semester. Emmons (1986) striving list and striving instrumentality matrix were utilized to generate goals and assess conflict. Generally they found a low incidence of goal conflict with subject's ratings generally indicating a 'somewhat helpful' rating between goals. Their findings indicated that optimism was associated with higher goal conflict, as the researchers held that optimists were more likely to remain engaged with conflicting goals. Interestingly however, goal conflict was not associated with poor psychological health and did not seem to influence goal progress. According to Segerstrom and Solberg-Nes (2006), this lack of association may be accounted for by the generally low scores on goal conflict obtained in this study, which reflect facilitative or complementary rather than conflictual associations between goals.

These findings suggest that goal complementarity has a positive association with progress toward meeting goals, but that its relation to affect and psychological health is not as clear. These studies are characterized by modest sample sizes with the latter two studies measuring complementarity as the absence of conflict and the Downie et al (2006) study employing a markedly different measure of conflict. The current study extended the application of the notion of goal complementarity to the stressful transaction and applies a more direct and theoretically grounded measure of goal complementarity.

### 2.4. Interactional models relating to goal content

Whereas most of the research within the transactional framework is situationally based and while Emmons recognises the significance of appraisal in relation to personal strivings in the **context** of an event, most of the research conducted with regard to personal strivings is focussed on the relation of features of personal strivings to long term subjective wellbeing and is not explicitly rooted in a situational or interactional framework (Emmons, 1996). There are, however, a small number of studies which explicitly link strivings and the transactional model within a personal strivings framework. Whereas these studies apply elements of Lazarus's model in order to better understand motivation, the current study will attempt the corollary - applying elements of Emmons model in order to better understand a transactional conceptualisation of stress.

These studies are based on what Emmons terms "interactional models" (Emmons, 1996, p. 318) in that they explore the relations between strivings, specific stressful life events, and wellbeing, with Emmons utilising Lazarus's transactional framework in exploring these relationships. Emmons's interactional model holds that goals mediate the impact of life events on subjective wellbeing (Emmons, 1996), and is thus entirely congruent within the transactional approach. Studies based on interactional models have tended to focus on the type or content of goals (Emmons, 1996). Emmons holds that an event is appraised in relation to its relevance to personal strivings, and that people in turn identify events that are relevant to their personal strivings as significant.

This underpinning hypothesis was confirmed in a study of the relations between

daily life events and mood (Emmons, 1991). The study found that the extent to which participants experienced positive or negative moods from day to day was related to the experience of positive and negative events in areas directly relevant to their strivings. For instance the moods of individuals with more intimacy-focussed strivings were most susceptible to interpersonal events, and the moods of subjects with more achievement strivings were most affected by task-based and academic events. Congruent with these findings Lavalle and Campbell (1994 cited in Emmons, 1996) found that events that impact negatively on personal goals - "self-relevant negative events" (Emmons, 1996, p. 318) - are related to higher levels of self-focus and rumination as well as being more threatening to a subject's self concept. These findings suggest that whilst goal content and type (and possibly other goal parameters) have primary effects on subjective wellbeing, the nature of the event is also of importance. This hints at the possible role of appraisal of the situation in relation to strivings, in understanding the impact of personal strivings on wellbeing. By considering situational aspects as well as goals interactional models may be more strongly indicative of variations in subjective wellbeing in contrast to considering goals alone (Emmons, 1996).

Emmons (1994 cited in Emmons, 1996) also made a preliminary attempt at applying this interactional model to exploring the relations between traumatic life events and personal strivings. He developed a model of trauma that holds that traumatic events lead individuals to rearrange their personal strivings and that strivings perform a key role in facilitating adaptive responses to trauma (Emmons, 1996). Emmons has

emphasised the need to explore variations in appraisals and the content of strivings in relation to traumatic events, with the intention of recognising the nature of changes in the striving system which enhance recovery and self growth (Emmons, 1996).

Such interactional models and studies highlight the links between the transactional and personal strivings frameworks. While only having been applied to nomothetic constructs that are goal content related, they nevertheless provide an indication of the validity and relevance of relating these two theories to each other. These interactional models borrow from the transactional framework to enhance an understanding of personal strivings. The emphasis of the present study is somewhat different in terms of borrowing from the personal strivings framework in order to enhance an understanding of the transactional model. While personal strivings have already been located within a transactional framework, Emmons does not offer any suggestions regarding the processes that may mediate between goals and subjective wellbeing nor are there any studies exploring goal conflict within this framework. It is these processes, in the form of appraisal, that serve as the focus of Lazarus's transactional model and could serve to enrich understandings of personal strivings. It is precisely the interrelationships between goals, **appraisal** and wellbeing that were the focus of this study.

### 2.5. Goal conflict and stress

While a number of studies have explored other aspects of motivation in terms of their relation to the stressful transaction (see Baumann, Kaschel & Kuhl, 2005 and the above

discussion), only one study could be located that explored the association of goal conflict with aspects of the stressful transaction.

Segerstrom (2001) explored the proposal that when subjects engage with conflicting goals, optimists may be more inclined to remain invested in conflicting goals and hence may experience higher levels of stress in the short term. Segerstrom (2001) thus put forward the intriguing hypothesis that optimists would fare worse immunologically when encountering academic and social goal conflict in contrast to pessimists, but would do better in the event of no goal conflict. Conflict was measured using an inferred understanding where subjects who had physically relocated were assumed to be experiencing lower levels of conflict between academic and social goals, in contrast to those who had not relocated. This was based on the argument that subjects who relocate would not have pre-existing social demands and would be more inclined to structure social relationships around their studies. In a sample of 48 first-year law students (where 33 had relocated and 15 had not), Segerstrom found that optimism was related to higher CD4+ cell counts among students with lower academic-social conflict, and with lower CD4+ cell counts (associated with higher levels of stress) among subjects with higher levels of conflict. These findings suggest that optimists remained connected to both academic and social goals, despite the conflict between them, and hence experienced higher levels of stress. The study was limited in that it employed a correlational design, had a small sample size and made the inference that the circumstances described above were reflective of goal conflict. Segerstrom cites Emmons and King (1988) in pointing to the value of future correlational studies directly

measuring goal conflict or alternatively actively manipulating goal conflict in an experimental design. She also highlights that engaging with conflicting goals may have different relations to stress across time.

While Segerstrom's 2001 study conceptualised goal conflict and stressor-related outcomes quite differently to the current study, it represents an attempt to understand the influence of conflict on the stressful transaction - an area of investigation sorely lacking in stress literature. The study endorses the theoretical value of exploring the link between goal conflict and stress-related outcomes.

### 2.6. Concluding comments: Research into goal constructs

Whilst goal conflict is perhaps the most extensively researched of all the goal parameters, research is limited and the area remains wide open to further investigation. Studies in the area indicate the negative consequences of goal conflict and the corollary that goal complementarity has positive consequences is assumed in theory, and is indicated to some extent in a far more limited range of studies. Only one study linking goal conflict to stress-related outcomes was located but studies that locate the strivings concept within an interactional framework, endorse the enhanced explanatory value of research locating goal conflict and complementarity within the transactional model of stress. In addition, studies coming from a strivings perspective that link to motivational relevance and congruence endorse and provide some direction for exploring the role of these appraisal components in relation to the stressful transaction.

## 3. THE CURRENT STUDY

The range of studies covered in this chapter focus on various aspects of the constructs addressed in the current study. As is evident from this review of relevant research there appear to be no studies that address the same topic and focus of the current study. Whilst a clear conceptual basis exists for this study, there are only studies in distinct fields that overlap with aspects of the current study. This study is thus unique in its applied and conceptual integration of these various components. The current study bridges the appraisal, stress and motivation literature drawing on trends and directions evident across these fields, while also attempting to address many of the inadequacies of prior research. Conceptually located within stress and appraisal research it addresses the neglected area of antecedent and outcome variables and offers a dimensioned exploration of primary appraisal and affect across time within the context of a stressful transaction. In utilizing the personal strivings framework to augment the understanding of the relations between antecedent variables, primary appraisal, emotion and outcomes it also extends and enhances the understanding of strivings-based constructs.

# CHAPTER SIX - METHOD

This chapter initially addresses the rationale, purpose and aims of the study. Following this, the core research questions which this study attempted to explore are outlined and elucidated. The research design, features of the participant grouping, measures employed, procedures followed and statistical methods and analyses are then described. Finally ethical concerns are discussed.

## 1. RATIONALE FOR THE STUDY

A clear theoretical and experimental rationale exists for the present study in that despite an increasing theoretical focus on motivation as a significant element of the stressful transaction, there is limited research focusing specifically on motivational factors in relation to stress. In addition the role of motivational antecedent variables and their relation to appraisal constructs and outcome variables has not been explored. Current understandings of motivation within the stressful transaction are underdeveloped, simplistic and unidimensional.

The conceptual advances proposed by Lazarus over the course if his seminal work in the stress field provide a means of unpacking or elaborating on the relation of goals to appraisal and emotion within the stressful transaction. The present study offers a framework within which to test the predictive value of the appraisal dimensions of Motivational Relevance and Congruence with regard to the generation of Benefit,

Harm/loss, Threat and Challenge emotions. In addition, the specific focus of this study on primary appraisal - the motivational components of appraisal - is further justified, in that it serves as a channel for exploring the dispositional antecedent of the individual's goal hierarchy and its relation to other elements of the stressful transaction. For as Smith and Lazarus (1993) indicate, the identification and relating of distinctive appraisal components represents a useful means of investigating the links between antecedent variables and emotion. Through employing the personal strivings construct, this study endeavored to directly explore the impact of goals on the stressful transaction, clarifying the relations between antecedent and process variables and offering a more complex, textured and multidimensional understanding of motivation within the stressful transaction.

In addition, the stressful transaction provides a useful context within which to explore the interaction between various levels of construct within personality psychology. The transactional framework incorporates both personal and situational variables specifying a model of interaction. It thus offers a means of exploring the processes which inform the relations between situational and dispositional variables, an area of ongoing exploration and debate within personality psychology. Research located in the transactional framework can provide insight into the manner in which elements of motivation (as operationalised by personal strivings) play out across personal and situational parameters.

**2. AIMS**

The study endeavored to locate motivational factors within the stress process, linking the nature of the strivings and the striving system to goal-related primary appraisal, affect and outcome measures. The aim of the study was to investigate the application of goal-related variables to other components of the stressful transaction. The study quantitatively assessed the relations between Goal Conflict and Complementarity, primary appraisal (Motivational Relevance and Congruence), immediate effects (i.e. Positive Affect, Negative Affect, Harm, Benefit, Threat and/or Challenge) and long-term effects (aspects of mental health as measured by the GHQ) of the stressful transaction.

This study aimed to explore:

1. Whether or not individual features, such as characteristics of the goal system (Goal Conflict and Complementarity) and goal-related primary appraisal (Motivational Relevance and Congruence), were significantly related to each other.
2. Whether or not individual features, such as characteristics of the goal system (Goal Conflict and Complementarity) and goal-related primary appraisal (Motivational Relevance and Congruence) were significantly related to immediate (Affect) and long-term effects (GHQ scores) within a stressful context.
3. The nature of the relationships between Goal Conflict and Complementarity, Motivational Relevance and Congruence, Affect and the GHQ.
4. How these relations may vary across time.

In so doing, the study endeavored to provide a more textured and complex

understanding of the transactional model of stress.

## 3. RESEARCH QUESTIONS

The overarching question addressed by the study was as follows:

1. How do the Motivational components of the stressful transaction, the personal strivings constructs of Goal Conflict and Complementarity and the primary appraisal dimensions of Motivational Relevance and Congruence, relate to immediate and long-term effects emerging out of the stressful transaction across time?

This theoretical question is multi-faceted and complex and has three core elements- the general relations between the variables, the nature of the interrelationships between variables and changes across time. Hence the following specific research questions were asked:

### Personal strivings

2a. Does the personal strivings characteristic of **Goal Complementarity** have a significant relation to:

(i) Motivational Relevance (before and into the event),

(ii) Motivational Congruence (before and into the event)

(iv) Immediate effects: Affect measures - Positive Affect, Negative Affect, Harm, Threat, Challenge and Benefit (before and into the event)

(v) Long-term effects: GHQ1 and 2?

Is Goal Complementarity associated with positive outcomes?

2b. Does the personal strivings characteristic of **Goal Conflict** have a significant relation to:

(i) Motivational Relevance (before and into the event),

(ii) Motivational Congruence (before and into the event)

(iii)Immediate effects: Affect measures - Positive Affect, Negative Affect, Harm, Threat, Challenge and Benefit (before and into the event)

(iv) Long-term effects: GHQ1 and GHQ2?

Is Goal Conflict associated with negative outcomes?

**Primary appraisal**

3a. Does the appraisal component of **Motivational Relevance** (before and into the event) have a significant relation to:

(i) Motivational Congruence (before and into the event)

(ii) Immediate effects: Affect measures - Positive Affect, Negative Affect, Harm, Threat, Challenge and Benefit (before and into the event)

(iii) Long-term effects: GHQ1 and GHQ 2?

3b. Does the appraisal component of **Motivational Congruence** (before and into the event) have a significant relation to:

(i) Motivational Relevance (before and into the event)

(ii) Immediate effects: Affect measures - Positive Affect, Negative Affect, Harm,

Threat, Challenge and Benefit (before and into the event)

(iii) Long-term effects: GHQ1 and GHQ 2?

Assuming that the study is able to answer research questions 2 and 3, a secondary level of research questions becomes the logical flow of exploration. These questions centred on exploring and clarifying the **interrelationships** (some theoretically proposed) between the variables.

4. Are there patterns of relationship between Goal Conflict and Complementarity and Motivational Relevance and Motivational Congruence, affect and the GHQ?

(i) What are the interrelationships between Goal Conflict and Motivational Relevance and Congruence?

(ii) What are the interrelationships between Goal Complementarity and Motivational Relevance and Congruence?

(iii) What are the interrelationships between Goal Conflict and Affect and the GHQ?

(iv) What are the interrelationships between Goal Complementarity and Affect and the GHQ?

5. Are there patterns of relationship between Motivational Relevance and Motivational Congruence, Affect and the GHQ? What are the interrelationships between Motivational Relevance and Congruence and Affect and the GHQ?

6. Do various Relevance Congruence groupings have different effects on affective and long-term outcomes? More specifically:

(i) Are high Motivational Relevance and low Motivational Congruence score patterns associated with negative Affective outcomes and elevated scores on the GHQ?

(ii) Are high Motivational Relevance and high Motivational Congruence score patterns associated with positive Affective outcomes and reduced scores on the GHQ?

(iii) Are low Relevance and unspecified Motivational Congruence score patterns associated with reduced Affective outcomes and scores on the GHQ?

7. Do these interrelationships vary across time?

What is the nature of the relations between variables across time that leads to various outcomes with regard to Affect and the GHQ? Do the relations between Goal Conflict and Complementarity, Motivational Relevance and Congruence, Affect and the GHQ vary across time?

**Comment on the nature of the research questions**

The research questions regarding the interrelationships are stated broadly and the study does not define specific hypotheses. In order to understand the reasoning behind this approach, it is necessary to briefly revisit the nature of the task of exploring and clarifying interrelationships between variables within the context of a transactional

understanding of stress.

One of the emphases of earlier transactional-based stress research was the core assumption of the role of mediator variables. In agreement with Lazarus's theoretical conceptualisation the researcher would hold that variables "generated in the encounter", including appraisal and affect are potential mediator variables. However, the multiple channels of influence and the subtle to and fro relations between antecedent variables, appraisal and affect over time mean that such categorisations provide only a pointer to the complex relations between these variables.

For instance, the status of emotion, although defined primarily as a mediator within the confines of this study is ambiguous. This is indicated by the dual definition in the instruments section of emotion as both a mediator (i.e. in mediating the relations between causal antecedents, appraisal and long-term effects) and an outcome variable (i.e. as an outcome of appraisal). This dual status can be understood in terms of the size of the snapshot one is trying to take within the complex and dynamic process of the stressful transaction, i.e. where the boundary of the stressful transaction is drawn? Both drawing the boundary around the psychological processes (see Lazarus & Folkman, 1991 cited in Monat & Lazarus, 1991) or extending the parameters to include more long-term effects (see Lazarus, 1999) are considered legitimate approaches within stress research. So at one point in the dynamic process of a stressful transaction, affect is an outcome and at yet another point it can be viewed as a mediator. The latter approach reflects more recent trends in stress research but is in contrast to the

emphasis in more general appraisal theories of emotion as the primary outcome.

What this discussion reflects is the complexity of interrelations between variables within the stressful transaction and difficulties in diagrammatically representing and testing such interrelationships. Lazarus ((1999) goes so far as to state that it is impossible within the confines of two-dimensional space to diagrammatically depict the variety of significant variables and their multiple interactions with other dimensions. Given the complexity of the processes and interrelationships under investigation and the theoretical debates still raging, the research questions can thus only be posed in general terms and directional hypotheses will not be specified.

## 4. RESEARCH DESIGN

### 4.1. Methodology in stress research and the current research design

This study employed the framework of stress research as its methodological context. Whilst Lazarus (1999, 2001) points to far-reaching methodological implications of his recent revisions (specifically the possible employment of narrative approaches), he also acknowledges the continued utility of quantitative approaches. He holds that an inclusive approach to research methods is required with the precise and thoughtful application of any particular approach (Lazarus, 1999). Cooper and Dewe (2004), quoting Lazarus (1990) propose that future stress research needs to be "'longitudinal, in-depth, and holistic-styled" (p.47). Lazarus (1999) also emphasises the need for

naturalistic approaches that incorporate the subjective meaning of the event and relate theory to the reality of the stress process. Whilst locating itself within a systemic, quantitative framework the current study attempted to incorporate some of these recommendations.

The study was longitudinal, took place in a naturalistic setting, and adopted an in-depth and process-oriented perspective through including a range of interrelated variables across time. The research design of the study can be defined as a non-experimental, longitudinal, single group design (Kerlinger, 1986). Through the utilisation of a "naturalistic stress situation" (Folkman & Lazarus, 1985, p. 152) - an examination period - the study endeavoured to elaborate on a real-life experience of stress. This ensured a strong element of realism, relevance and applied emphasis and allowed for more authentic exploration of the subjective meaning of the event (in contrast to retrospective studies, studies based on vignettes or experimental studies). However, as a consequence, no manipulation of the independent variable could be undertaken, nor could participants be randomly selected or matched with a control group (Kerlinger, 1986).

This study adopted a longitudinal research design in that it looked at stress factors at two points in time over an examination period, rather than focusing on a discrete single administration. Students going through an examination period were administered questionnaires at time 1 - prior to the exam period, and time 2 - into the exam period. Lazarus (1999) views the stressful transaction as a process that changes over time and

varies as “from one time to another as the encounter unfolds from one encounter *(situation)* to another” (p. 120). According to Lazarus “few studies of stress and coping take this process principle seriously enough” (Lazarus, 1999, p.121) and may misleadingly present stressful encounters as unitary events. The demands of a stressful encounter extend over a number of stages (Lazarus and Folkman, 1991; Lazarus, 1999). Folkman and Lazarus (1985) have identified these stages with regard to university examinations. In accordance with the experience of many real-life stressful events, Folkman and Lazarus (1985) break down an exam experience into a number of phases: (i) the anticipatory phase - prior to the event/exam associated with the most uncertainty and ambiguity regarding what the event and outcome; (ii) the experiencing phase - the actual living of the event/ exam; (iii) a waiting period - where students have written their exams but still have to manage a great deal of ambiguity as they do not yet know how they fared; and (iv) an outcome phase - where students learn how they performed (Folkman & Lazarus, 1985). These phases, according to Folkman and Lazarus, represent a "natural experiment" (1985, p.151) and provide a framework which allows for a process-oriented exploration of the stressful encounter.

In this study, while all students were administered the first questionnaire prior to the examination period, the second administration occurred when all the students had finished some of their exams but many still had further examinations to write. Hence the first questionnaire was administered in the anticipatory phase and the second in a waiting phase (that for many of the participants still had elements of the anticipatory phase), given that most participants still had further exams to sit for. Hence the

ambiguity of and feelings associated with the anticipatory phase may still have been present at the second administration. The ambiguous aspects of the second administration may well reflect the artificiality of such phases and the reality of many stressful transactions, where the ongoing nature of the stressor makes the distinction of the various phases less clear. Nevertheless the administration of the questionnaire at two stages over the stressful transaction still served the purpose of accommodating the dynamic, process-oriented nature of the transactional model of stress.

Although the administration of the measures took place within the time frame described above, the statistical analyses were conceptually organised around components of the stress process - motivational factors, cognitive mediation of the event and immediate and long-term effects. Longitudinal aspects were examined secondarily.

### 4.2. Defining constructs

Given that stress research has been criticised as an imprecise field with poorly defined concepts (Cooper & Dewe, 2004; Green, 1990), this study attempted to clearly and specifically operationalise the various components under study. Edwards and Cooper (1988) point to the need to define distinct operationalisations of constructs within stress theory, and Green (1990) expounds on the necessity of "careful research delineating both stressor dimensions and specific outcomes" (Green, 1990, p.1639). Cooper and Dewe (2004) emphasise the need to refine existing research measures so that the

essence of the construct under investigation can be captured. They also point to the need to distinguish between research methods that are descriptive of a relationship versus those that give it meaning.

In response to these kinds of concerns, this research was primarily descriptive and addressed the stressor dimensions very specifically, particularly with regard to goals. The study attempted to refine a research approach, integrating goal constructs into stress research through focussing on the particular goals (rather than speaking in general terms) that individuals bring into and appraise a transaction on the basis of. In addition the outcome or response to the event was operationalised in terms of manifestations of emotions and specific symptomology (as measured by the General Health Questionnaire). Moreover, through focussing on the dimension of emotion, the study complied with the recommendation of Solomon and Maser (1990) regarding the need to consider the non-clinical impact of exposure to a stress situation.

In recognising the complexity of the stress process, it was considered necessary to include a wide range of variables. Specifically this study extended beyond an exclusive focus on appraisal and emotion (so common to studies in this field) to include both antecedent variables and long-term outcome variables. For as Edwards and Cooper (1988) point out: "Future models of stress and coping should include these multiple pathways (i.e. the components of the stress process identified in the transactional approach) and evaluate their relative contribution to the reduction of stress and the improvement of health" (p. 15). In addition, through utilising the personal strivings

construct, the study adopted an idiographic perspective within a quantitative framework, thereby attempting to incorporate some aspects of individual or subjective experience of the stressful transaction.

The intricate network of proposed relations between goals, appraisal, emotion and outcome has not been subject to empirical testing within the framework of a common model. In order to clarify these complex interactive processes, the current study adopted a multi-variate research design in order to develop a more comprehensive understanding of the interrelationships between variables.

**5. SAMPLE**

The sample consisted of 152 student subjects consisting of a group of 80 third year, 55 fourth year (Honors level) and 17 fifth year (Masters level) psychology students over a mid-year examination period. Given the assessment of 3 different groups of students, it was impossible to completely align the phases of the exam process at which they were assessed. At time 2 most of the students (83% of the participants who responded to this question) still had other exams ahead of them. The assessments could thus be understood as taking place prior to and during the exam period as none of the students had received feedback on the examinations when the second questionnaire was administered. In order to control for the possible impact of life stressors other than the examination, subjects were asked a single question as to whether they had been affected by a significant life stressor over the exam period (see Appendix 1).

Approximately 40% of the subjects reported experiencing other stressors (e.g. car accidents, threatened job retrenchments, a death in the family, family instability and substance abuse) over the examination period. This variable was partialled out in order to assess the possible impact of the experience of other stressors on exam-related stress and no significant differences in correlations were noted.

The selection of students was partially based on convenience, in that students involved in examinations over a particular period were selected as subjects given that the examination setting is a classic and relatively uncontroversial example of a stressful transaction. The assessment of students across 3 different year levels of study (3rd to 5th year) was necessary in order to secure as large a sample as possible, and was considered potentially beneficial in that any trends emerging from the findings could be understood as more broadly applicable, rather than as pertaining to a single cohort of students. Since the researcher was interested in micro-processes within subjects as well as group trends, the varied groupings from which the sample was drawn was not considered problematic and could, as indicated, be considered a strength of the study. Nevertheless Chi-square and ANOVA procedures were conducted to ensure the general comparability of the scores of members of the sample across the three different years of study. No significant differences with regard to the variables central to the study were identified (these tables are very lengthy and hence are not included in the appendices, but are available from the researcher)

Third year, fourth and fifth year students were approached to take part in the study

given the significance of their examinations for their pursuit of further studies, hence ensuring the likely framing of the examination event as a stressor. The selection of students who had taken psychology for at least three years increased the likelihood that the study of psychology and hence the outcome of the examinations was significant to the participants. Given the complex nature of the questionnaire and the level of English proficiency required, using university students as a sample grouping was considered particularly appropriate.

The demographic details for the participant grouping with regard to **age**, **gender** and **first language** are presented below:

**Table 6.1 - Age range of subjects**

| Variable | N | Mean | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| **Age** | 152 | 23 | 4.62 | 19 | 49 |

**Table 6.2 - Gender of subjects**

| Variable | Frequency | Percent |
|---|---|---|
| **Male** | 29 | 19.08 |
| **Female** | 123 | 80.92 |

**Table 6.3 - First language of subjects**

| Variable | Frequency | Percent |
|---|---|---|
| **English** | 111 | 74 |
| **Other** | 10 | 6.67 |
| **African language** | 29 | 19.33 |

Frequency missing = 2

Participant's ages ranged from 19 to 49 years, with a mean age of 23 years and standard deviation of 4.62 years. The majority of subjects were young adults with the exception of a few mature students, including the participant aged 49 years. The sample consisted of 29 males and 123 females which is a profile typical of students in psychology at South African universities. The majority (111) of the sample were English first language speakers, 29 subjects spoke an African language and 10 subjects spoke other languages (e.g. Greek, Afrikaans) as their first language.

## 6. INSTRUMENTS

Self-report instruments were employed as the primary means of gathering information. Such instruments are commonly used in stress research, as the effective measurement of the psychological characteristics of stress relies substantially on individual introspection or self-report (Lazarus, 1999). The instruments were situation-specific in so far as the preamble of many of the instruments specifically referred to the examination period. They were presented as part of a structured questionnaire prior to (time 1) and into the examination period (time 2) (See Appendix 1).

Other than the use of a biographical questionnaire, instruments were selected in an attempt to operationalise various components of the stress process as primarily conceptualised by Lazarus (1999). Relevant components of the stress process and the corresponding instruments used to assess each component are presented in the following figure:

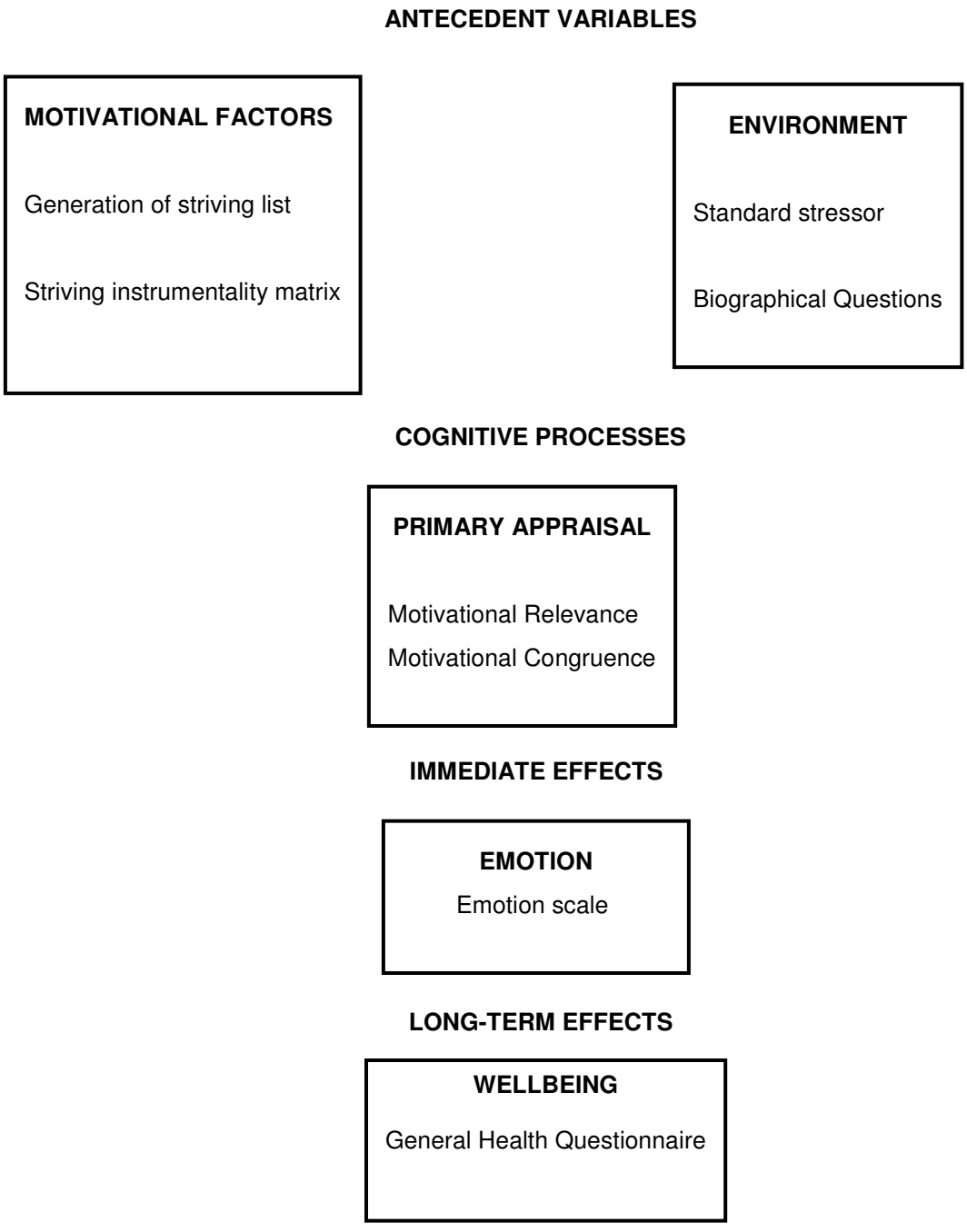


**Figure 6.1 - The transactional model and corresponding measures**

Each of the instruments and the variables emerging from the instruments are described below, (the latter initially typed in bold for clarity).

## 6.1. Biographical questions

A number of biographical questions were asked in the first questionnaire. These biographical questions included basic demographic details of **age**, **home language**, **gender** and the **degree** and **year of study** the participants were registered for. This information was gathered in order to specify the features of the sample involved in this study and to check whether such variables might have an impact on various dimensions of the study.

## 6.2. Environment /event

A number of questions addressing the nature of the examinations were included in questionnaire two. Participants were asked to list the **examinations** they had already written and specify the number of exams they still had to sit for. They were also asked to rate **how stressful** they perceived the exam period to be at both the first and second administrations and, at the second administration, were asked if they had experienced any **other stressful or traumatic experience(s)** over the examination period. If they

answered yes to having experienced other difficult experiences they were asked to write down the nature of the experience. As indicated previously, these questions provided the researcher with a means of identifying any participants exposed to markedly stressful or traumatic extra-examination experiences over this period. The assessment of such stressors also represented an attempt to control for environmental factors in that this served as a means of ensuring that the participants experienced comparable environmental demands and constraints. Anyone who reported that they had experienced a major life stress (e.g. bereavement) and those who displayed anomalous scores on the GHQ and emotion scales would have been excluded from the study sample, but this did not prove necessary.

### 6.3. Motivational Factors

The generation of strivings list and the striving instrumentality matrix served to operationalise motivational factors. These measures were replicated from descriptions of procedures and measures described in the available literature, particularly Emmons, 1989. They hold an underpinning assumption common to cognitive theories of motivation that people are able to introspect and self-report on their motives (Reeve, 2001). The theory and in particular the method described by Emmons, in the form of the generation of strivings list and the strivings instrumentality matrix, has been widely applied in goal-related research (e.g. Diener & Fujita, 1995; Emmons, 1992; King & Emmons, 1990; Moffitt & Singer, 1994; Sheldon & Kasser, 1995). A description of these instruments is given below.

### 6.3.1. Generation of strivings list

The generation of strivings list required the participants to generate a list of six personal strivings - what they were typically or characteristically trying to do. The wording of the instructions was based on Emmons and King's (1989) and Emmons's (1992) descriptions of their studies. Participants were provided with the definition of a personal striving as “an objective that they may typically wish to accomplish or attain.” The notion of personal strivings was linked to the examination period. Examples of strivings were provided and instructions indicated that the strivings could be positive or negative, abstract or more practical. Participants were asked to spend five minutes thinking about their strivings before writing anything down and then to write down their strivings in order of importance. Participants were also asked to identify a key word embodying the meaning of each striving. The list of key words was then used in completing the striving instrumentality matrix and primary appraisal measures.

Although generally consistent with the manner in which Emmons describes the generation of personal strivings in his research, there were one or two variations in this study. The number of strivings was limited to 6 in contrast to Emmons who has respondents generate up to 15 strivings (Emmons, 1986) or else “freely generate” (Emmons, 1997, p.498) strivings. This was a function of the feedback from a pilot study conducted prior to the main study (see later). Also the strivings task was specifically related to the examination period. As illustrated in the literature review, given that

research into personal strivings (in contrast to stress research) is generally not situation-specific or interactional in nature, most studies do not make reference to context. Hence the incorporation of the reference to the examination period reflects the contribution of this study in locating personal strivings within a transactional framework, with a focus on stress.

### 6.3.2. Striving instrumentality matrix

Having established their personal strivings list, participants were then required to assess the relationship between these strivings. The approach adopted was consistent with that described by Emmons (1997). Participants completed a striving instrumentality matrix which required them to rate their goals according to whether they conflicted, complemented or did not impact on each other. The striving instrumentality matrix required each participant to list the key word embodying each of his/her goal strivings, along the matrix rows and columns, constituting a six by six matrix. The comparison of each striving with every other striving was then undertaken.

In keeping with prior research, participants were asked to compare each striving with every other striving and rate the impact that success in a particular striving would have on the achievement of each other striving. In contrast to Emmons approach where subjects are requested to complete the entire matrix, thereby rating each goal twice in relation to every other goal, this study required that each be rated in effect once

(Emmons, 1999). So subjects only rated the effect each goal had on the rest of the goals and not the impact of the rest of the goals on it. This was decided given time constraints and given that these scores have been found to generally mirror each other (Emmons & King, 1988). Ratings were made along a five point Likert scale, ranging from -2 (very harmful effect) to +2 (very helpful effect), with 0 indicating no effect at all (Emmons and King, 1989). The amount of conflict and instrumentality across the entire matrix could then be determined (Emmons, 1989).

An overall score for Goal Differentiation was calculated by adding up all the scores on the matrix and dividing by the number of boxes completed in the matrix. However given the primarily complementary nature of the goal systems that was qualitatively observed by the researcher (and borne out by the correlations between the overall score for the matrix and Goal Complementarity), the researcher decided to calculate a separate **Goal Conflict** and **Goal Complementarity** score. Two scores were obtained for both Goal Conflict and Goal Complementarity. A score for Goal Complementarity was calculated through giving the negative and neutral scores a zero mark, adding up all the positive scores of ones and twos in the matrix and dividing this score by the number of boxes of the matrix that were completed. A second approach involved giving each positive score in the matrix a mark of 1, and each neutral and minus score a mark of 0. This total score was then divided by the number of completed boxes in the matrix. The scores for Goal Conflict were similarly calculated. However in the first instance zeroes were awarded to positive and neutral scores and the negative scores on the matrix were converted to positive scores. For Goal Conflict, the second approach merely involved giving each negative score in the matrix a mark of 1 and each neutral and positive score

a mark of 0. Correlational analyses indicated a strong highly significant positive correlation ($r=0.9$, $p<0.0001$), between the two measures. Hence the second measure, given it's somewhat simpler calculation and format was utilised in the analyses. Previous studies have either calculated a score for each goal for Conflict or Complementarity (Emmons, 1986) or have calculated the average degree of Conflict or Complementarity across the matrix (Emmons, King & Sheldon, 1993). This study essentially calculates the average Conflict or Complementarity score in an individual's goal matrix in a slightly more sophisticated way, which has inherent face validity and was developed in consultation with a statistician and senior researcher.

The strivings list and the striving instrumentality matrix have been used extensively by Emmons and with apparent validity by the researcher in a previous South African study (Leibowitz, 1997). Regarding issues of reliability and validity, there is some debate within the goal literature regarding the relevance of formal psychometric concerns to these constructs (Emmons, 1997, 1999). Goal-based variables implicitly have acceptable face validity given that there would be no reason for subjects to 'fake' their personal goals, and thus can be taken as representing their most accurate accounts based on conscious awareness at the time of assessment. Klinger (1987 cited in Emmons, 1997) views conventional measures of reliability as only partially appropriate to goal-based variables, such as characteristics of personal strivings. He holds that different criteria of reliability are required as opposed to those used for more conventional personality measures (i.e. trait measures). Klinger and Nesselroade (1987 cited in Emmons, 1997) hold that a lack of stability should not be equated with a lack of

reliability, given that these variables reflect psychological processes and are subject to variation. For, as Emmons (1986) states: “Lack of stability of the phenomena does not mean lack of reliability of the measuring device.” (Emmons, 1986, p. 1061). In addition, measures of internal consistency are also not viewed as appropriate given that strivings characteristics are not assumed to be homogeneous. Whilst Emmons and King (1989) have calculated internal consistency values for various strivings characteristics and found these to be high, the meaning of these calculations is not entirely clear (Emmons, 1997). These reservations regarding the application of traditional psychometric properties of reliability and validity to this kind of measurement of strivings also have relevance for the appraisal measures discussed in the following section.

While acknowledging concerns about the applicability of formal psychometric criteria, Emmons has made some attempts at defining the reliability of these personal strivings constructs. He has explored both the stability of goals and of goal dimensions (Emmons, 1997). In terms of goal stability in a sample of 40 undergraduate students, Emmons (1989) found that at one year follow-up 82% of the personal strivings listed by students at time one were still evident (with only minor changes in wording) (this is also consistent with the findings of Emmons, 1986). Forty-five percent of the original strivings from time 1 were present at 18 month follow-up and just over 50% at 3 year follow-up (Emmons, 1989). Of the 50% of personal strivings that were no longer evident, most were related to specific contexts (such as university study) that no longer featured in the subject’s life. This study suggests the enduring nature of personal

concerns and that strivings themselves are relatively stable (Emmons, 1997) but are influenced by context-related features. It also suggests that the strivings measure is a reasonably reliable tool in assessing such strivings.

Emmons (1986) calculated stability coefficients at 1 and 3 months intervals for 14 dimensions, excluding Goal Conflict. The individual scale mean stability after one month was 0.73 (ranging from 0.58 to 0.91) and after a three month interval was 0.6 (ranging from 0.47 to 0.7). Emmons considered these reliability coefficients as relatively high given the dynamic nature of the constructs. It is thus difficult to distinguish whether a drop in correlations over time reflects a real change or the unreliability of the measures employed (Emmons, 1986). With regard to Goal Conflict in particular, Emmons (1986) attempted to estimate the internal reliability of this measure through calculating a split-half reliability coefficient. The mean scores of participant's Conflict measures for the first 7 strivings were compared with the mean scores for the last 8 strivings. The results indicated high reliability with a score of .91 for Goal Conflict. One year test-retest reliabilities were also calculated and found to be adequate with a score of .58 for Goal Conflict.

Thus it appears that in respect of those aspects of goal matrices that can coherently be subjected to reliability assessment, goal matrix properties are acceptable to good.

**6.4. Cognitive processes**

### 6.4.1. Goal appraisal measure

**Motivational Relevance** and **Congruence** have previously been operationalised through the use of general single-item to 3 item measures along a 7 to 11 point Likert scale (Smith & Lazarus, 1993). This method of assessing Relevance and Congruence was deemed inadequate given that it is generalized and unidimensional and does not accommodate the diversity of an individual's goals. The researcher therefore modified these appraisal measures for the purposes of this study, developing a more nuanced, multi-item approach to primary appraisal, more explicitly linked to the participant's strivings. This approach took into account Lazarus's awareness of the fact that individuals may have many goals, some of which may be competing, and each of which may have very different implications with regard to their Relevance and Congruence. Hence the assessment still utilized self-report but modified the approach of existing measures by enquiring regarding the Relevance and Congruence of each specific goal generated by the participant. This also allowed for a wider range of possible scores, thereby producing a more sensitive measure allowing for more variance in scores. (A lack of variance was identified as a problem by Bennett, Lowe and Honey (2003) in the context of a study that focused only on stressful events, which as a consequence of uniformly high Relevance and low Congruence scores across the sample was characterized by restricted variance.) Bennett et al (2003) point to the multiplicity of possible approaches to measuring appraisal. They endorse as the most valid, the measurement of appraisal and emotion in real time and suggest the use of multiple measurement approaches. The present study had the advantage of using both real-

time measurement and an expanded measurement approach.

Participants were required to appraise each of the six goals with regard to their Motivational Relevance and Congruence. At times 1 and 2 they were asked to rate the extent to which the examination period was relevant to each of their personal goals or concerns - the importance of each goal (Motivational Relevance). They were also asked to rate the extent to which the encounter was perceived as consistent or inconsistent with the achievement of each goal - its desirability (Motivational Congruence). Ratings for Motivational Relevance were made along a 5 point Likert scale, ranging from 1 (the experiences during this period are anticipated to be/were not at all important) to 5 (very important). Ratings for Motivational Congruence were made along a 5 point Likert scale, ranging from 1 (very unhelpful) to 5 (very helpful). A score for Motivational Relevance and Congruence was obtained through totaling the participants' ratings across strivings.

The limitation of this approach lay in the possibility that subjects rating their first three goals as 5 and their last three with a 1 could present with a similar score to subjects who chose a more average rating across all their goals. The researcher attempted to explore whether this would make a substantial difference to subjects scores by running the correlation matrix utilizing only the Relevance and Congruence scores for the first three goals. No tangible difference was apparent in the correlation matrix.

The appraisal assessment questions and scales were reviewed in terms of their face validity as part of the pilot study, as well as by the supervisor and researcher. The

appraisal measures employed in this study expanded Lazarus's single item approach to incorporate the diversity of goals and possible variation in Motivational Relevance and Congruence across a goal hierarchy. This is in contrast to previous multiple-item measures of appraisal that tend to assess an appraisal dimension in relation to a specific stressor or set of stressors. The measure developed for this study utilized subjects goals to generate a situation specific (by virtue of how Motivational Relevance and Congruence were defined) appraisal. Given that these measures have relevance only in relation to the specific individual and his/her goals and specific features of the environment, notions of validity and reliability are difficult to ascertain and again not entirely appropriate in a nomothetic sense. It was assumed that subjects understood what was required in the task and had no readily apparent reason to fake or skew their answers. Participants were aware of the anonymity of their responses and their accountability was purely personal.

## 6.5. Immediate Effects

### 6.5.1. Emotion scale

A list of emotion states previously used by Turton (1993a) and Leibowitz (1997), combining listings from Folkman and Lazarus (1985) and Watson and Clark's PANAS scale (1988), was utilised. Quite simply, the feelings lists from both scales were

combined and presented in a single scale format. The scale listed a range of emotion states and asked participants to rate the degree to which they experienced a particular emotion, with regard to a discrete period of time or event. This adjective checklist approach to the measure of affect is the most commonly utilised approach within the stress literature (Stone, 1995). In this study participants were asked to rate the extent to which they were experiencing each emotion state in relation to the examination period at the particular times 1 and 2. Ratings ranged from 0 (not experiencing the emotion at all) to 4 (experiencing the emotion in its extreme).

Watson and Clark's scale allowed for a broad categorisation of the emotional response of subjects into **Positive** and **Negative Affect** and also expands the possibility of applying these findings to a wide range of research (given the broad application of the PANAS scale). The emotion scale items were classified in terms of Positive (items 18, 20, 22, 25, 26, 28, 30, 32, 33 and 35) and (items 19, 21, 23, 24, 27, 29, 31, 34 and 36) dimensions of affect (Watson & Clark, 1988). With regard to Folkman and Lazarus's (1985) emotion scale, emotion states are reflected by different categories of appraisal. Hence the **Threat** scale included items 1 (worried), 7 (fearful) and 13 (anxious); and the **Harm** scale included items 3 (angry), 6 (guilty), 10 (sad), 12 (disgusted) and 15 (disappointed). The **Challenge** scale included items 2 (confident), 8 (hopeful) and 14 (eager) and the **Benefit** scale included items 5 (overjoyed), 11 (pleased), 16 (happy) and 17 (relieved). Participants received a score for each emotion sub-scale. These emotion sub-scales have direct application to the stressful transaction in that they are emotion categories that have been identified specifically in relation to stress, offer some

dimensionality and, given the range of variables under investigation, provide a more focussed and methodologically feasible exploration of the impact of goal constructs of Conflict/ Complementarity and appraisal on emotion. In addition, given that Threat and Challenge emotions are viewed as anticipatory and Harm and Benefit as retrospective (Folkman & Lazarus, 1985), these categorisations potentially provide useful insights with regard to the influence of changes across time on emotion.

Watson and Clark's (1988) findings as regards their listing - the PANAS scale - indicate high internal consistency of above 0.84, and stability at appropriate levels over a 2 month time period. There is also factorial and external evidence of convergent and discriminant validity (Watson and Clark, 1988). Watson and Clark have utilised a range of temporal instructions from “today” to “on average” and report the correlation between Negative Affect and Positive Affect as consistently low, regardless of the instructions utilised (Stone, 1995).

Folkman and Lazarus (1985) found that the mean alpha for the Threat emotion scale was 0.80, 0.59 for the Challenge emotion scale, 0.84 for the Harm emotion scale and 0.78 for the Benefit emotion scale. Hence, other than the Challenge scale, the other emotion scales have high reliability, and the reliability of the Challenge scale is just acceptable. Leibowitz (1997) and Turton (1998) in previous research studies on a South African population found satisfactory levels of internal reliability of 0.6 and above for the various sub-scales.

## 6.6. Long-term effects

### 6.6.1. The General Health Questionnaire (GHQ)

The individual's responses regarding the long-term effects of the stress process were operationalised through the use of the General Health Questionnaire (**GHQ**). The GHQ 28 serves as a measure of the individual's subjective assessment of their own symptomology and includes symptom dimensions of anxiety and insomnia, severe depression, social dysfunction and somatic symptoms (Goldberg & Hillier, 1979). It aims to detect symptoms common to various mental disorders, distinguishing between individuals with psychopathology and those who would be considered 'normal' (Wissing & van Eeden, 2002). A high score on the GHQ indicates a high degree of severe psychological stress (Pratt, 1978 & Tuettemann & Punch, 1990). The GHQ is commonly used in international and South African studies as an indicator of psychological wellbeing (Wissing & van Eeden, 2002).

The **Anxiety** and Insomnia sub-scale included items 2, 6, 12, 14, 25, 26 and 28. The **Depression** sub-scale consisted of items 3, 8, 10, 15, 16, 18 and 23. The **Social Dysfunction** sub-scale included items 1, 4, 11, 17, 21, 22 and 24. The **Somatisation** sub-scale consisted of items 5, 7, 9, 13, 19, 20 and 27. The GHQ aims to measure the presence of non-psychotic emotional dysfunction. The GHQ 28 was used as opposed to the GHQ 60, since it is a shorter version and it was anticipated that it would be more likely to be filled in by busy subjects. The GHQ 28 is a four-factor solution, scaled

version of the GHQ-60 (Goldberg & Hillier, 1979).

The GHQ-28 was scored along a four point Likert scale ranging from 1 to 4, the wording of which varied somewhat across the items according to standard instructions. Each sub-scale score and the sum of the sub-scales divided by four (total GHQ score) serve as an indicator of severity (Goldberg & Hillier, 1979). A number of studies have also utilized cut-off scores for the GHQ-28, with an overall score of 5 accepted as the most commonly utilized cut-off point (Goldberg & Hillier, 1979). When a cut-off score of 4/5 is utilized the GHQ 28 has a sensitivity (capacity to recognize clinical patients) of 88% and a specificity (capacity to classify subjects according to the sub-scales) of 84.2% (Goldberg & Hillier, 1979). The rate of error of classification was 14.5% at a cut-off of 4/5. Banks (1983) suggests a cut-off of 5/6 for the highest sensitivity and specificity rates and the lowest misclassification rate. In this study a cut-off score of 6 was used to assess severity of pathology.

A split half reliability coefficient of 0.96 has been reported for the GHQ 28 (Goldberg, 1972). Wissing and van Eeden (2002) in a sample of 550 South Africans report alpha scores ranging from 0.74 to 0.9 and satisfactory construct validity. High internal consistency and good test-retest reliability has been indicated over a 6 month period (Banks, Clegg, Jackson, Kemp, Stafford & Wall, 1980). The stability of the GHQ, in the context of the current study where the influence of the stressful transaction was explored, endorses the validity of the attribution of any changes in the GHQ to features of the stressful transaction.

## 7. DATA COLLECTION PROCEDURE

The procedure followed in this study consisted of three stages. An initial pilot administration of the questionnaire comprising the research instruments was conducted to ensure that the questionnaire was accessible and understandable. Thereafter the research procedure was implemented prior to and into the examination period, given that the study was interested in the changes within subjects across time as a means of establishing trends or patterns.

The questionnaire was initially piloted on a sample of 10 post-graduate psychology students. The intention of this pilot administration was to identify any issues regarding the wording of the questionnaire, to explore the face validity of the Motivational Relevance and Congruence scales and to assess the time taken to complete questionnaires 1 and 2. Following completion of the questionnaires students participating in the pilot study were interviewed regarding the aforementioned issues. These participants rated the face validity of the Motivational Relevance and Congruence measures highly. In addition, on the basis of this pilot administration it was decided to reduce the number of goals participants were required to generate from 10 down to 6, both in terms of the time taken to complete the questionnaire and the number of goals students were able to generate with relative ease. The questionnaire was also reviewed by the researcher's supervisor with particular focus on the structuring and wording of the Motivational Relevance and Congruence scales.

The measures used before and into the examination period served to operationalise the various components of the stressful transaction and to locate them temporally as antecedent, mediating or outcome variables. The various components of the battery of research instruments were administered to participants at a time before the examination period and then the administration of the second questionnaire occurred some time into the examination period, following the sitting of an examination. The second questionnaire was administered at this stage for practical purposes in that the researcher had access to all students who had filled in the first questionnaire at this point. This ensured as high a response rate as possible to the second questionnaire. The procedure was deemed acceptable in that all of the students were considered to be in the throes of the examination process and had not yet received any feedback on the outcome of their endeavors.

The figure below identifies the measures that were administered prior to and into the examination period.

| **Before examination period -Time 1** | **Into examination period - Time2** |
|---|---|
| Demographic questions | |
| Striving list | |
| Striving instrumentality matrix | |
| Primary appraisal measures | Primary appraisal measures |
| Emotion scale | Emotion scale |

General Health Questionnaire General Health Questionnaire

**Figure 6.2 - Chronological order of administration of instruments**

Demographic details were gathered at the outset of the study. The striving list and striving instrumentality matrix, given that they tap antecedent variables, were administered prior to the examination period. The appraisal and emotion measures were administered both before and into the examination period, given the dynamic process-oriented nature of these cognitive mediating variables. The outcome measure of the General Health Questionnaire was administered into the examination period. In addition, the General Health Questionnaire was administered prior to the examination period in order to rule out any subjects with severe pathology and to provide a baseline measure so as to be able to establish change over time.

Questionnaires were administered to subjects in groups by a colleague of the researcher's. Verbal explanations and opportunities for clarification were provided, with potential participants being invited to ask questions regarding the aim and nature of the research and the questionnaire. The first questionnaire was administered on the last day of term, at the very beginning of the examination period. A consent form and information sheet were also distributed (See Appendix 1). Subjects were required to write their names on a cover sheet on the first questionnaire, as it was used as a reference in order to fill out components of the second questionnaire. Following completion of the first questionnaire, the questionnaires were placed in a sealed envelope until just before the second administration. The completed first questionnaires

were handed out with the second questionnaires following an examination at the end of, or reasonably far into the examination period. This allowed participants reference to the goals they had listed in the first questionnaire, which were essential for completion of the second questionnaire. It was once again made clear to participants that participation was entirely voluntary. Participants completed the second questionnaire and, prior to handing both sets of questionnaires in, removed the cover sheet of the first questionnaire on which their names were written. One hundred and sixty of the first questionnaires were completed and 152 participants filled in the second questionnaire.

## 8. STATISTICAL ANALYSES

The statistical analyses of the relations between the goal system, appraisals, emotions and responses to the stressful event employed the following steps and methods:

### 8.1. Inter-item consistency and descriptive statistics

The descriptive statistics conducted on salient variables included means, standard deviations and frequencies. These statistical analyses provided a broader context and framework for analyses relating to the research questions. In order to determine whether the variables employed in this study were measured accurately, where appropriate Cronbach's alpha coefficients were calculated (Cronbach, 1984). Cronbach's alpha coefficients serve as an indication of the internal consistency of the instruments, and hence offer an indication of test reliability (Maram, 1996).

## 8.2. Chi-squared tests and ANOVA procedures

Chi-squared and ANOVA procedures were utilised to evaluate the extent to which the sample could be analysed as a cohesive entity. Specifically given that the participants had been drawn from three distinct groupings, these analyses were conducted to ensure comparability across the entire sample. No significant differences between groupings were identified. All further calculations were thus based on the full sample scores, but in some instances calculations for particular variables were not possible across all 152 subjects, as some subjects did not complete all the components of the questionnaire.

## 8.3. Exploring associations between variables

Pearson's product-moment correlation coefficients were used to explore any associations between variables (Allan, 1982) thereby addressing research questions 2 and 3. The scores for Goal Conflict and Goal Complementarity were related to the scores for the:

(a) Motivational Relevance scale

(b) Motivational Congruence scale

(c) Emotion scale and sub-scales

(d) General Health Questionnaire and sub-scales

Patterns of association that depicted the stress process in relation to goals were identified, and results interpreted within a transactional theoretical framework.

### 8.4. Exploring interrelationships between variables

Partial correlations and ANOVAs were used to answer research questions 4, 5, 6 and 7. The choice of method of analysis with regard to exploring the interrelationships between variables involved a lengthy process of exploration, clarification and debate. CHAID and LISREL analyses were explored as alternative tools of analysis. The choice of statistical method was limited by the relatively modest sample size, the exploratory nature of the research questions and the nature of the research instruments (particularly the more idiographic, statistically unconventional measures of Goal Complementarity/Conflict and Motivational Relevance/Congruence). In addition, theory which suggested mediational relationships and defined the role of Relevance and Congruence categorically led to the selection of partial correlations and ANOVAs as the most appropriate statistical measures.

#### 8.4.1. Testing for mediation

Given that the transactional notion of the stress process is fundamentally a mediational model, partial correlation was employed as a further step in the statistical analysis. On the basis of the initial step of correlations, theoretically significant relations between variables were identified, and where appropriate, partial correlations were computed in

order to further clarify the nature of the relations between these variables. Baron and Kenny (1986) point to the use of partial correlation (and also describe a regression model) for use in testing for mediation, or otherwise clarifying the nature of the relation between variables if the criteria for mediation were not fulfilled. Partial correlations were utilised given that they allow for the mapping of specific paths of influence.

Folkman and Lazarus define the mediating variable as a variable which is "generated in the encounter and it changes the original relationship between the antecedent and the outcome variable." (Lazarus & Folkman, 1991). Mediation would be indicated where there is a significant correlation between the independent variable and the outcome variable, the independent variable and the presumed mediator and the presumed mediator and the outcome variable. When the effects of the proposed mediator variable are partialled out, the previously significant relation between the independent and the outcome variable should reduce substantially in terms of strength and significance (Baron & Kenny, 1986).

Given a scenario where the criteria for mediation are not fulfilled, two statistical possibilities exist in terms of clarifying the relations between variables. The alternatives to mediation involve the notion of a moderator relationship between variables, or a relation where the proposed mediator variable has no impact on the relation between the independent and dependant variables.

According to Lazarus and Folkman (1991) **moderators** are defined as "antecedent

conditions such as personality traits that interact with other conditions in producing an outcome." (Lazarus & Folkman, 1991, p.213). Moderation implies that the "causal relation between two variables changes as a function of the moderator variable." (Baron & Kenny, 1986, p.1174). The moderator variable effects the strength and/or direction of the relation, and in terms of correlational analyses, can be said to impact on the zero-order correlation between two variables. The statistical validation of moderation therefore requires a measurement of the differential effect of the independent variable on the dependent variable in relation to the moderator (Baron & Kenny, 1986). Hence in terms of partial correlations, when the effects of partialling out of the proposed mediator do not fulfil the criteria for

mediation but do significantly impact on the strength or direction of the previously significant relation between the independent and outcome variables, the proposed mediator variable is understood to be acting instead as a moderator variable. In other words, this indicates the degree to which the moderator variable masks, enhances, interferes in or suppresses the relation between the independent and the outcome variable (Pedhazur, 1982).

When the effects of partialling out of the proposed mediator variable do not fulfil the criteria for mediation or moderation, this would point to the proposed variable having **no effect** on the relation between the independent and outcome variables. This would point to the likelihood that the relation between the independent and outcome variable is in fact independent of the proposed mediator variable.

For the purposes of this study, the interrelationships between motivational constructs and affect and the GHQ were formulated on the basis of empirical indicators (i.e. whether the preliminary criteria for testing mediation/moderation were fulfilled) and within the framework of theoretically suggested mediator relationships.

More specifically, with regard to **Goal Complementarity and Goal Conflict,** these constructs would be defined as antecedent conditions which interact with the environment and produce emotional outcomes (Lazarus & Folkman, 1991). Goal Conflict and Complementarity would also be understood to influence the ongoing process of appraisal and reappraisal at points across the stressful transaction, which may in turn be influenced by emotion. With regard to **Motivational Relevance and Congruence** the relationship between the antecedent and outcome variables would be mediated by appraisal processes. The theory also suggests that the relation between primary appraisal and more enduring effects of the stressful transaction would be mediated by immediate affective responses. It also indicates mediational processes with regard to the relations between the primary appraisal components of Relevance and Congruence and affect - where Relevance informs Congruence, which in turn generates emotion, which in turn elicits reappraisals of Relevance and Congruence. Hence with regard to appraisal, according to theory there appear to be multiple paths as well as multiple levels of mediational interaction. So for instance with regard to appraisal both affect and appraisal may act as potential mediators depending on the point at which these processes are examined. Moreover a 'close-up snapshot' of cognitive and affective processes would capture one level of mediational interaction,

whereas a broader 'landscape shot' incorporating long-term outcomes may capture another level of mediational interaction. Hence depending on where the 'lens' of analysis is placed the same variable may perform different functions within the mediational model. These observations with regard to applying a mediational analysis to the stressful transaction relate to the discussion regarding Lazarus's model in chapter 2, section 4.2.1.

### 8.4.2. One-way ANOVA

In the context of this study, the researcher used the one-way ANOVA technique with post-hoc testing (McCall, 1990) to discern whether or not theory-proposed Motivational Relevance Congruence combinations were associated with significant differences in the mean scores of various outcome measures. In keeping within the parameters of a one-way ANOVA, the groupings consisted of one independent variable, one dependent and one independent variable, had no repeated measures and utilised mean scores (Huck, 2004).

The sample was divided into 3 sub-groups in terms of whether subjects had combined high or low scores on Congruence and Relevance. The division of subjects into high and low score categories was based on consideration of the median scores as well as ensuring that numbers in the respective groupings were substantial enough order to ensure valid comparisons of the groupings. The core groupings were based on theory which puts forward three possibilities with regard to primary appraisal, including: (i)

where a situation is not relevant to wellbeing (low Motivational Relevance) and hence associated with reduced affect; (ii) of benefit to wellbeing (high Relevance, high Congruence) and hence associated with positive affect; or (iii) damaging to wellbeing/stressful (high Relevance, low Congruence or incongruence) and therefore associated with negative affect (Smith & Lazarus, 1990; Smith & Kirby, 2001). Hence the groups compared by means of the ANOVA calculations consisted of subjects with low Relevance and unspecified Congruence (group A), high Relevance and low Congruence (group B) and high Relevance and high Congruence (group C).

The groups were further contrasted in terms of the timing of the Relevance and Congruence appraisals, in order to explore whether or not anticipatory or post hoc appraisals had varying influences on the emotion and GHQ scores. The groupings here included the following four combinations: Relevance and Congruence at time 1, Relevance at time 1 and Congruence at time 2, Relevance and Congruence at time 2 and Relevance at time 1 and Congruence at time 2. Whilst no literature could be located that explores variations in Congruence and Relevance across time (and hence the influence of time was left as an open question), the researcher incorporated this element into the analysis on the basis of the transactional model's general understanding of appraisal and reappraisal as an ongoing relational aspect of the stressful transaction. This consideration of the temporal aspects was a unique feature of this research study, with the possible links between time-based appraisals and outcomes having not been theoretically elaborated upon to date. The means of each grouping were then subjected to a one-way ANOVA using a 5% significance level. The

ANOVA analyses generated 12 group comparisons (with 3 at any one point in time), given the various time and high low Relevance Congruence combinations.

The theory would suggest the following relationships in looking at the links between appraisal and outcomes but suggestions regarding the implications of the impact of the timing of appraisals could not be located in the literature:

Subjects from **group A** were defined as having low Relevance and unspecified Congruence, given that according to theory in the context of a low Relevance score the Congruence score is not significant in shaping outcomes. Relative to the other groups, it was anticipated that such subjects would have low scores on Negative Affect, Positive Affect, Threat, Harm, Benefit and Challenge emotions and also have low scores on the GHQ and its sub-scales. It was hypothesised that subjects from group A would have significantly lower scores on the affect scales and GHQ scales in contrast to group B. The relation to group C could not be clearly postulated in the light of the existing literature. However, it was anticipated that subjects with reduced emotional investment (group A) would have lower scores on all affect and GHQ outcome scales in contrast to subjects with high Relevance and Congruence appraisals (group C).

Subjects from **group B** were defined as having high Relevance (eliciting strong emotion) and low Congruence (eliciting negative emotion). It was anticipated that such subjects would have a negative emotional response to the event and hence have raised scores for Negative Affect and the Threat and Harm sub-scales. Relative to the other

groups, group B was anticipated to have lowered scores on Positive Affect, Benefit and Challenge emotions and elevated scores on the GHQ and its sub-scales.

Subjects from **group C** were defined as having high Relevance (eliciting strong emotion) and high Congruence (eliciting positive emotion). It was anticipated that such subjects would have a positive emotional response to the event and hence have low scores for Negative Affect and the Threat and Harm sub-scales. Relative to the other groups, group C was anticipated to have relatively high scores on Positive Affect, Benefit and Challenge emotions and reduced scores on the GHQ and its sub-scales.

F-values were calculated with a significant F value indicating "that the variability among the full set of sample means is larger than would be expected if all population means were identical" (Huck, 2004, p.289). Planned comparisons in the form of post-hoc tests were utilised in order to provide additional information other than the overall result regarding the one-way ANOVA (Huck, 2004). For the purposes of this study, in order to effectively answer the theoretically defined research questions, it was important to differentiate between specific group means in order to clarify the impact of the various Relevance-Congruence combinations. These post-hoc tests involved pair-wise comparisons (i.e. the mean score for group A was compared with group B, group A was compared with group C and group B was compared with group C) utilising the Fisher's least significant difference procedure and all comparisons with $p<0.05$ were reported on. The eta squared post hoc procedure was also conducted in order to assess effect size. The eta squared calculation provided an indication (if somewhat overestimated) of the

percentage of variability in mean scores that can be attributed to group membership (Howell, 1999). According to Huck (2004) an eta squared of 0.01 and above is small, 0.06 and above is medium, and 0.15 and over is large.

## 9. ETHICAL CONSIDERATIONS

- The study was submitted for ethics approval to the Humanities Ethics Committee of the University of the Witwatersrand and was only implemented once it had been approved (see Appendix 2).
- Participants were provided with an information sheet and the purpose of the research and the procedures involved were explained. As such, those who chose to participate in filling in the questionnaires gave their informed consent.
- Since the study was located in the context of a real-life stressor, this raises some ethical concerns in terms of whether the research procedure contributed toward the stressful experience of participants. Given the generally non-threatening nature of the questionnaires and that participation was voluntary, it is unlikely that participation in the study contributed to the stressful experience of subjects.
- The questionnaires were administered by an academic colleague given that the researcher was involved in teaching some of the students and the potential selection of students into post-graduate programs, and therefore ethically could not be involved in requesting student participation in the study.
- The voluntary nature of participation was emphasized and it was made clear to the subjects that participation before the exam period did not necessarily imply

consent to participate at the second administration.

- Confidentiality was assured and a declaration of confidentiality was attached to each questionnaire. Participant's names were attached to the first questionnaires, given that these questionnaires were redistributed to participants at the second administration. The first questionnaires were collected in with the participants' names on them and placed in an envelope which was sealed in front of the subjects. The envelopes were kept in a locked office accessible only to the researcher and were re-opened in front of the participants only at the time of redistribution of the questionnaires. This assured subjects of protection of privacy in that the researcher was unable to view the questionnaires with the names of the subject attached.
- Prior to handing in their second questionnaires, participants were requested to detach the sheet with their names on. This procedure and its purpose was explained to participants prior to their completing the first questionnaire.

The thesis will now proceed with a presentation of the results of the analyses conducted in this study.

# CHAPTER SEVEN - RESULTS

This chapter describes the results of the statistical analyses, including descriptive aspects and those findings pertaining to the central research questions. In the interests of focus and clarity, given that this study intended to clarify paths of influence, only significant correlations are presented in the body of the text. While some non-significant associations of interest are addressed and discussed in chapters 7 and 8, the complete table of significant and non-significant correlations (regarding variables relating to the research questions) is listed in Appendix 3.

## 1. INTER-ITEM CONSISTENCY AND DESCRIPTIVE STATISTICS

### 1.1. Inter-item consistency

The Cronbach's alpha coefficients generated for Motivational Relevance, Motivational Congruence, Affect and GHQ scales are presented in Table 7.1. Although the application of a measure of internal consistency to Motivational Relevance and Congruence is questionable, the researcher calculated alpha scores for Relevance and Congruence in order to assess the utility of such a calculation and to assess what information could be gleaned from the alpha scores.

**Table 7.1 - Cronbach alpha scores**

| Scale | Time 1 alpha | Time 2 alpha |
|---|---|---|
| **Relevance** | 0.34 | 0.63 |
| **Congruence** | 0.46 | 0.69 |
| **Positive Affect** | 0.87 | 0.89 |
| **Negative Affect** | 0.88 | 0.89 |
| **Threat** | 0.89 | 0.84 |
| **Harm** | 0.82 | 0.85 |
| **Challenge** | 0.60 | 0.59 |
| **Benefit** | 0.74 | 0.76 |
| **Somatisation** | 0.82 | 0.86 |
| **Anxiety** | 0.84 | 0.88 |
| **Social Dysfunction** | 0.83 | 0.82 |
| **Depression** | 0.90 | 0.92 |
| **GHQ** | 0.94 | 0.94 |

The alpha scores for Relevance and Congruence were low at time 1 and acceptable at time 2. The reliability of the Positive and Negative Affect sub-scales at times 1 and 2 were consistent and satisfactory. Similarly the alpha scores for appraisal based emotions were generally high with scores for Threat, Benefit and Harm 1 and 2 ranging between 0.74 and 0.89. Scores for Challenge emotion at times 1 and 2 were also acceptable but somewhat lower at 0.6 and 0.59 respectively. The Cronbach's reliability coefficient computed for the GHQ and its sub-scales at times 1 and 2, ranged between 0.82 and 0.94, indicating generally high internal consistency for all the measurements of aspects of mental health. (Internal reliability scores were not calculated for Goal Complementarity and Goal Conflict respectively as these measures did not fit the

criteria for a scale, with properties amenable to such a calculation).

### 1.2. Examination experience of subjects

Subjects were asked to rate **how stressful** they anticipated the examination period to be (Time 1) and how stressful they had perceived the examination period to be at Time 2.

**Table 7.2 - Stress rating of subjects at times 1 and 2**

| Variable | Time 1 | | Time 2 | |
|---|---|---|---|---|
| | **Frequency** | **Percent** | **Frequency** | **Percent** |
| **Very stressful** | 60 | 39.47 | 53 | 35.81 |
| **Stressful** | 85 | 55.92 | 83 | 56.08 |
| **Not at all stressful** | 7 | 4.61 | 12 | 8.11 |

Frequency missing = 4

Subjects were fairly consistent in their rating of the event both prior to and into the examination period. Most participants perceived the event to be stressful to very stressful, although the small percentage rating the event as 'not at all stressful' did increase into the examination period. These findings indicated that for most subjects the examination event was perceived at face value as a stressor and that the initial perception of the event was sustained into the examination period.

### 1.3. Descriptive Statistics

The mean, standard deviation and minimum and maximum scores for variables within

the stress process are presented in the following section. Where necessary, further analyses which shed light on the nature of the variables are presented.

**Table 7.3 - Descriptive statistics for goal matrix variables**

| Variable | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| **Goal Differentiation** | 139 | 0.86 | 0.58 | -1.00 | 2.00 |
| **Goal Complementarity** | 139 | 0.64 | 0.22 | 0 | 1.00 |
| **Goal Conflict** | 139 | 0.18 | 0.18 | 0 | 0.90 |

The mean score for Goal Differentiation points to the primarily positive ratings within participants' matrices. Scores for Goal Differentiation ranged from -1 to 2, pointing to the wider range of positive ratings in contrast to negative ratings. This is further indicated by the lower mean score for Goal Conflict of 0.18, smaller standard deviation of 0.18 and slightly narrower range in contrast to the mean score for Goal Complementarity of 0.64 with a standard deviation of 0.22 and range from 0 to 1.

In order to more fully understand the interrelations between Goal Differentiation, Goal Complementarity and Goal Conflict, the correlations between these variables are presented below:

**Table 7.4 - Correlations between goal matrix variables**

| Variable | Differentiation | Complementarity | Conflict |
|---|---|---|---|
| **Differentiation** | 1.00 | | |
| **Complementarity** | 0.93**** | 1.00 | |
| **Conflict** | -0.75**** | -0.62**** | 1.00 |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

Goal Complementarity is clearly strongly correlated with Goal Differentiation indicating the primarily complementary nature of most participants striving systems. The strong negative correlations between Goal Conflict and Complementarity and Differentiation, underlines the understanding that these measures were assessing contrasting aspects of the matrix, i.e. either a harmonious or a competing striving system. This endorses the measurement approach taken in this study.

**Table 7.5 - Descriptive statistics for appraisal variables at times 1 and 2**

| Variable | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| **Relevance 1** | 151 | 19.47 | 4.32 | 10.80 | 28.00 |
| **Relevance 2** | 146 | 19.57 | 5.03 | 6.00 | 30.00 |
| **Congruence 1** | 152 | 20.78 | 4.14 | 10.00 | 30.00 |
| **Congruence 2** | 143 | 18.55 | 5.05 | 6.00 | 30.00 |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

The mean score for Motivational Relevance at times 1 and 2 was consistent with a

slightly wider range at time 2. The mean score for Motivational Congruence was somewhat higher at time 1 in contrast to time 2 with a wider range of scores for Motivational Congruence 2. The mean scores appear to indicate an overall rating across all participants' goals leaning toward more positively loaded appraisals of Relevance and Congruence.

In order to more fully understand the meaning of these scores, frequency tables were run for the rating of each goal on Motivational Relevance and Congruence 1 and 2. The percentage ratings across the sample are presented below (for a full presentation of the frequency tables see Appendix 4).

**Table 7.6 - Percentage frequencies for Motivational Relevance 1 and 2**

| Rating | Time 1 Goals | | | | | | Time 2 Goals | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 |
| **1** | 5.26 | 15.23 | 19.08 | 29.14 | 28.29 | 34.00 | 5.48 | 11.56 | 19.73 | 19.59 | 23.08 | 28.97 |
| **2** | 6.58 | 9.93 | 15.13 | 13.91 | 22.37 | 14.67 | 8.90 | 12.93 | 18.37 | 16.22 | 16.78 | 20.00 |
| **3** | 7.24 | 13.25 | 24.34 | 13.91 | 18.42 | 16.67 | 9.59 | 18.37 | 16.33 | 21.62 | 21.68 | 20.00 |
| **4** | 11.84 | 19.87 | 17.11 | 15.23 | 14.47 | 11.33 | 11.64 | 19.78 | 17.01 | 21.62 | 27.97 | 15.86 |
| **5** | 69.08 | 41.72 | 24.34 | 27.81 | 16.45 | 23.33 | 64.38 | 37.41 | 28.57 | 20.95 | 10.49 | 15.17 |

This table indicates a range of percentages for the rating of each goal for Motivational Relevance at times 1 and 2. The spread of percentage ratings was generally wide with a higher percentage of subjects rating their first and second goals with a 4 (very important) or 5 (extremely important). Goals viewed as least important by subjects i.e. goals 5 and 6, correspondingly tended to receive less weighting in terms of Relevance. Although varying somewhat at times 1 and 2, this pattern generally held.

**Table 7.7 - Percentage frequencies for Motivational Congruence 1 and 2**

| Rating | Time 1 Goals | | | | | | Time 2 Goals | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 |
| **1** | 5.92 | 8.61 | 13.82 | 16.67 | 14.47 | 22.82 | 10.96 | 13.79 | 21.77 | 18.62 | 16.78 | 24.48 |
| **2** | 6.38 | 14.57 | 11.84 | 17.33 | 13.82 | 16.78 | 12.33 | 17.93 | 15.65 | 23.45 | 18.88 | 19.58 |
| **3** | 3.95 | 7.28 | 24.34 | 26.67 | 26.97 | 22.15 | 8.22 | 16.55 | 25.17 | 20 | 30.77 | 28.67 |
| **4** | 11.18 | 31.13 | 23.03 | 16.67 | 28.95 | 18.12 | 26.03 | 25.52 | 23.13 | 24.14 | 22.38 | 16.08 |
| **5** | 72.37 | 38.41 | 26.97 | 22.67 | 15.79 | 20.13 | 42.47 | 26.21 | 14.29 | 13.79 | 11.19 | 11.19 |

Table 7.7 indicates a range of percentages for the rating of each goal for Motivational Congruence at times 1 and 2. The spread of percentage ratings was generally wide with a higher percentage of subjects rating their first and second goals with a 4 (somewhat helpful to achieving the goal) or 5 (very helpful to achieving the goal) at time 1, and their first goal with a 4 or 5 at time 2. A fairly similar overall pattern is observed as occurred in relation to Motivational Relevance.

**Table 7.8 - Descriptive statistics for Positive Affect, Negative Affect, Threat, Challenge, Harm and Benefit emotions at times 1 and 2**

| Variable | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| **Positive Affect 1** | 151 | 17.1 | 7.57 | 2.00 | 37.00 |
| **Positive Affect 2** | 148 | 16.64 | 8.46 | 0 | 40.00 |
| **Negative Affect 1** | 152 | 11.81 | 7.52 | 0 | 35.00 |
| **Negative Affect 2** | 147 | 13.44 | 8.47 | 0 | 36.00 |
| **Threat 1** | 152 | 6.98 | 3.19 | 0 | 12.00 |
| **Threat 2** | 148 | 6.88 | 3.298 | 0 | 12.00 |
| **Challenge 1** | 152 | 5.80 | 2.25 | 0 | 11.00 |
| **Challenge 2** | 148 | 6.09 | 2.38 | 1.00 | 12.00 |
| **Harm 1** | 151 | 2.23 | 3.24 | 0 | 18.00 |
| **Harm 2** | 147 | 4.28 | 4.65 | 0 | 20.00 |
| **Benefit 1** | 151 | 0.60 | 0.70 | 0 | 2.75 |
| **Benefit 2** | 147 | 1.13 | 0.81 | 0 | 4.00 |

Scores on Positive Affect and Negative Affect were moderate and did not differ substantially at times 1 and 2, although the mean score for Positive Affect reduced slightly and the mean score for Negative Affect increased somewhat at time 2. In addition the range of scores for Positive affect and Negative Affect was wider at time 2. Scores on Threat and Challenge were also moderate (given a possible total score of 12 on both these sub-scales). Scores for Benefit and Harm were particularly low given a possible total score of 16 for Benefit and 20 for Harm. An increase in the mean scores for Challenge, Harm and Benefit at time 2 was noted, whereas the mean score for Threat was largely consistent. The low scores for Benefit and Harm at times 1 and 2

were not surprising, given that these are both retrospective emotion categories and even the time 2 administration of this study was conducted prior to subjects receiving their exam results and hence was characterised more by anticipatory emotions.

**Table 7.9 - Descriptive statistics for GHQ1 and GHQ2**

| Variable | N | Mean | Std Dev | Minimum | Maximum |
|---|---|---|---|---|---|
| **Somatisation 1** | 151 | 15.37 | 4.61 | 7.00 | 26.00 |
| **Somatisation 2** | 148 | 16.38 | 5.11 | 7.00 | 28.00 |
| **Social Dysfunction 1** | 151 | 15.03 | 3.89 | 7.00 | 27.00 |
| **Social Dysfunction 2** | 148 | 16.06 | 3.86 | 8.00 | 28.00 |
| **Depression 1** | 151 | 11.33 | 4.8 | 7.00 | 27.00 |
| **Depression 2** | 148 | 10.98 | 4.84 | 7.00 | 28.00 |
| **Anxiety 1** | 151 | 16.62 | 4.65 | 8.00 | 28.00 |
| **Anxiety 2** | 148 | 18.09 | 5.15 | 7.00 | 28.00 |
| **GHQ1** | 151 | 14.58 | 3.75 | 7.50 | 26.50 |
| **GHQ2** | 148 | 15.37 | 3.98 | 9.25 | 28.00 |

Scores across the various GHQ sub-scales were high at both times 1 and 2 and the range of scores across the scales was wide and consistent across time. Scores on the total GHQ, Social Dysfunction, Somatisation and Anxiety sub-scales increased at time 2, whereas the score for Depression reduced slightly. The standard deviations for the sub-scales remained largely consistent at times 1 and 2. It appeared that while there was some minor variation over time in reported symptomology, subjects' levels of distress were surprisingly high at the outset and continued to remain so.

**Table 7.10 - Percentage of GHQ scores above the diagnostic cut-off**

| | GHQ1 | GHQ2 |
|---|---|---|
| **>6** | 61.59 | 73.65 |

Over 50% of the sample fell above the cut-off of 6 at time 1, rating themselves as manifesting clinical symptoms indicative of a significant degree of severe psychological stress. By time 2, over two thirds of participants scored above the cut-off. In contrast to the moderate scores for affect, the participant groupings' scores for symptomology were very high and substantially worsened into the examination period. See Appendix 5 for a more detailed table indicating the diagnostic scoring frequencies.

## 2. RELATIONS BETWEEN PERSONAL STRIVINGS CONSTRUCTS AND THE STRESS PROCESS

This section answers research question 2 by identifying significant and non-significant relations between strivings constructs and other variables within the stressful transaction.

### 2.1. Associations between Goal Complementarity and other variables

This section addresses research question 2a. in specifying associations between Goal Complementarity and (i) Motivational Relevance; (ii) Motivational Congruence; (iii) the immediate effects and (iv) the long-term effects of the stressful transaction. Goal Complementarity showed significant associations with several variables as

illustrated in the table below:

**Table 7.11 - Significant correlations with Goal Complementarity**

| Variable | N | Complementarity |
|---|---|---|
| **Relevance 1** | 138 | 0.35**** |
| **Relevance2** | 134 | 0.32**** |
| **Congruence1** | 139 | 0.46**** |
| **Congruence2** | 133 | 0.33**** |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

There were highly significant strong to moderate, positive correlations between Goal Complementarity and Motivational Relevance and Congruence at times 1 and 2. No significant associations were identified between Goal Complementarity, and immediate and long-term effects prior to and after the event i.e. there were no significant correlations between Goal Complementarity and the Affect and GHQ measures at times 1 and 2. This indicates that Goal Complementarity, while related to measures of appraisal did not directly influence positive or negative affective outcomes. This may suggest that situational appraisal influences have a more central role to play (in contrast to the antecedent feature of Goal Complementarity) in shaping the stressful transaction.

### 2.2. Associations between Goal Conflict and other variables

This section addresses research question 2b. in specifying the associations between Goal Conflict and (i) Motivational Relevance; (ii) Motivational Congruence; (iii) the immediate effects and (iv) the long-term effects of the stressful transaction.

Goal Conflict showed significant associations with two variables as illustrated in the table below:

**Table 7.12 - Significant correlations with Goal Conflict**

| Variable | N | Goal Conflict |
|---|---|---|
| **Congruence 1** | 139 | -0.34**** |
| **Relevance 2** | 134 | -0.17* |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

Very few significant associations were identified between Goal Conflict and other variables in the stressful transaction. As might be anticipated Goal Conflict had a highly significant moderate, negative correlation with Motivational Congruence at time 1. Goal Conflict was weakly but significantly negatively correlated with Motivational Relevance at time 2 ($p<0.05$). However, in contrast to what theory and most prior research suggests, no direct associations with negative affective measures or long-term outcomes were identified. This lack of association may be a function of the generally low scores reported for Goal Conflict or may reflect specific features of how Goal Conflict relates to situational correlates such as appraisal within the stressful transaction.

## 3. INTERRRELATIONSHIPS BETWEEN PERSONAL STRIVINGS CONSTRUCTS AND THE STRESS PROCESS

This section addresses research questions 4 and 7 in clarifying the patterns across time of the relationship between Goal Conflict and Complementarity and other variables in

the stressful transaction. As indicated in section 2, Goal Conflict and Goal Complementarity manifested associations with primary appraisal measures. Hence this section endeavours to clarify the interrelationships between Goal Conflict and Complementarity and Motivational Relevance and Congruence over time. Goal Conflict and Goal Complementarity were not directly associated with any affect or GHQ outcome variables and therefore research questions 4 (iii) and (iv) could not be addressed.

On the basis of significant correlations, partial correlation analyses were conducted in order to test for mediator relationships. These analyses were based on theoretical considerations and were run on those variables where the preliminary statistical criteria for mediator relationships were fulfilled. For all the partial correlation procedures (see sections 3.1., 3.2., 5.1 and 5.2.) a table is presented stating the proposed independent variable (IV), mediator variable (MED) and dependent variable (DV). The correlations between the proposed independent and dependent variable (IV-DV-Corr), independent and mediator variable (IV-MED-Corr) and the mediator and dependent variable (MED-DV-Corr) are then stated. Thereafter the correlation between the independent and dependent variables, when the proposed mediator is partialled out (PART- Corr), is presented.

### 3.1. Mediator relationships with Goal Complementarity

Partial correlation procedures were followed to further clarify the nature of the relations

between Goal Complementarity and the primary appraisal measures. The results are presented in the table below.

**Table 7.13 - Partial correlations for Goal Complementarity**

| IV | MED | DV | IV-DV-Corr | IV-MED-Corr | MED-DV-Corr | PART-Corr |
|---|---|---|---|---|---|---|
| **Goal Comp** | Relev 1 | Relev 2 | 0.32**** | 0.35**** | 0.58***** | 0.16 |
| | Congr 1 | Congr 2 | 0.34**** | 0.46**** | 0.48**** | 0.16 |
| | Congr 1 | Relev 2 | 0.32**** | 0.46**** | 0.44**** | 0.16 |
| | Relev 1 | Congr 2 | 0.34**** | 0.35**** | 0.31**** | 0.26*** |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

When the effects of Motivational Relevance at time 1 were controlled for, the association between Goal Complementarity and the outcome variable of Motivational Relevance at time 2 weakened and was no longer significant. Hence Motivational Relevance (time 1) served as a mediator variable between Goal Complementarity and Motivational Relevance at time 2. The relation between Goal Complementarity and Motivational Congruence at time 2 also reduced in strength and was no longer significant when the effects of Motivational Congruence at time 1 were partialled out. Hence Motivational Congruence (time 1) served as a mediator variable between Goal Complementarity and Motivational Congruence at time 2. With regard to Motivational Relevance at time 2, its relationship with Goal Complementarity was weaker and no longer significant when Motivational Congruence at time 1 was partialled out. Hence Motivational Congruence at time 1 also served as a mediator variable between Goal Complementarity and Motivational Relevance at time 2. The partialling out of

Motivational Relevance at time 1, only slightly weakened the still significant correlation between Goal Complementarity and Motivational Congruence at time 2. Hence the relationship between Goal Complementarity and Motivational Congruence at time 2 was largely independent of Motivational Relevance at time 1.

These findings suggest that it was the influence of Goal Complementarity on Relevance and Congruence at the anticipatory phase of the event that shaped its later impact on Relevance. Moreover, while the relationship between Complementarity and Congruence 2 was shaped by Congruence 1, it was largely independent of Relevance 1.

### 3. 2. Mediator relationships with Goal Conflict

A partial correlation procedure was followed to further clarify the nature of the relations between Goal Conflict and the primary appraisal measures. The results are presented in the table below:

**Table 7.14 - Partial correlations for Goal Conflict**

| IV | MED | DV | IV-DV-Corr | IV-MED-Corr | MED-DV-Corr | PART-Corr |
|---|---|---|---|---|---|---|
| **Goal Conflict** | Congr 1 | Relev 2 | -0.17* | -0.34**** | 0.44**** | -0.02 |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

When the effects of Motivational Congruence at time 1 were controlled for, the association between Goal Conflict and Motivational Relevance at time 2 weakened and

was no longer significant. Hence Motivational Congruence (time 1) was identified as a mediator variable in relation to Goal Conflict and Motivational Relevance at time 2. These findings suggest that conflicting goals reduced the likelihood of a situation being viewed as helpful to the achievement of goals, which in turn reduced the relevance of the situation to goals.

## 4. RELATIONS BETWEEN PRIMARY APPRAISAL AND THE STRESS PROCESS

This section answers research question 3 by identifying significant and non-significant relations between strivings constructs and other variables within the stressful transaction.

### 4.1. Associations between Motivational Relevance and other variables

This section addresses research question 3a. in specifying the associations between Motivational Relevance before and after the event and (i) Motivational Congruence; (ii) the immediate effects, and (iii) the long-term effects of the stressful transaction.

Motivational Relevance showed significant associations with the following variables:

**Table 7.15 - Significant correlations with Motivational Relevance 1 and 2**

| Variable | N | Relevance 1 | Variable | N | Relevance 2 |
|---|---|---|---|---|---|
| **Relevance 2** | 145 | 0.59**** | | | |
| **Congruence 1** | 151 | 0.52**** | **Congruence 1** | 146 | 0.44**** |
| **Congruence 2** | 143 | 0.31*** | **Congruence 2** | 142 | 0.53**** |
| **Positive Aff 1** | 151 | 0.2* | **Positive Aff 1** | 146 | 0.16* |
| **Challenge 1** | 151 | 0.16* | **Challenge 1** | 146 | 0.16* |
| **Threat 1** | 151 | 0.2* | | | |
| **Negative Aff 2** | 146 | 0.25** | | | |
| **Threat 2** | 147 | 0.26** | | | |
| **Somatisation 2** | 147 | 0.16* | | | |
| **Anxiety 2** | 147 | 0.22** | | | |
| **GHQ 2** | 147 | 0.2** | | | |

*P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

Motivational Relevance particularly at time 1 was significantly related to a number of other variables. Motivational Relevance 1 had a strong and highly significant correlation with Motivational Relevance 2 and Motivational Congruence 1. A somewhat weaker correlation at the five percent significance level was identified between Motivational Relevance at time 1 and Motivational Congruence at time 2. Motivational Relevance 1 was associated with some immediate effects at time 1, with weak but significant correlations with Positive Affect, Challenge and Threat emotions.

Motivational Relevance 1 showed significant correlations with both immediate and long-term effects at time 2. More specifically Motivational Relevance at time 1 had a weak,

statistically significant correlation with Negative Affect and Threat emotion at time 2. Weak, statistically significant correlations were also evident between Motivational Relevance at time 1 and the GHQ, Somatisation and Anxiety sub-scales at time 2.

Very few significant associations were identified between Motivational Relevance at time 2 and other variables in the stressful transaction. Motivational Relevance at time 2 was highly, significantly correlated with other appraisal measures of Motivational Relevance at time 1 (as discussed above) and Motivational Congruence at times 1 and 2. It was weakly correlated with Positive Affect and Challenge at time 1.

These findings suggest the importance of Relevance 1 in particular in shaping negative outcomes at Time 2.

**4.2. Associations between Motivational Congruence and other variables**

This section addresses research question 3b. in specifying the associations between Motivational Congruence before and after the event and (i) Motivational Relevance; (ii) the immediate effects, and (iii) the long-term effects of the stressful transaction. Motivational Congruence showed significant associations with the following variables:

**Table 7.16 - Significant correlations with Motivational Congruence 1 and 2**

| Variable | N | Congruence 1 | Variable | N | Congruence 2 |
|---|---|---|---|---|---|
| **Congruence 2** | 143 | 0.48**** | | | |
| **Relevance 1** | 151 | 0.52**** | **Relevance 1** | 143 | 0.31*** |
| **Relevance 2** | 146 | 0.44**** | **Relevance 2** | 142 | 0.53**** |
| **Positive Aff 1** | 152 | 0.25** | **Positive Aff 1** | 143 | 0.21** |
| | | | **Challenge 1** | 143 | 0.17* |
| **Benefit 1** | 151 | 0.18* | **Benefit 1** | 142 | 0.2* |
| | | | **Harm 1** | 142 | -0.19* |
| **Positive Aff 2** | 148 | 0.27*** | **Positive Aff 2** | 143 | 0.34**** |
| | | | **Challenge 2** | 143 | 0.3*** |
| | | | **Benefit 2** | 142 | 0.17* |
| | | | **Threat 2** | 143 | -0.23** |
| | | | **Harm 2** | 142 | -0.25** |
| | | | **Social Dys 2** | 143 | -0.3*** |
| | | | **Depression 2** | 143 | -0.18* |
| | | | **GHQ2** | 143 | -0.19* |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

A number of variables were significantly correlated with Motivational Congruence at time 1 but more particularly at time 2. Motivational Congruence at time 1 had a strong and highly significant correlation with Motivational Congruence at time 2. Correlations between Motivational Congruence (at both times 1 and 2) and Motivational Relevance are described in the previous section detailing the correlations with Motivational

Relevance. Other significant associations with Motivational Congruence 1 were the weak and moderately significant correlations with Benefit emotion at time 1 and Positive Affect at times 1 and 2.

Motivational Congruence at time 2 was weakly correlated at the five percent significance level with Positive Affect, Challenge and Benefit emotions at time 1. A weak, negative correlation with Harm 1 was also evident. A somewhat stronger correlation between Motivational Congruence at time 2 and Positive Affect at time 2 ($r= 0.35$, $p<0.0001$) and a moderate statistically significant correlation with Challenge emotion at time 2 were identified. A weak correlation was identified with Benefit at time 2. Motivational Congruence at time 2 also had weak but significant negative correlations with Harm and Threat emotions. A highly significant, moderate negative correlation with Social Dysfunction and weak but significant ($p<0.05$) negative correlations were identified with the GHQ2 and the Depression sub-scale.

These findings point to the association of Congruence across the stressful transaction with positive emotion and long term outcomes and, more specifically, to the role of Motivational Congruence 2 in shaping positive outcomes and ameliorating negative effects at Time 2.

## 5. INTERRELATIONSHIPS BETWEEN PRIMARY APPRAISAL PROCESSES AND THE STRESS PROCESS

This section addresses research questions 5, 6 and 7 in clarifying the patterns across time of the relationship between Motivational Relevance and Congruence and other variables within the stressful transaction. As indicated in section 4, there were a range of associations between Relevance and Congruence and other measures in the stressful transaction. These findings suggest possible relations between the various appraisal constructs, and specifically links between Motivational Relevance at time 1 and negative outcomes, and links between Motivational Congruence at time 2 and positive outcomes. The interrelationships between Motivational Relevance and Congruence and affect and the GHQ across time were explored within the framework of theoretically based and empirically indicated mediator relationships. With regard to Relevance 1 and Congruence 1 and 2, partial correlation procedures were conducted using either affect or appraisal-based variables as mediators, and affect and GHQ variables as dependent variables. Partial correlations were not run for Relevance 2 given the lack of associations with outcome variables at time 2. Those relations that fulfilled the statistical criteria for mediation, made theoretical sense and had explanatory value are reported on in section 5.1 and 5.2. Through the application of ANOVA analyses, section 5.3. explores possible interrelationships between various Relevance Congruence combinations, affective outcomes and the GHQ.

## 5.1. Mediator relationships with Motivational Relevance

### Table 7.17 - Partial Correlations for Motivational Relevance 1

| IV | MED | DV | IV-DV-Corr | IV-MED-Corr | MED-DV-Corr | PART-Corr |
|---|---|---|---|---|---|---|
| **Relev 1** | Congr 2 | Threat 2 | 0.25*** | 0.31**** | -0.23** | 0.34**** |
| | Congr 2 | GHQ2 | 0.2** | 0.31**** | -0.19* | 0.29*** |
| | Pos Aff 1 | Anxiety 2 | 0.22** | 0.2** | -0.17* | 0.26*** |
| | Pos Aff 1 | Somat 2 | 0.16* | 0.2** | -0.16* | 0.2* |
| | Pos Aff 1 | GHQ 2 | 0.2** | 0.2** | -0.21** | 0.26** |
| | Threat 1 | Anxiety 2 | 0.22** | 0.2* | 0.49**** | 0.16* |
| | Threat 1 | Somat 2 | 0.16* | 0.2* | 0.28*** | 0.12 |
| | Threat 1 | GHQ2 | 0.2** | 0.2* | 0.44**** | 0.14 |
| | Threat 2 | Anxiety 2 | 0.22** | 0.26** | 0.62**** | 0.08 |
| | Threat 2 | Somat 2 | 0.16* | 0.26** | 0.46**** | 0.05 |
| | Threat 2 | GHQ2 | 0.2** | 0.26** | 0.58**** | 0.06 |
| | Neg Aff 2 | Anxiety 2 | 0.22** | 0.25** | 0.71**** | 0.07 |
| | Neg Aff 2 | Somat 2 | 0.16* | 0.25** | 0.5**** | 0.04 |
| | Neg Aff 2 | GHQ2 | 0.2** | 0.25** | 0.7**** | 0.04 |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

As indicated in the above table, when the potential mediator variable of Congruence 2 was partialled out, there was no reduction in the strength or significance of the relationship between Relevance 1 and Threat 2 and the GHQ2 respectively. In fact the correlation strengthened slightly. Similarly, in partialling out Positive Affect 1 the strength and significance of the correlations between Motivational Relevance 1 and

Anxiety, Somatisation and the GHQ (all at time 2) increased slightly. The findings also indicate that Threat 1 does not fulfil the criteria for a mediator variable with

regard to Relevance 1 and the outcome variable of Anxiety 2. The analyses do, however, indicate that Threat 1 does mediate the effect of Relevance 1 on Somatisation 2 and the GHQ 2. Threat 2 and Negative Affect 2 also mediate the effects of Motivational Relevance on Anxiety, Somatisation and the GHQ (all at time 2).

These findings suggest that Relevance at time 1 had a direct impact with regard to negative affective outcomes particularly at time 2, which in turn had negative consequences for psychological wellbeing. They also suggest that Positive Affect 1 and Congruence 2 may slightly weaken the relationship between Relevance 1 and negative outcomes.

### 5.2. Mediator relationships with Motivational Congruence

**Table 7.18 - Partial Correlations for Motivational Congruence 1**

| IV | MED | DV | IV-DV-Corr | IV-MED-Corr | MED-DV-Corr | PART-Corr |
|---|---|---|---|---|---|---|
| **Congr 1** | Pos Aff 1 | Pos Aff 2 | 00.27*** | 0.25** | 0.59**** | 0.16* |
| | Congr 2 | Pos Aff 2 | 0.27*** | 0.48**** | 0.34**** | 0.14 |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

When the effects of Motivational Congruence at time 2 were controlled for, the association between Motivational Congruence at time1 and Positive Affect at time 2

weakened and was no longer significant. Hence Motivational Congruence (time 2) served as a mediator variable between Motivational Congruence (time 1) and positive affect at time 2. The partialling out of Positive Affect at time 1, significantly weakened and reduced the correlation between Motivational Congruence at time 1 and Positive Affect at time 2. Hence Positive Affect at time 1 also served to mediate some of the effects of Motivational Congruence (time1) on Positive Affect at time 2.

**Table 7.19 - Partial Correlations for Motivational Congruence 2**

| IV | MED | DV | IV-DV-Corr | IV-MED-Corr | MED-DV-Corr | PART-Corr |
|---|---|---|---|---|---|---|
| **Congr 2** | Benefit 2 | Soc Dys 2 | -0.3*** | 0.17* | -0.27**** | -0.25** |
| | Benefit 2 | GHQ 2 | -0.19* | 0.17* | -0.25** | -0.13 |
| | Chall 2 | Dep 2 | -0.18* | 0.3*** | -0.17* | -0.14 |
| | Chall 2 | Soc Dys | -0.3*** | 0.3*** | -0.37**** | -0.22** |
| | Chall 2 | GHQ 2 | -0.19* | 0.3*** | -0.25** | -0.12 |
| | Pos Aff 2 | Soc Dys | -0.3**** | 0.34**** | -0.38* | -0.19* |
| | Pos Aff 2 | GHQ 2 | -0.19* | 0.34**** | -0.24** | -0.1 |
| | Threat 2 | Dep 2 | -0.18* | -0.22** | 0.4**** | -0.1 |
| | Threat 2 | Soc Dys | -0.3*** | -0.23** | 0.48**** | -0.22** |
| | Threat 2 | GHQ 2 | -0.19* | -0.22** | 0.59**** | -0.06 |
| | Harm 2 | Dep 2 | -0.18* | -0.25** | 0.68**** | -0.01 |
| | Harm 2 | Soc Dys | -0.3**** | -0.25** | 0.54**** | -0.18* |
| | Harm 2 | GHQ 2 | -0.19* | -0.25** | 0.62**** | -0.02 |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

The above table indicates that when the effects of Benefit 2, Challenge 2, Positive Affect 2, Threat and Harm 2 were respectively partialled out, the relationship between

Motivational Congruence 2 and the total GHQ score at time 2 was no longer significant. The influence of Congruence 2 on Depression 2 was also mediated via Threat, Harm and Challenge emotions at time 2. The findings also suggest that the relation between Motivational Congruence 2 and Social Dysfunction 2 was largely independent of the proposed mediator variables of Benefit 2, Challenge 2, Positive Affect 2, Threat and Harm 2.

These findings point to the role of Motivational Congruence 1 in generating positive affective outcomes into the event. They also show that Congruence 2 had a direct impact on positive affective outcomes (and dampened negative affective responses), thereby reducing levels of symptomology as measured by the GHQ.

### 5.3. Motivational Relevance-Congruence groupings

Given suggested patterns of relationship in the literature this section attempted to address various Motivational Relevance-Congruence combinations across time and their relation to outcomes.

One-way ANOVAS were conducted by dividing the sample grouping according to high and low Relevance-Congruence groupings at times 1 and 2 and calculating whether these various combinations had different influences on outcome variables. Comparison groupings for the one-way ANOVA included: **Group A** with low Motivational Relevance and an undefined score for Congruence, **Group B** with high Motivational Relevance and low Congruence and **Group C** with high Relevance and high Congruence The time-

based combinations looked at these 3 sub-groups in respect of Relevance and Congruence at time 1, Relevance and Congruence at time 2, Relevance at time 1 and Congruence at time 2 and Relevance at time 2 and Congruence at time 1.

The following tables present a summary of significant findings regarding the ANOVAS. As an initial explanatory step, the findings regarding the various time combinations and the group comparisons are presented below. Thereafter (in the summary of this chapter), the findings are related to research question 6. The means for each grouping, F-values with indications of significance, the eta squared values and the significance levels for the pair-wise comparisons utilising the Fisher's least significant difference procedure are all reported on.

As indicated in tables 7.20 to 7.23 below, the **eta squared scores** ranged from 3.8% to 9.2%. According to Huck (2004) an eta squared of 1% and above is considered small, 6% and above medium and over 15% large. Generally membership of the various groupings thus accounted for a small to medium percentage of the variability for the outcome variables associated with each particular combination.

**Table 7.20 - Significant ANOVAS for Relevance1 Congruence 1**

| Dep Var | Mean A N=30 | Mean B N=37 | Mean C N=85 | F ratio | Eta-sq | Pval A-B | Pval A-C | Pval B-C |
|---|---|---|---|---|---|---|---|---|
| Threat2 | 5.5 | 5.5 | 6.59 | 4.05* | 5.3 | 0.18 | 0.01** | 0.18 |
| Neg Aff2 | 10.18 | 13.06 | 14.71 | 3.14* | 4.2 | 0.17 | 0.01** | 0.32 |
| Anxiety2 | 15.73 | 18.78 | 18.57 | 3.77* | 4.9 | 0.02* | 0.01** | 0.83 |
| Depress2 | 8.96 | 11.24 | 11.54 | 3.11* | 4.1 | 0.06 | 0.02* | 0.76 |
| GHQ 2 | 13.44 | 15.76 | 15.84 | 4.21* | 5.5 | 0.02* | 0.01** | 0.92 |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

Table 7.20 indicates the following findings with regard to the **Relevance 1 Congruence 1** combination:

**Groups A-B: Comparing the low Relevance, unspecified Congruence with the high Relevance, low Congruence grouping**

Subjects with low Relevance, unspecified Congruence (time 1) had lower mean scores on the GHQ2, and Anxiety sub-scales (at time 2) in contrast to subjects with high Relevance, low Congruence at time 1.

**Groups A-C: Comparing the low Relevance, unspecified Congruence with the high Relevance, high Congruence grouping**

The group of participants with low Motivational Relevance 1, unspecified Congruence 1 in contrast to participants with high Relevance and high Congruence (time 1) had significantly lower scores on the immediate effects of Threat and Negative Affect at time 2. With regard to long-term effects a significant difference was recorded between the means of these groups for the GHQ2 and the Depression and Anxiety sub-scales (time 2) with the low Relevance grouping exhibiting lower scores.

**Groups B-C: Comparing the high relevance, low Congruence with the high relevance, high Congruence grouping**

No significant differences were noted in scores between the high Relevance 1, low Congruence 1 and high Relevance 1, high Congruence 1 groupings.

**Table 7.21- Significant ANOVAS for Relevance 1 Congruence 2**

| Dep Var | Mean A N=30 | Mean B N=69 | Mean C N=53 | F ratio | Eta -sq | Pval A-B | Pval A-C | Pval B-C |
|---|---|---|---|---|---|---|---|---|
| Chall1 | 5.67 | 5.41 | 6.4 | 3.05* | 3.9 | 0.59 | 0.15 | 0.02* |
| Threat1 | 5.87 | 7.61 | 6.78 | 3.37* | 4.3 | 0.01** | 0.2 | 0.15 |
| Pos Aff2 | 16.93 | 14.39 | 19.33 | 5.36** | 6.9 | 0.17 | 0.21 | 0.001*** |
| Chall2 | 6.18 | 5.39 | 6.93 | 6.79** | 8.6 | 0.13 | 0.16 | 0.0003*** |
| Benefit2 | 1.09 | 0.97 | 1.36 | 3.62* | 4.8 | 0.51 | 0.15 | 0.01** |
| Threat2 | 5.5 | 7.86 | 6.36 | 6.52** | 8.2 | 0.001*** | 0.25 | 0.01** |
| Neg Aff2 | 10.18 | 15.44 | 12.68 | 4.32* | 5.7 | 0.01** | 0.2 | 0.07 |
| Anxiety2 | 15.73 | 18.94 | 18.25 | 4.04* | 5.3 | 0.01** | 0.03* | 0.46 |
| Soc Dys2 | 14.68 | 17.2 | 15.36 | 5.97** | 7.6 | 0.003** | 0.44 | 0.01** |
| Depress2 | 8.96 | 11.81 | 10.99 | 3.52* | 4.6 | 0.01** | 0.07 | 0.35 |
| GHQ2 | 13.44 | 16.19 | 15.35 | 4.94** | 6.4 | 0.002** | 0.04* | 0.24 |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

Table 7.21 indicates the following findings with regard to the **Relevance 1 Congruence 2** combination:

**Groups A-B**

The mean scores for participants with low Relevance 1, unspecified Congruence 2 were significantly lower than the high Relevance 1, low Congruence 2 grouping, with regard to negative immediate affective outcomes (Threat 1 and 2, Negative Affect 2) and long-term negative effects (as measured by the GHQ2 and Social Dysfunction, Anxiety and Depression sub-scales).

**Groups A-C**

The grouping with low Relevance 1, unspecified Congruence 2 in contrast to the high Relevance at time 1 and high Congruence at time 2 grouping had significantly lower scores on the GHQ 2 and the Anxiety sub-scale (at time2).

**Groups B-C**

The high Relevance 1, high Congruence 2 grouping in contrast to subjects with high relevance at time 1 and low Congruence at time 2 had significantly higher scores for Challenge at times 1 and 2 and Benefit and Positive Affect at time 2. The high Relevance (time 1), low Congruence (time 2) and the high Relevance (time 1), high Congruence (time 2) groupings also varied with regard to Threat 2 and Social Dysfunction 2. Significantly higher scores for these variables were noted in the high Relevance (time 1), low Congruence (time 2) grouping.

**Table 7.22 - Significant ANOVAS for Relevance 2 Congruence 2**

| Dep Var | Mean A N=35 | Mean B N=60 | Mean C N=57 | F ratio | Eta-sq | Pval A-B | Pval A-C | Pval B-C |
|---|---|---|---|---|---|---|---|---|
| Pos Aff1 | 15.57 | 16.22 | 18.99 | 2.97* | 3.8 | 0.69 | 0.04* | 0.05* |
| Chall1 | 5.26 | 5.6 | 6.35 | 3.05* | 3.9 | 0.47 | 0.02* | 0.07 |
| Pos Aff2 | 15.06 | 14.57 | 19.67 | 6.44** | 8.2 | 0.78 | 0.01** | 0.001*** |
| Chall2 | 5.94 | 5.35 | 6.96 | 7.36*** | 9.2 | 0.25 | 0.05* | 0.0002*** |
| Benefit2 | 1.09 | 0.92 | 1.37 | 4.7** | 6.1 | 0.33 | 0.12 | 0.003** |
| Threat 2 | 5.87 | 7.74 | 6.51 | 4.02* | 5.3 | 0.01** | 0.38 | 0.04* |

* P< 0.05 **P<0.01 ***P<0.001 ****P<0.0001

Table 7.22 indicates the following findings with regard to the **Relevance 2 Congruence 2** combination:

**Groups A-B**

With regard to Threat at time 2 subjects with low Relevance, unspecified Congruence (at time 2) had significantly lower scores in contrast to subjects with high Relevance but low Congruence at time 2.

**Groups A-C**

With regard to Positive Affect and Challenge (time 1) the group of participants with low Motivational Relevance and unspecified Congruence had significantly lower scores than the high Relevance, high Congruence grouping at time 2. Significantly lower mean

scores were also noted with regard to Challenge and Positive Affect at time 2 for the low Relevance, unspecified Congruence at time 2 in contrast to the high Relevance, high Congruence at time 2 grouping.

**Groups B-C**

Subjects with high Relevance and high Congruence (time 2) had a significantly higher mean score for Positive Affect 1 in contrast to subjects with high Relevance and low Congruence at time 2. With regard to Positive Affect, Challenge and Benefit at time 2, the grouping with high Relevance and Congruence (time 2) had significantly higher scores on all these variables than the high Relevance, low Congruence (time 2) grouping. Scores on Threat 2 for subjects with high Relevance, low Congruence at time 2 were also significantly higher in contrast to the high Relevance, high Congruence (time 2) grouping.

**Table 7.23 - Significant ANOVAS for Relevance 2 Congruence 1**

* P< 0.05

| Dep Var | Mean A N=35 | Mean B N=37 | Mean C N=80 | F ratio | Eta-sq | Pval A-B | Pval A-C | Pval B-C |
|---|---|---|---|---|---|---|---|---|
| Threat2 | 5.87 | 6.41 | 7.48 | 3.26* | 4.3 | 0.5 | 0.02* | 0.1 |

**P<0.01 ***P<0.001 ****P<0.0001

Table 7.23 indicates the following findings with regard to the **Relevance 2 Congruence 1** combination:

**Groups A-B**

No significant differences were noted in the mean scores between the low Relevance 2, unspecified Congruence 1 and the high Relevance 2, low Congruence 1 groupings.

**Groups A-C**

Scores on Threat 2 for subjects with low Relevance (time 2), unspecified Congruence were significantly lower in contrast to the high Relevance (time 2), high Congruence (time 1) grouping.

**Groups B-C**

No significant differences were noted in the mean scores between the high Relevance 2, low Congruence 1 and the high relevance 2, high Congruence 1 groupings.

Overall these findings suggest the influence of time-related variations in Relevance and Congruence. They indicate a general association of low Relevance with reduced affect, a great deal of variation in relation to the high Relevance, high Congruence group and generally elevated scores on negative affect for the high Congruence, low Relevance grouping (although these scores were comparable to the high Relevance, high Congruence group). They also suggest a defining role for Relevance 1 and Congruence 2 in terms of their influence on negative and positive outcomes respectively. These findings are summarised in relation to the research questions in the following section, which will form the basis for the discussion of the ANOVA analyses in the next chapter.

## 6. SUMMARY OF FINDINGS

### 6.1. Results regarding Goal Conflict and Goal Complementarity

**Research question 2.**

- Goal Complementarity and Goal Conflict were associated with very few variables within the stressful transaction.
- Goal Complementarity was positively associated with all the primary appraisal measures and not with any immediate or long-term outcomes.
- Goal Conflict was negatively associated with the primary appraisal measures of Motivational Congruence (time 1) and Motivational Relevance (time 2) and not with any immediate or long-term outcomes.
- These results point to a pattern of association between Goal Complementarity and Conflict and the Motivational Relevance and Congruence measures within the stressful transaction.

**Research questions 4. and 7.**

With regard to the mediational analyses for **Goal Complementarity**-

- Motivational Relevance 1 and Motivational Congruence 1 served as mediator variables between Goal Complementarity and Motivational Relevance at time 2.
- Hence it was the influence of Goal Complementarity on Relevance and Congruence at the anticipatory phase of the event that shaped its later impact on Relevance.
- Motivational Congruence 1 served as a mediator variable between Goal Complementarity and Motivational Congruence at time 2, but the relationship between Goal Complementarity and Motivational Congruence at time 2 was largely independent of Motivational Relevance at time 1.

- The relationship between Complementarity and Congruence 2 was shaped by Congruence 1, but was independent of Relevance 1.

With regard to the mediational analyses for **Goal Conflict** -

- Motivational Congruence 1 served as a mediator variable in relation to Goal Conflict and Motivational Relevance at time 2.
- Hence Goal Conflict reduced the likelihood of a situation being viewed as helpful to the achievement of goals which in turn reduced the Relevance of the situation to goals.

## 6.2. Results regarding Motivational Relevance and Congruence

**Research question 3.**

- Motivational Relevance and Congruence had strong patterns of association with each other across times 1 and 2.
- Motivational Relevance 1 in particular was positively associated with immediate affective outcomes at time 1 and 2 as well as negative emotions and long-term negative outcomes at time 2.
- Motivational Relevance 2 was positively associated immediate affective outcomes at time 1.
- Motivational Congruence at time 1 positively associated with positive immediate affective outcomes at times 1 and 2.
- Motivational Congruence 2 in particular was positively associated with positive immediate affective outcomes at time 1 and 2 and negatively correlated with

long-term negative outcomes at time 2.

- These results highlight the centrality of Motivational Relevance 1 and Motivational Congruence 2 in shaping outcomes in relation to the stressful transaction.

**Research questions 5. and 7.**

With regard to the mediational analyses for **Motivational Relevance**-

- Relevance at time 1 had a direct impact with regard to negative affective outcomes particularly at time 2, which in turn had negative consequences for psychological wellbeing.
- Positive Affect 1 and Congruence 2 slightly weakened the relationship between Relevance 1 and negative outcomes.

With regard to the mediational analyses for **Motivational Congruence** –

- Motivational Congruence 1 affected Positive Affect and Congruence into the event which in turn, generated positive affective outcomes into the event.
- Congruence 2 had a direct impact on positive affective outcomes (and dampened negative affective responses), thereby reducing levels of symptomology as measured by the GHQ.

**Research questions 6 and 7.**

Regarding **Relevance Congruence combinations**, the ANOVA calculations suggest that:

- Membership of the various Relevance-Congruence groupings accounted for a small to medium degree of the variability in outcome variables.

The patterns identified in relation to specific Relevance-Congruence combinations

across time showed:

- **Research question 6(i)** - The **high Relevance, low Congruence** group (group B) was associated to varying degrees across the stressful transaction with elevated scores for negative outcomes and lowered scores on positive outcomes. Membership of the high Relevance 1, low Congruence 1 group was associated with elevated mean scores for Anxiety 2 and the GHQ 2 relative to group A. High Relevance 1, low Congruence 2 was associated with elevated scores on negative affective outcomes and the GHQ 2 relative to group A, and reduced positive affective outcomes relative to group C. High Relevance 2 low Congruence 2 was associated with elevated Threat 2 relative to group A and reduced scores for positive affective outcomes relative to group C.
- **Research question 6(ii)** - The **high Relevance high Congruence** group (group C) was associated with varying differences in mean scores for outcome variables given different time combinations. Membership of the High Relevance 1 High Congruence 1 group was associated with higher mean scores on negative affective outcomes and the GHQ relative to group A. Subjects with high Relevance 1 and high Congruence 2 had elevated mean scores on positive affective outcomes and a reduced score on Social Dysfunction 2 relative to Group B, as well as elevated scores on Anxiety 2 and the GHQ 2 relative to group A. High Relevance 2 and Congruence at time 2 was related to elevated mean scores on positive affective outcomes relative to group A and B, and reduced Threat 2 relative to group B. The high Relevance 2 and high Congruence 1 combination yielded a significantly higher mean score for Threat 2 relative to Group A. The influence of the high Relevance

high Congruence group was highly variable across the stressful transaction and suggests that this combination has vastly different implications with regard to outcomes depending on when the appraisals occur.

- **Research question 6(iii)** - Membership of the **low Relevance, unspecified Congruence** group (group A) was associated with reduced affective outcomes across the stressful transaction. Low Relevance at time 1 was associated with reduced mean scores on negative affective outcomes relative to group C and reduced scores on some of the GHQ sub-scales at time 2, relative to the other groupings. Low Relevance at time 2 was associated with reduced mean scores on positive affective outcomes relative to group C and reduced mean scores for Threat 2 relative to group B.

Having presented and described the results of the statistical analyses, the thesis will proceed with a discussion of these results.

# CHAPTER EIGHT- DISCUSSION

The overarching aim of this study was to explore the relations between features of personal strivings, appraisals, emotions and responses of subjects. The central research question investigated how the motivational components of the stressful transaction, the personal strivings constructs of Goal Conflict and Complementarity and the primary appraisal dimensions of Motivational Relevance and Congruence, were related to immediate and long-term effects emerging out of the stressful transaction across time. In unpacking this question further the study identified three core dimensions - the general relations between the variables, the nature of the interrelationships between variables and changes across time. The goal of this chapter is to discuss the results in terms of the light they shed on the research questions posed and how that relates to existing literature in the field.

The chapter first addresses the results regarding the descriptive statistics and internal reliability of the measures employed. These results provide a context within which the findings regarding the research questions can be located and interpreted. Thereafter the chapter proceeds with a discussion and elaboration of the results through addressing research questions 2 to 7, contextualising these findings within existing theory and research.

## 1. INTER-ITEM CONSISTENCY AND DESCRIPTIVE STATISTICS

### 1.1. Inter-item consistency (see Table 7.1)

Alpha scores for Positive Affect, Negative Affect and Appraisal-Based Emotions were generally high at Times 1 and 2 ranging between 0.74 and 0.89. Scores for challenge emotion at Times 1 and 2 were somewhat lower at 0.6 and 0.59 respectively. These alpha scores point to satisfactory reliability with regard to all the emotion sub-scales utilised in this study and are consistent with prior findings regarding these scales, including the fact that the Challenge sub-scale tends to have lower consistency than the others (Folkman & Lazarus, 1985, Watson & Clark, 1988). Hence findings regarding the Challenge scale should be viewed with some caution (Folkman & Lazarus, 1985). The Cronbach's reliability coefficients for the GHQ total and Sub-Scales at times 1 and 2 also indicated high levels of internal consistency for the GHQ across the board. These scores are consistent with other studies and endorse the reliability of the GHQ-28 (Banks et al, 1980; Goldberg, 1972).

The measure of inter-item consistency for the Motivational Relevance and Congruence scales requires some elaboration. The measures of internal reliability for Motivational Relevance varied from 0.34 at time 1 to 0.63 at time 2 and for Motivational Congruence from 0.46 at time 1, to 0.69 at time 2. As discussed in the methodology section, the notion of reliability with regard to these constructs is questionable, as individuals may have many goals, some of which may be competing, and each goal may have very different implications with regard to their Relevance and Congruence. Hence these measures do not fulfill the criteria for a scale as such and internal consistency is not necessarily a requirement or indicator of their efficacy in measuring what they purport to

measure. Nevertheless the alpha scores do indicate some interesting trends in the internal consistency of these measures. Both Motivational Relevance (0.34 and 0.63) and Congruence (0.46 and 0.69) indicate increased internal reliability into the examination period in contrast to prior to the examination. It seems that prior to the examination there was a higher degree of variability with regard to how subjects assessed the significance of the examination to each goal and whether or not the examination period was perceived as obstructing or aiding the achievement of each goal. In contrast, following the examination, the higher alpha scores suggest greater consistency across the goals in terms of how each goal was appraised with regard to its Relevance and Congruence.

These findings relate to Folkman and Lazarus (1985) and Skinner and Brewer's (2002) discussion regarding differences between the anticipatory and later phases of an examination period. They point to the uncertainty, possibilities for further appraisal and coping attempts, and the range of emotions, that characterize the anticipatory period. In contrast, immediately following the examination the subject has clarity with regard to the nature and content of the examination, a more defined appraisal of it's implications for various goals and a more defined and constrained emotional experience. The researcher holds that these stages of the stressful transaction impact on cognitive processes, accounting for the variations in appraisal with regard to an individual's goals. These factors may account for greater diversity of appraisal prior to the event and the more consistent appraisal of Relevance and Congruence across goals at time 2. These measures of internal reliability cannot be compared to any other studies, given that such

issues have not been explored with regard to these constructs in existing published studies.

Overall these scores point to generally satisfactory alpha scores across the scales. The appraisal construct alpha scores indicate the nature of subjects' ratings of their goal systems and provide additional information regarding these constructs.

### 1.2. Descriptive statistics

#### 1.2.1. Goal Conflict and Complementarity (see Tables 7.3 and 7.4)

Most subjects evaluated their goal systems as primarily harmonious or cohesive (where the achievement of each goal aided in the achievement of others) and reported low levels of conflict. The mean score of 0.64 for Goal Complementarity and for Goal Conflict of 0.18 indicates that on average, 64% of the participants had primarily complementary goal systems and 18% of subjects had primarily conflicting striving systems. The remaining 18% percent of the participants had goal systems characterised by neutral relations between strivings, indicating a system where goals were largely independent of each other.

The high levels of integration and low percentage of independent and conflicting strivings may point to specific features of the event and the population under investigation. Although participants were asked to generate overarching goals, the

generation of these goals may have been coloured by their proximity to the examination period and specific reference to the examination period stated in the questionnaire. In addition, the defined nature of the exam period as a specific time-limited event fits with Emmons (1989) proposition that the more specific an event, the more likely it is that individual striving systems will be characterised by uniformity and overarching, unifying motive dispositions (Emmons, 1989).

In reporting high levels of goal integration, this student population's profile is consistent with the student participants of Downie et al's 2006 and Segerstrom and Solberg-Nes's (2006) studies and research by Colby (1996 cited in Emmons, 1999) offers further insight regarding this finding. Colby holds that the process of identity formation is associated with the integration of conflicting goals. Colby's study showed that undergraduate university students in the moratorium phase of development report more Goal Conflict in contrast to students in other phases of identity development. Given that the student population in this study was at a fairly advanced stage in their studies and had a mean age of 23 years, their integrated striving systems may reflect a more cohesive stage of identity formation. These integrated striving systems may also reflect the generation of strivings that are highly related to the specific university context and the developmental concerns of young adulthood, and as such, are more cohesive. Perhaps a highly focused and more mature student population is characterized by primarily complementary striving systems.

A review of the goals participants listed endorsed these proposed explanations.

Although goals ranged from abstract to practical goals, those aimed at avoiding negative experiences to those directed toward the achievement of certain positive outcomes; the predominant focus and content of the goal systems was on academic and young adult concerns. For many subjects the goals rated higher in importance tended to have an achievement (e.g. “Doing well academically”) or examination focus (e.g. “To enter exams confident about the work”). Other goals listed, whilst very wide-ranging, tended to be congruent with the developmental concerns of young adults. They reflected a range of themes including intimacy, affiliation, personal growth and power (Emmons, 1989). Examples of goals listed included: “To trust my instincts”, “Avoid fighting with my friends and family”, “To try and have fun”, “To make sure to have enough time to rest”. Examples of lists of goals generated by participants are included in Appendix 6 by way of further illustration.

### 1.2.2. Primary appraisal (see Tables 7.5, 7.6 and 7.7)

#### Motivational Relevance

Scores for Motivational Relevance at times 1 and 2 indicate overall consistency in the manner in which subjects appraised the significance of the exams both prior to and well into the examination period. Despite the uncertainty and emotional complexity of the anticipatory phase, the initial appraisal of the Relevance of the situation held sway over time. A mean score of 19.6, the percentage frequency measures and an informal review of the questionnaires, indicate that subjects tended to rate their first and second

goals with a 4 (very important) or 5 (extremely important) at both times 1 and 2. There was much more variation across the ratings in the range of scores for the remaining four goals.

The range of scores for Motivational Relevance was somewhat wider at time 2 in comparison to time 1, although the standard deviation was not much greater. It would appear that there was a little more variation across the sample in terms of appraisals of Relevance following the examination. More specifically, following the event some participants may have been clearer in their appraisal of the event as either unimportant or extremely important in relation to their goals. Nevertheless the alpha scores indicate an overall increase in the consistency of ratings at time 2, suggesting perhaps that most subjects were more focussed in terms of what they wanted to achieve.

**Motivational Congruence**

Scores for Motivational Congruence at times 1 and 2 indicate some variation in the appraisal of the examination period as helpful to the achievement of goals prior to and into the examinations. Congruence seemed more sensitive than Relevance to the impact of the situation. This makes sense given that Relevance as a measure of importance of the situation to goals may be more strongly defined in relation to an internal self-definition, whereas Congruence as a measure of the helpfulness of the situation to goals is perhaps more influenced by the reality of whether the event was helpful or not. The range of scores for Motivational Congruence was somewhat wider at

time 2 in comparison to time 1, although the standard deviation was not much greater. Similar to Motivational Relevance, it would appear that some participants may have been clearer in their appraisal of the event as very unhelpful or very helpful to the achievement of their goals at the second point in time having already completed some exams. Nevertheless the alpha scores indicate an overall increase in the consistency of ratings at time 2 across all goals.

The mean scores, the percentage frequency measures and an informal review of the questionnaires, indicated that subjects tended to rate their first and second goals with a 4 (somewhat helpful to achieving the goal) or 5 (very helpful to achieving the goal) at time 1, with a wide range of scores in the ratings for the remaining four goals. At time 2 the first goal was still given a high rating, with a wide range of scores for the other five goals. This variation in time 1 and 2 ratings is reflected in the reduced mean score at time 2.

**General Comments**

The results suggest that for most participants, there was considerable range in their appraisals of Relevance and Congruence across their goals. Hence, in contrast to the concerns of other studies reported in the literature review (see Bennett et al, 2003; Waibel-Duncan & Sandler, 2001), a range of scores for Motivational Relevance and Congruence was present across the sample, allowing for a more textured elaboration of the role of this construct in the stress process. As described previously, calculations

comparing correlations with only the first 3 goals and all 6 goals indicated that although the top goals were rated more highly for Relevance and Congruence, the overall rating of the goal system was nevertheless significant in terms of its associations with outcome variables. Hence total scores for Relevance and Congruence were utilized in the analyses. The decision to utilize composite scores based on evaluations of all 6 goals was further indicated by the methodological imperative to include a range of scores and the wide spread in ratings with a substantial percentage of subjects (close to 30%) giving goals ranked even sixth a rating of 4 or 5 on Relevance and Congruence.

Lazarus (1999), in discussing Goal Conflict, highlights the fact that in any given situation more than one goal may be at stake and that the various goals may be in conflict with each other. He holds that the individual has to decide which of his/her goals are least and most important in any person-environment transaction. In the event of more complementary striving systems (as is the case in this study), it would appear that the process of selecting most to least important goals and the implications for Relevance and Congruence are diverse and complex. It does not seem that subjects ruled out the influence of the lower ranked goals (given the high ratings for Relevance and Congruence for a substantial percentage of these goals) in terms of negotiating the stressful transaction. This endorses the decision to utilize all Relevance and Congruence ratings and the proposal that the order in which goals were generated and presented may not be as central to the outcome of the individual-environment transaction in the context of high levels of Complementarity, as might be the case with

more diverse goal systems.

### 1.2.3. Emotions (see Table 7.8)

The findings regarding the various emotion scales suggest that at both times 1 and 2 participants experienced slight to moderate levels of both negative and positive emotions, with a slight increase in negative affect and fairly consistent positive affect across the exam period. With regard to the various appraisal emotion states participants also reported slight to moderate levels of the various emotions. These mild to moderate scores on emotion scales are consistent with scores obtained in Skinner and Brewer's 2002 study of 118 undergraduate students and are comparable with the Lazarus and Folkman (1985) study. The standard deviation scores and minimum and maximum scores across the various emotion scales indicate quite a wide variation in how individual participants rated their emotions.

In comparing these scores to Lazarus and Folkman's 1985 study which employed the same emotion scale, the overall scores on Threat, Harm and Challenge in the present study were comparable but somewhat higher. Scores on Benefit were also comparable but somewhat lower than the scores obtained in the Lazarus and Folkman (1985) study. With regard to the current study, at time 2 scores for the anticipatory emotions of Threat and Challenge remained high (with some increase in Challenge), the scores for retrospective emotions of Benefit increased to some extent and Harm increased substantially. The Folkman and Lazarus study found that Threat and Challenge also remained high (with some reduction in Threat) and that scores on Harm and Benefit

increased significantly.

In contrasting these findings it would appear that students in the current study experienced more negative emotion and less positive emotions than in the Folkman and Lazarus study. Into the exam period, students in this study still felt the anticipatory emotions of Threat and Challenge emotions, but also reported emotions relating to more retrospective forms of appraisal (i.e. Benefit and Harm) as part of what was anticipated in the form of Threat and Challenge became actualised primarily into Harm and some Benefit emotions. In both studies the continued ambiguity of the situation evoked both positive and negative emotions as well as anticipatory and retrospective emotions. However it would seem that subjects in the current study had stronger negative and anticipatory emotions into the exam period. This may be accounted for by the fact that in contrast to the students in Folkman and Lazarus study, the subjects in this study were all involved in challenging courses and many of the students in the current study still had other examinations to write. Hence whereas the time 2 measure in the Folkman and Lazarus study may been accompanied by some relief or positive feelings given that the exam was over even though marks were not yet known, most of the students in this study still felt the challenge and pressure of a demanding course and more exams ahead.

**1.2.4. Symptomology (see Tables 7.9 and 7.10)**

Given a possible total score of 28, the mean and standard deviation scores indicate

noteworthy levels of total symptomology at both times 1 (14.58) and 2 (15.37) with higher levels of symptomology evident into the exam period. There was a wide range in the scores on the GHQ indicating considerable individual variation in the levels of reported symptomology. Out of a total possible score of 28, mean scores for Anxiety (time 1 - 16.62; time 2 - 18.09) were the highest, followed by Somatisation (time 1 - 15.37; time 2 - 16.38) and Social Dysfunction (time 1 - 15.03; time 2 - 16.06), and thereafter Depression (time 1 - 11.33; time 2 - 10.98) with notably lower scores than the other sub-scales. There was a moderate increase in the Somatisation, Anxiety and Social Dysfunction scales, whereas the Depression sub-scale score from time 1 to time 2 reduced slightly. The relative consistency of scores on the Depression sub-scale, suggest that the Depression scale may be a more stable dimension, less influenced by external stressors and perhaps more reflective of a segment of the participants suffering from more enduring depressive symptomology. Depression is understood to be less situationally-based than the other dimensions, and may be more strongly influenced by enduring personality features of the individual (Derogatis & Spencer, 1982). The items on the Somatisation, Social Dysfunction and Anxiety scales reflect more transient, anxiety related symptoms and hence may be a better indicator of situational stress and accurately reflect the increased anxiety of participants over the exams. This is consistent with other studies of examination periods that point to the intensification of anxiety as examinations approach (Skinner & Brewer, 2002).

With regard to the cut-off score, given the high scores of participants, Banks (1983) recommendation of a higher cut-off of 6 was utilised. Using the more stringent cut-off,

61.59 % of participants at time 1 were reporting sufficient symptoms to clinically classify them as manifesting emotional dysfunction and psychological distress. At time 2 this classification rose to 73.65%. Using a cut-off of 5, a survey of 1001 South Australian adults found that 21.7% of the population scored 5 or more on the GHQ (Dal Grande, Johnson, Dempsey & Taylor, 2000). Relative to this and other studies the percentage of participants in this study scoring above the cut-off seems particularly high.

The overall incidence of psychological distress at both times 1 and 2 was notably higher in contrast to general population scores for the total GHQ recorded in a previous South African study (N=550, M=5.25) (Wissing & van Eeden, 2002). In further analysis of their sample Wissing and van Eeden (2002) indicate (in contrast to the total population score) elevated mean scores across all sub-scales and the total GHQ score for women (N= 306, M=6) and young adults (N=367, M=5.93). The subjects in this study were generally young adult women, the combined effect of these factors perhaps accounting in part for the elevated scores on the GHQ of 14.58 (time 1) and 15.37 (time 2). However, these scores are still substantially higher than those reported in the Wissing and van Eeden (2002) study.

Based on the variations between sub-groups reported in their study, Wissing and van Eeden (2002) point to the influence of moderator variables such as age, gender and cultural context on the degree of wellbeing. The high scores in this study may point to the influence of moderator variables specific to the environmental pressures being

experienced by the population under investigation. These high scores may reflect the high pressure and general stress these subjects were facing. In taking a closer look specifically at the items that make up the Anxiety, Somatisation and Social Dysfunction sub-scales, many of these statements would be endorsed by individuals facing heavy work pressure and other sources of stress (as reported by about 40% of subjects). The high incidence of psychological distress may reflect the amount of stress this student population experienced even prior to their examinations. As discussed in the method chapter, the students that made up this participant grouping were selected from high pressure courses where there was a high likelihood of emotional investment. These courses also involve ongoing assessments, so many of the participants may have been under ongoing study pressure, which may have manifested in the high GHQ scores even prior to the examinations.

It is interesting to note the contrast between the mild to moderate emotion scores and high scores on the GHQ. Moreover the disparity between the almost negligible shifts in emotion from time 1 to time 2 and the 12.06% increase in the percentage of participants who manifested clinically significant levels of psychological distress at time 2 requires some discussion. Lazarus would view long-term outcomes (as measured by the GHQ) as emerging out of the interplay between appraisal and affect (and coping – a variable not under investigation in this study). As will be discussed in the section addressing research questions, these associations are borne out in the findings. It would seem logical in the context of Lazarus's theory that high scores and variation on the GHQ would be associated with high scores on negative emotion.

The smaller variation in range on the affective scales may be a function of the fact that they measure perceived emotional response, whereas the GHQ is sensitive to a broader range of negative effects, including physical, behavioural, cognitive and interpersonal dimensions, in addition to affective ones. It may thus be picking up distress of a more overt, pervasive and less subtle kind. This contrast may also possibly be a reflection of a response to the ongoing intensity of demand these students were under, associated with the under-reporting of affect. It is possible that these students may have had a somewhat defended, almost dissociative response to daily stress where they are symptomatic but have limited conscious awareness of their distress.

Overall, the GHQ scores indicate that there was notable reported symptomology within the participant grouping both at times 1 and 2, and an increase in psychological distress (specifically relating to Anxiety, Social Dysfunction and Somatisation) from time 1 to time 2. It is important to note that the present study is concerned with associations between variables rather than attempting to gauge the incidence or scores on any particular measure. Hence these high GHQ scores do not detract from the validity of the study in attempting to answer questions of process and association. They are nevertheless of some concern and have implications for the generalisability of these findings. These high GHQ scores may have influenced the process and impact of the stressful transaction and seem to indicate that stressful life events contribute to the elevation of existing levels of mental health problems.

### 1.2.5. Summary regarding the descriptive statistics

The descriptive statistics provide an indication of the context within which the subsequent statistical results relating to the research questions were interpreted. They endorse a process oriented understanding of the stressful transaction and the applicability of the Goal Conflict and Complementarity, Relevance and Congruence constructs to this context. In general they indicate that most of the subjects had primarily harmonious or integrated goal systems. Subjects tended to rate at least their first 2 listed goals highly on Relevance and Congruence with a range of ratings on their remaining goals. Subjects were fairly consistent in their rating of Relevance in particular. Participants reported mild to moderate levels of a range of emotions in relation to the exam period but seem to have reported more negative emotions into the exam period. Generally participants manifested high levels of symptomology as measured by the GHQ, with a notable increase over the two time periods. Within this study, it seems that the GHQ scores were a better discriminator of the impact of stress and therefore significant findings in relation to these scales are important. These participants had highly complementary goals, low affect, high relevance and overall fairly congruent goal systems and yet these factors did not seem to bolster them against high levels of symptomology.

The chapter proceeds with the discussion of results pertaining to the research questions. Associations with Goal Complementarity and Goal Conflict are discussed in

section 2 and interrelationships are addressed in section 3. Section 4. addresses the associations with Motivational Relevance and Congruence, and section 5. discusses interrelationships with regard to these variables.

## 2. RELATIONS BETWEEN PERSONAL STRIVINGS CONSTRUCTS AND THE STRESS PROCESS

This section intends to answer research questions 2, by discussing the significant and non-significant relations between constructs relating to personal strivings (Goal Complementarity and Goal Conflict) and other variables within the stressful transaction.

### 2.1. Associations between Goal Complementarity and other variables (see Table 7.11)

With regard to research question 2a. Goal Complementarity was moderately, positively associated with Motivational Relevance before ($r=0.35$ $p<0.0001$) and into ($r=0.32$ $p<0.0001$) the event and Motivational Congruence before ($r=0.46$ $p<0.0001$) and into ($r=0.33$ $p<0.0001$) the event. Goal Complementarity was not however significantly associated with immediate effects and long-term effects. Hence Goal Complementarity was not directly associated with positive outcomes.

The findings of this study indicated that Goal Complementarity was positively correlated with Relevance and Congruence. Prior theory and research frames Relevance as a prerequisite for the experience of emotion, and Congruence as an indicator of positive

wellbeing. The association with these appraisal measures suggests an indirect link between Complementarity and emotion, via Relevance and Congruence.

The correlation of Goal Complementarity with Motivational Congruence did, however, shift from a strong correlation at time 1 ($r=0.46$ $p<0.0001$) to a moderate correlation at time 2 ($r=0.33$ $p<0.0001$), with the correlations with Relevance remaining relatively stable. Prior to the event Congruence may have been shaped to a greater degree by the dispositional antecedent of Complementarity. It would seem that, once the event itself intervened between times 1 and 2, the influence of Complementarity on Congruence reduced. In asking the question "**Will**" as opposed to "**Did** this examination period aid or obstruct the achievement of each of my goals?", the reality of the event may have altered the relationship between the striving system and the appraisal of Congruence. At time 1 prior to the event, an individual with a complementary striving system, entering an event resonant with this striving system, may anticipate the event to be highly congruent. At time 2 once the event has occurred, other factors may have intervened, resulting in the individual perceiving the situation as somewhat less helpful to the meeting of the goals in his/her integrated goal system. However, with regard to Relevance, when asking the question "How important **is** (or **was**) this examination period in relation to each of my goals?", participants may have assessed this more consistently in relation to their strivings system, with the direct relation between Complementarity and Relevance not varying into the event.

As indicated in the literature review, in contrast to most previous studies that tend to

focus on the less adaptive feature of Goal Conflict, this study addressed the effects of an increasingly complementary goal system. While studies are not conclusive, the theory suggests that complementary systems would be associated with increased wellbeing, given that the achievement of any one goal within such a striving system complements the achievement of others. Both Lazarus (1991) and Emmons (1996) view overall coherence of the striving system as being intimately linked to mental health and wellbeing and, by extension positive affective outcomes.

The findings of this study do not support the direct relation of Goal Complementarity to positive affective outcomes or measures of wellbeing. Goal Complementarity was not significantly correlated with Positive Affect or Benefit or Challenge emotions. Given that this study only measured symptom dimensions in the form of the GHQ, it is harder to make conclusive statements regarding Goal Complementarity and wellbeing in that no long-term measures of positive outcomes were included in this study. Nevertheless Goal Complementarity was not negatively correlated with the GHQ measures as might have been anticipated. The study does however indicate that Goal Complementarity was associated with higher Relevance and Congruence, possibly suggesting that individuals high in Complementarity were more likely to be emotionally invested in the stressful transaction, and hence may manifest outcomes in relation to these appraisals.

**2.2. Associations between Goal Conflict and other variables (see Table 7.12)**

With regard to research question 2b., Goal Conflict had a significant negative relation to

Motivational Congruence before the event ($r=-0.34$, $p<0.0001$) and Motivational Relevance after the event ($r= -0.17$, $p<0.05$). Goal Conflict was not correlated with any immediate and long-term effects prior to or after the event.

In discussing the highly significant moderate, negative correlation between Goal Conflict and Motivational Congruence at time 1, this finding is logical and congruent with theory. The more participants viewed the goals within their striving systems as interfering with each other, the less they viewed the examination as aiding in the achievement of these goals. Low scores on Motivational Congruence point to ratings of the examination as obstructing the achievement of goals. Hence it would appear that participants whose goal systems were conflicting had a number of goals that were not related and did not cohere around the examination period.

If this was the case, it raises the question as to why Goal Conflict was not similarly correlated with Motivational Relevance at time 1. Perhaps the answer lies in the nature of the measurement of Motivational Congruence and Relevance and their relation to each other. Given that a goal was rated as low in Congruence, based on the content of the appraisal measure, this would indicate that the exam period was obstructing the achievement or at the very least unhelpful to the achievement of the goal (hence the association in theory of low Congruence with negative emotions). In contrast, a low score on Relevance implied that the exam period was unimportant to one's goals (and therefore, according to Lazarus would not elicit an emotional response from the participant).

The weak but significant negative correlation between Goal Conflict and Motivational Relevance at time 2 ($p<0.05$) will now be addressed. Before proceeding with a possible explanation it is necessary to acknowledge the weakness of the correlation (-0.17) and its low significance. This may be a function of the low scores on Goal Conflict. Nevertheless, in attempting to understand this finding, as discussed above, possibly at time 1 participants entered the situation and perceived it as relevant but unhelpful to the achievement of their goals. Perhaps by time 2 such subjects, on the basis of hindsight and the actual experience of the event, now dismissed the event as unimportant (hence the correlation with relevance) and may then have rated the event as having no real impact on their goals (a rating of three on Motivational Congruence), accounting for the lack of correlation with Congruence.

The findings with regard to Goal Conflict and immediate and long-term effects are in contrast to most prior research. The core finding of research into Goal Conflict has been the association of Goal Conflict with various measures associated with poor mental wellbeing, such as increased levels of neuroticism, Depression and negative affect (Emmons & King, 1989). No associations with the GHQ, Negative Affect, Threat or Harm emotions were identified in this study.

This lack of association may be as a result of the generally low levels of Goal Conflict in the participant grouping, which may have been insufficient to elicit a significant association with negative outcomes. The generally low scores on Goal Conflict (see section 1.2.1. for a detailed discussion of this finding) point to methodological

challenges in exploring this construct, and bring into question the applicability of researching Goal Conflict among populations with focused and cohesive striving systems, as is the case with this student population.

Another possibility is that individuals with conflicting goals may be less likely to score highly on appraisals of Relevance and Congruence, given that any particular stressful transaction would only be Relevant and Congruent to a portion of their goals. Hence Goal Conflict may be associated with lesser investment in the event and possibly a more muted emotional response. In addition, given the comparable lack of association between Goal Complementarity and positive outcomes (as discussed in section 2.1.), this may reflect implications of applying these striving constructs to the stressful transaction in particular. This explanation is discussed below.

**Goal Complementarity, Goal Conflict, appraisal and wellbeing**

Overall these findings indicate a rather minor direct role for the personal strivings constructs in the unfolding of the stressful transaction in this participant grouping.

The absence of a direct relation to wellbeing requires further elaboration. Goal Complementarity and Goal Conflict are features of the middle-level unit tier of personal strivings. Middle-level units are defined as cognitive processes which serve as the linking units between individual personality constructs and their expression in the environment. The personal strivings construct is defined as an individual-specific understanding of motivation and is perceived as being both deeply embedded in personality and largely defined by context (Buss & Cantor, 1989).

In the framework of this study, it would appear that the impact of Goal Complementarity and Conflict on wellbeing may be channelled by constructs more deeply embedded in context. Within the framework of a stressful transaction it is proposed that Goal Complementarity and Conflict link to situational variables as operationalised by the primary appraisal constructs of Motivational Relevance and Congruence (which in turn shape emotion and wellbeing in a variety of ways discussed further on in this chapter). Possibly, within the context of a stressful experience, cognitive processes intimately linked to the event are the conduit through which the impact of middle-level units are expressed. This view is consistent with transactional theory which views goals as informing primary appraisal, which in turn has consequences for emotion and long-term outcomes. Situationally-based cognitive processes are viewed as the primary determinant of the path the stressful transaction takes.

## 3. INTERRELATIONSHIPS BETWEEN PERSONAL STRIVINGS CONSTRUCTS AND THE STRESS PROCESS

This section addresses research question 4 and 7 in clarifying the patterns across time of the relationship between Goal Conflict and Complementarity and other variables in the stressful transaction. With regard to research questions 4.(iii) and (iv) regarding the interrelationships between Goal Conflict and Complementarity and affect and the GHQ; as indicated in sections 2.1 and 2.2. of the results chapter, Goal Conflict and Goal Complementarity were not directly associated with any affect or GHQ outcome variables

at time 2 and hence these question could not be addressed.

As suggested in the literature review and methodology section Goal Complementarity and Conflict may influence the ongoing process of appraisal and reappraisal at points across the stressful transaction. While the literature points to this process in theory, no research could be located that looks at the influence of motivational features of the individual on primary appraisal processes across the stressful transaction. The findings described below offer an initial insight into these processes as suggested by the findings of this study.

### 3.1. Mediator relationships with Goal Complementarity (see Table 7.13)

#### 3.1.1. Goal Complementarity and Motivational Relevance at time 2

The findings of this study indicate the mediational role of Motivational Relevance and Motivational Congruence at time 1, in relation to the independent variable of Goal Complementarity and the dependant variable of Motivational Relevance at time 2. This suggests a direct causal path from the independent variable through both the primary appraisal (time 1) variables to Motivational Relevance at time 2.

It is the impact of Goal Complementarity on Motivational Relevance and Motivational

Congruence prior to the event that informs its impact on Motivational Relevance into the event. So individuals who had integrated or harmonious striving systems where the achievement of any one striving was seen as aiding the achievement of other strivings, were more likely to perceive the event as important and helpful in relation to their goals at time 1 and, in turn, at time 2. It is this initial appraisal of Relevance and Congruence at time 1 (as influenced by Goal Complementarity) that informs later reappraisal of the importance of the stressful transaction.

These findings suggest that that the influence of Complementarity on the event appears to be entirely channelled through its influence on appraisal. Complementarity had no direct bearing on time 2 Relevance if the event were not appraised as relevant and congruent from the outset. Hence the influence of Goal Complementarity on Motivational Relevance (time 2) appears to be shaped by situational influences as reflected by primary appraisal. An integrated goal system elicits initial appraisals of Relevance and Congruence, but only in the context of a situation that is helpful to the meeting of goals, can this initial Relevance be sustained. By way of explanation these findings suggest that in a case where goals are more integrated and Relevance was high, but the situation was not helpful to the achievement of these complementary goals, then Relevance would not be sustained. Hence it is Complementarity manifested in higher scores on the situationally-based appraisals of Relevance and Congruence that elicits appraisals of Relevance into the exam period.

### 3.1.2. Goal Complementarity and Motivational Congruence at time 2

The findings of this study indicate the mediational role of Motivational Congruence at time 1 in relation to the independent variable of Goal Complementarity and the dependant variable of Motivational Congruence at time 2. This suggests a direct causal path from the independent variable through Motivational Congruence (time 1) to Motivational Congruence at time 2. The findings also indicate that the relationship between Goal Complementarity and Motivational Congruence at time 2 was largely independent of Motivational Relevance at time 1. The rating of the importance of the event in relation to one's goals (Motivational Relevance at time 1) was not identified as a mediator of the influence of Goal Complementarity on Motivational Congruence at time 2.

So individuals who had integrated or harmonious striving systems where the achievement of any one striving was seen as aiding the achievement of other strivings would be more likely to perceive the event as helpful in relation to their goals at time 1 and consequently at time 2. If the situation was initially viewed as helpful to an integrated set of goals from the outset, then subjects were likely to view the situation as helpful to these goals into the exam period. The influence of a more harmonious goal system on Motivational Congruence and not on Motivational Relevance prior to the event informed its impact on Motivational Congruence into the event. While Complementarity was related to viewing the situation as important to goals at time 1, subjects did not rate their situation as helpful to the achievement of their goals into the examination as a consequence of the association between Relevance 1 and

Complementarity.

Overall these findings indicate that the more harmonious a subject's goal system the higher the subject's initial rating of the importance of the examination period in relation to his/her goals (Relevance) and the higher the rating of the examination period as helpful toward the achievement of these goals (Congruence). The high initial rating of Relevance and Congruence in turn shaped later assessments of Relevance and the high initial rating of Congruence shaped later assessments of Congruence. Theory and previous studies have linked Complementarity to heightened wellbeing. This link was not identified in this study, but the findings offer some understanding of the nature of the influence of a complementary striving system. The study indicates a link between Complementarity (as a middle-level unit) and situational aspects of appraisal and reappraisal, perhaps providing some suggestion of the process through which Complementarity influences wellbeing. In this regard it is interesting to note the direct influence of Complementarity on Relevance at time 1 which had significant associations with later negative outcomes, and Congruence at time 2 that was significantly associated with positive outcomes.

These findings seem to indicate that individuals entering a stressful situation whose goals are highly positively interrelated, who "put all their eggs in one basket", are more likely to be highly invested in the stressful situation as indicated by the consistent strong to moderate appraisals of Relevance and Congruence. Hence the situation may become highly loaded, eliciting strong emotional responses. At different points across the stressful transaction and depending on how the situation unfolds and is appraised in

relation to its Relevance to and Congruence to a person's goals, it may be associated with positive affective outcomes or negative affective outcomes and symptomology. This suggests that Complementarity lays the groundwork for the experiencing of Relevance and Congruence which, depending on what the situation presents in relation to one's goals and as reflected in appraisals, in turn has varying consequences for affect and wellbeing.

Whereas no prior studies have attempted to explore the links between Complementarity, Relevance and Congruence, the above findings are logical and while consistent with certain aspects of existing theory, are also somewhat challenging to this theory. Given that the achievement of any one goal within such a striving system complements the achievement of others, it is likely that the importance of the event to each of these goals and the extent to which the event aids in the achievement of these goals would be consistent. Assuming a coherent set of goals and that these goals dovetail with environmental demands, then the specific appraisal of the event in relation to these goals should reflect higher levels of Relevance and Congruence. For as Lazarus (1991) states: "The three constructs of the mind – cognition, emotion and motivation – should generally be compatible, ideally in harmony; the mind as a system must also be in reasonable touch with environmental conditions; and actions should flow from this harmony." (p.460-461). It would appear that for the participants of this study, the internal harmony of their goals resonated with environmental conditions as evidenced in their appraisals and reappraisals. Whether this resonance or harmony is associated with positive outcomes is not so clear. This discussion clearly challenges

the theoretical assumption that harmonious goal systems are associated with wellbeing and offers some understanding concerning the lack of clarity emerging from other studies with regard to the relation of Goal Complementarity to affect and psychological health

It is also important to keep in mind that when identified mediators for Goal Complementarity were separately partialled out, the associations between Goal Complementarity and these variables was no longer significant but was greater than zero. This points to the operation of other mediating factors beyond the measures included in this study. This should be kept in mind as a consideration which applies to all the mediational analyses presented in this study.

**3.2. Mediator relationships with Goal Conflict (see Table 7.14)**

The findings suggest that Motivational Congruence 1 acts as a mediator variable in the relation between Goal Conflict and Motivational Relevance at time 2. This suggests a direct causal path from the independent variable through Motivational Congruence 1 to Motivational Relevance at time 2. So individuals who had conflicting striving systems, where the achievement of any one striving was seen to hinder the achievement of other strivings, were also less likely to perceive the event as helpful in relation to their goals at time 1 and hence less likely to view the event as important to their goals at time 2. The experiencing of a stressful transaction in the context of goals that are conflicting is likely to elicit low ratings of congruence, and an assessment of the situation as not helpful to the achievement of goals would in turn undermine the later significance of the event in

relation to these goals.

Whereas no previous studies have attempted to explore the links between Goal Conflict and Relevance and Congruence, the above findings are logical but not necessarily consistent with existing theory. Theory and previous studies have linked conflict to negative outcomes and reduced wellbeing. In contrast, this study did not identify direct associations with negative outcomes. As discussed in section 2.3., the researcher proposed that within the context of a stressful transaction, situational influences and cognitive processes may have more of a direct influence on wellbeing. Nevertheless, in pointing to the links between Goal Conflict and appraisal, this finding takes the understanding of the influence of a conflicting striving system one step further. It links Conflict (as a middle-level unit) to situational aspects of appraisal and reappraisal, providing some suggestion of the process through which Conflict influences wellbeing (given the links of Relevance and Congruence to measures of wellbeing) within a stressful transaction. In this regard it is interesting to note the direct negative influence of Conflict on Congruence at time 1 and its weak negative association with Relevance (time 2). Relevance 2 has some associations with positive outcomes at time 1 and Congruence 1 also has some association with positive outcomes at times 1 and 2, but neither are linked strongly to outcomes (immediate and long-term) at time 2.

These findings suggest that the impact of Goal Conflict on outcomes was not significant. Individuals entering a stressful transaction such as an examination with conflicting goals may be less invested (indicated by the negative associations with Relevance and

Congruence) in the situation. Hence they may not manifest strong emotional and more enduring responses to the event and thus may be "protected" at least in the short term against the negative effects of stress. This study is proposing, in contrast to what much of the literature suggests but in keeping with some researchers (see Kehr, 2003), that given certain circumstances, Goal Conflict may have positive consequences for wellbeing.

## 4. RELATIONS BETWEEN PRIMARY APPRAISAL AND THE STRESS PROCESS

This section answers research question 3 by identifying significant and non-significant relations between strivings constructs and other variables within the stressful transaction.

### 4.1. Associations between Motivational Relevance and other variables (See Table 7.15)

In relation to research question 3a., **Motivational Relevance** before the event had a significant relation to Motivational Relevance 2 and Motivational Congruence before and into the event. Goal Relevance before the event was correlated with immediate effects at times 1 (Threat, Positive Affect and Challenge) and 2 (Negative Affect and Threat) as well as with long-term effects at time 2 (Somatisation, Anxiety and the GHQ total score). Motivational Relevance at time 2 was moderately to strongly correlated with Motivational Congruence 1 and 2 and weakly correlated with Positive Affect and

Challenge at time 1.

Subjects were fairly consistent with regard to how important they perceived the exam period to be (Motivational Relevance) in relation to their goals both prior to and into the exams. In addition Relevance at time 1 was associated with Congruence at time 1 ($r=0.52$, $p<0.0001$) and to a lesser degree Congruence at time 2 ($r=0.31$, $p<0.001$). Relevance and Congruence were strongly related prior to the event but this relationship waned as the event unfolded. Relevance at time 2 was strongly associated with both measures of Congruence (time 1- $r=0.44$, $p<0.0001$; time 2 – $r=0.53$, $p<0.0001$). Into the exam period, the more important the exam period was viewed as being in relation to participants' goals (Motivational Relevance), the more participants were inclined to view the exam period as helpful to the achievement of their goals (Motivational Congruence) across the examination period. This makes intuitive and theoretical sense.

With regard to the linking of Relevance to immediate and long-term effects, the findings suggest the primacy of Motivational Relevance at time 1 as a core element in the stressful transaction. Motivational Relevance at time 1 was associated with Threat ($r=0.2$, $p<0.05$), Positive Affect ($r=0.2$, $p<0.05$), and Challenge ($r=0.16$, $p<0.05$) at time 1. Correlations with Threat as well as Challenge may reflect varying trends among sub-groups in the participant grouping with regard to the experience of affect, but as discussed in section 1.2.5., were more likely a function of the diverse emotions elicited in ambiguous situations with increasing clarity of emotions experienced as the situation progressed. This perspective is endorsed by the finding that by time 2, associations with Motivational Relevance at time 1 and negative outcomes had strengthened

moderately (with no significant associations with positive outcomes). This suggests a positively tinged initial emotional experience characterised by anticipatory emotions combining both fear and hope. The significant associations with Negative Affect 2 and Threat 2 indicate a shift in the emotional experience from a positively toned optimistic approach to a negatively toned emotional experience characterised by fear, worry and anxiety. This is further endorsed by the associations of Relevance 1 with the GHQ total and the Anxiety and Somatisation sub-scales at time 2. In taking a closer look at the GHQ items of these last-mentioned two sub-scales, it is proposed that they reflect variations in wellbeing relating to stress and anxiety. High Relevance 1 seemed to elicit a heightened emotional response that into the event manifested as an anxiety-based affective response with attendant consequences for wellbeing.

In relation to Relevance at time 2 there was a weak association with Positive Affect and Challenge at time 1 (consistent with the Motivational Relevance at time 1 findings). Subjects who experienced more 'upbeat' emotions prior to the event were slightly more inclined to view the exam period as important to their goals into the event. Yet this appraisal of Relevance at time 2 does not appear to be connected to any outcomes at time 2.

It would appear that the appraisal of the importance of the exam period at the anticipatory phase of the examination period (Relevance at time 1) colours the entire experience. It is the "imagined" Relevance of the event that "sets up" the subject for the experiencing of the event. High Relevance at time 1 implies a highly significant,

anxiety-provoking, “loaded” event - hence the association with Challenge, Threat and Positive Affect at time 1. Given how the event transpires, this “loadedness” (which may possibly be influenced by Congruence) is then transformed into an actual outcome. In this instance, the challenge, trepidation and anticipation associated with Relevance 1 of the anticipatory phase appears to have translated into Negative Affect, Threat and symptomology on the GHQ.

Lazarus views high Motivational Relevance as central to the elicitation of emotion. These findings seem to indicate that Relevance specifically at time 1 is not a prerequisite for any emotional experience but has a clear association with negative affect in particular. In addition the links with Relevance 1 in particular suggest that there may be critical points in time with regard to the appraisal process that shape the affective experience of the stressful event and influence long-term effects. The relation of Relevance to Congruence also suggests that Congruence may play some role in these outcomes. These preliminary trends were taken further in section 5.

### 4.2. Associations between Motivational Congruence and other variables (see Table 7.16)

With regard to research question 3b. (as discussed in the section on Motivational Relevance) Motivational Congruence was consistently and significantly associated with Motivational Relevance. Motivational Congruence at time 1 had a significant positive correlation with the immediate effects of Benefit emotion1 and Positive Affect 1 and 2. Motivational Congruence before the event was not correlated with any long-term effects.

Motivational Congruence at time 2 was positively correlated with the immediate effects at times 1 and 2 of Positive Affect, Challenge and Benefit emotions. It was also negatively correlated with Harm at times 1 and 2 and Threat at time 2. Congruence at time 2 was negatively correlated with long-term effects at time 2 of Social Dysfunction, Depression and the total GHQ score.

The main findings indicate an association between Motivational Congruence 1 and 2 and positive outcomes at both times 1 and 2. As will be further elaborated upon in the mediational analyses, these findings suggest that whether the exam period was viewed as facilitating goals, had a relationship to the initial affective response to the examination period. This association may possibly account for later associations of Congruence with Positive Affective outcomes at time 2 and reduced symptomology on the GHQ2.

These findings are consistent with Lazarus's assertion that high Congruence is associated with Positive Affect and seems to be indicating that the initial affective outlook is important in shaping appraisal and later affective responses. The more helpful the exam period was viewed as being in relation to achieving participant's goals (both at times 1 and 2) the higher their scores on Positive Affect across the experience. Lazarus's assertion of the links of Congruence to Positive Affect are extended in terms of exploring their association with appraisal-based emotion and incorporating the consideration of time. The fairly consistent association of Congruence 1 and 2 with Benefit 1 and 2 and Positive Affect 1 and 2 suggests that individuals with high Congruence scores entered the exam period with an optimistic and upbeat view. This

carried through into an overall positive emotional demeanour into the examination period, with associations with Challenge emotions also becoming evident. Possibly, in keeping with studies such as Oliver and Brough (2002), the associations of Congruence 1 and 2 with Positive Affect and Benefit (i.e. overjoyed, happy, relieved emotion) across the stressful transaction may reflect an underlying and more consistent predisposing trait regarding positive affectivity. The association of Congruence 2 with Challenge 2 (i.e. eager, hopeful, confident emotion) may indicate the manifestation of a positive affective demeanour specifically in relation to the **event** of the examination period.

Such individuals, having gone through the examination period and perceived it as helpful to the achievement of their goals may then be more inclined to feel confident, hopeful and eager in relation to the event within the context of an already positive overall demeanour. Moreover those participants who had higher ratings of the helpfulness of the exam period to goals into the exam experienced reduced overall symptomology, Depression and Social Dysfunction. In looking at the items of these sub-scales, it would seem to indicate that subjects who perceived the event as congruent at time 2 felt more capable and empowered and more positive emotion regarding tackling the event, as reflected in the lower Depression and Somatisation sub-scale scores. These findings suggest the importance of Congruence at time 2 in influencing affective and long-term outcomes. High Congruence at time 2 seems to be strongly associated with positive outcomes and serves to bolster subjects against negative effects.

Overall the results regarding Congruence may indicate the presence of a facilitative attitudinal stance from the outset of the event. Subjects entering the event with positive appraisals and a positive affective stance may anticipate the event to be facilitative and may be more inclined to frame the event as congruent at time 2, which in turn amplifies positive effects and dampens negative effects. Such participants may be "optimists", approaching the situation with a positive outlook enabling them to manage it more effectively. These preliminary correlational findings were further explored and clarified and are described in the following section.

## 5. INTERRELATIONSHIPS BETWEEN PRIMARY APPRAISAL PROCESSES AND THE STRESS PROCESS

This section addresses research question 5., 6. and 7. in clarifying the patterns across time of the relationship between Motivational Relevance and Motivational Congruence and other variables in the stressful transaction. As suggested in the literature review these primary appraisal processes are viewed as playing a central role within the stressful transaction. Yet there is minimal research focussing on the specific contribution of these primary appraisal components. The findings discussed below offer preliminary insights into these central processes.

### 5.1. Mediator relationships with Motivational Relevance (see Table 7.17)

The results suggest that it is the direct impact of Relevance 1 on negative emotion states primarily at time 2 that placed participants at greater risk for the manifestation of

symptomology into the event. So individuals who initially anticipated the event to be important to the achievement of their goals, experienced more Threat emotion before and into the event as well as general negative emotions, and in turn reported more overall symptomology, Anxiety and Somatic symptoms. The initial experience of Threat also appeared to have played a role in shaping the impact of high Relevance on Somatic and general symptomology but not on Anxiety related symptomology into the event. Possibly Anxiety at time 2 was subject to more immediate or current emotional responses in contrast to the GHQ total and Somatisation scales that may reflect more enduring symptomology.

The findings with regard to Motivational Relevance 1 also indicated that the correlations between Relevance 1 and Threat 2 and the GHQ2 raised slightly when partialling out Congruence 2 and were similarly elevated when Positive Affect 1 was partialled out in relation to Anxiety 2, Somatisation 2 and the GHQ 2. These findings suggest that positive emotions prior to the exam period and the retrospective appraisal of helpfulness of the exam period to goals, slightly bolstered subjects against the negative effects of Relevance 1.

These findings resonate with the suggestions put forward in section 4.1. They emphasise the anticipatory appraisal of the importance of the situation relative to one's goals (Relevance) as having a direct impact on negative emotions and in turn on participants' psychological distress into the examination period. It would seem that high Relevance 1 does indeed lay the groundwork for an anxiety-loaded experience as

manifested into the event by a negative emotional response tinged by worry, fear and anxiety. The mediational analyses take these observations further indicating that the influence of Relevance 1 on symptomology is channelled through its impact on negative emotions. These findings further indicate that the experience of positive emotions before and Congruence into the event may counter some of the negative effects of high Relevance.

As indicated in section 4.1. Lazarus holds that Motivational Relevance is a prerequisite for emotional investment which is shaped into a negative or positive emotional response through Congruence appraisals (see chapter 3, section2.3.). The findings of this study suggest otherwise. The influence of Relevance was not mediated via Congruence. They suggest that Relevance not only indicates emotional investment but also colours the nature of the emotional investment. The direct associations of Relevance 1 with negative affect and in turn with long-term outcomes suggest that Relevance has more of a defining role and seems to be directly related to the generation of negative emotion and reduced wellbeing. They also once again underline the fact that it is **anticipatory** Relevance that impacts on outcomes.

**5..2. Mediator relationships for Motivational Congruence (see Tables 7.18 and 7.19)**

**5.2.1. Motivational Congruence 1**

With regard to the independent variable of Motivational Congruence 1, the findings of this study indicated the mediational role of Positive Affect (time1) and Motivational Congruence (time2), in relation to the independent variable of Motivational Congruence (time 1) and the dependant variable of Positive Affect at time 2. This suggests a direct causal path from the independent variable through both Positive Affect (time 1) and Motivational Congruence (time 2) to Positive Affect at time 2.

So individuals who appraised the event as aiding the achievement of their goals prior to the event (Motivational Congruence), were more likely to experience Positive Affect prior to the event and to appraise the event as helpful to achieving their goals at time 2, and in turn, experienced Positive Affect into the examination period. This finding makes practical and theoretical sense.

Whereas the literature does point to the links between high Congruence and Positive Affect, this is presented in very static terms. These findings provide some insight into the process through which Congruence and Positive Affect may interrelate across the stressful transaction. They indicate a dynamic and interactive process between Motivational Congruence and Positive Affect - a process of appraisal (Motivational Congruence 1), informing affect (Positive Affect 1), informing appraisal (Motivational Congruence 2) and, in turn, shaping affect (Positive Affect 2). As was indicated in the discussion regarding the correlations (see section 4.2.), these findings further endorse the importance of an initial positive outlook, both with regard to appraisal and affect, that has a positive domino effect across the course of the stressful transaction. They further

elaborate on the interrelationship between Congruence and Positive Affect. Possibly people with a sunny, optimistic outlook, as inferred from the Positive Affect and Congruence ratings, are able to sustain this in the face of a stressful event. These appraisal and affect responses may reflect the situational translation of an optimistic demeanour.

### 5.2.2. Motivational Congruence 2

With regard to the Independent variable of Motivational Congruence 2, the higher the rating of the helpfulness of the event, the more likely it was that subjects would experience Benefit and Challenge emotions as well as an overall positive emotional response which in turn lessened the likelihood of symptomology on the GHQ. Also subjects high in Congruence were less inclined to experience Harm and Threat emotions and hence less likely to manifest symptomology. More specifically, the influence of Congruence 2 on Depression 2 was also mediated via Threat, Harm and Challenge emotions at time 2 respectively. The higher the level of perceived helpfulness of the event in relation to one's goals, the lower the Threat and Harm emotions, which in turn reduced the likelihood of Depressive symptomology. Similarly higher Congruence 2 was associated with increased Challenge emotion and the lower Depressive symptomology. These findings point to the bolstering effect of Congruence's influence on positive emotions and a dampening effect on negative emotions which in turn lessened the manifestation of symptomology.

On the whole these findings suggest that while Motivational Congruence 1 was linked to Positive Affect through the event, it would seem that Congruence 2 in particular had much clearer associations with long-term effects. As discussed in section 4.2., it seems that anticipated Goal Congruence sets the stage for a positive emotional experience. However it is the actual translation of this congruence into the favourable retrospective appraisal of helpfulness – "Did this exam period aid or obstruct the achievement of each of my goals" – that generates positive emotions and reduces negative emotions at time 2, thereby lessening overall symptomology. Hence these mediational analyses endorsed the suggestions put forward in section 4.2. They specifically indicated that an initial favourable Congruence appraisal and positive affective outlook are significant in shaping later Congruence appraisals and affective outcomes. They also indicated that it was the interrelationship between these later Congruence and affective responses that reduced symptomology, thereby providing insight into the bolstering effects of Congruence 2 and positive emotions suggested in section 4.2.

**5.3. Motivational Relevance-Congruence combinations (see Tables 7.20 - 7.23)**

The mediational procedures covered in sections 3., 5.1. and 5.2. respond to research questions 4, 5. and 7, indicating useful, thought-provoking and theoretically relevant mediational relationships for Goal Conflict, Complementarity, Motivational Relevance

and Motivational Congruence. These findings suggest that the value of a mediational analysis appears to lie in the elaboration of some of the interrelationships and underpinning processes through which outcomes may be generated. The findings specifically with regard to Relevance and Congruence suggest quite distinct paths of influence, particularly with regard to high Relevance and negative outcomes and high Congruence and positive outcomes. However theory and prior research have approached these variables in terms of their combined influence on affect. The findings also indicate the role of time-related variations in Congruence and Relevance. Since the mediational analysis could not adequately explore the combined influence of variables, the ANOVA analyses were employed to account for these interrelationships, explore the influence of time and allow for the more holistic consideration of Relevance-Congruence **combinations** as suggested by the literature.

This section addresses whether or not, as suggested in the literature various Relevance-Congruence groupings demonstrated differing effects on affective and long-term outcomes (Research Question 6) and also whether these interrelationships vary across time (Research Question 7). The findings point to the central influence of time on the impact of the Relevance-Congruence groupings A, B and C and hence this section combines the response to Research Questions 6 and 7. The analyses are complex as reflected in section 5.2. of the results chapter and read as somewhat dense. However, it was necessary to look at all possible combinations in order to do justice to the appraisal constructs and process elements of the study. A summary of the findings is presented at the end.

### 5.3.1. Eta Squared measures

With regard to the eta squared scores, the results indicated that membership of the respective Relevance-Congruence combinations accounted for a small to medium percentage (3.8 to 9.2 %) of the variability in significant affective and long-term outcomes. Given the high level of variability within the stressful transaction and the multiplicity of variables influencing outcomes, these effect sizes are not unexpected. They provide an indication that primary appraisal measures contribute to outcomes to limited and varying degrees.

Studies researching the various appraisal components indicate the overall percentage of variance (based on regression analyses) for all appraisal components as ranging from 11 to 55 % for a range of emotion states (David et al, 2002; Smith et al, 1993). Whilst these studies did not estimate the contribution of primary appraisal components alone, their overall estimations are markedly higher than the findings of this study. The much lower estimates emerging in this study in contrast to previous studies may be a function of the exclusive focus on primary appraisal, and may also be a more accurate reflection of the contribution of primary appraisal components, given that this study employed a naturalistic setting and attempted to account for the temporal precedence of appraisal components. The low variance may also be accounted for by methodological considerations in that in dividing groupings into high and low score cohorts, ANOVA procedures implicitly measure a smaller percentage of the total variance, in contrast to

regression analyses where the entire range of the measured variable is considered.

### 5.3.2. Group comparisons

This section addresses the various components of research question 6 and research question 7.

**Research questions 6(i) and 7.**

This section addresses whether **high Motivational Relevance and low Motivational Congruence (group B)** was associated with negative affective outcomes and elevated scores on the GHQ and whether this association varied across to time.

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The **high Relevance1, low Congruence 1 group** did manifest negative outcomes and elevated scores on the GHQ but was not distinguished from the high Relevance high 1 Congruence1 group in this regard. It did however have higher mean scores on Anxiety 2 and the GHQ 2 relative to the low Relevance 1 group. So individuals entering the event who viewed the event as important but not helpful to their goals, contrary to what the theory suggests, had slightly lower but essentially comparable scores on negative outcomes in comparison to people who viewed the event as important and helpful in this anticipatory phase. Relative to individuals who did not anticipate the event to be relevant, anticipating the high Relevance and low Congruence of an event certainly seemed to put individuals at risk for general symptomology and anxiety into the event,

but no more so than those who anticipated high Relevance and high Congruence. These findings suggest that the initial anticipation of Relevance generates negative emotions, anxiety and reduced wellbeing into the event regardless of how Congruent the event was initially appraised as being.

Interestingly, however, the continued appraisal of **low Congruence into the event in the context of high Relevance 1** seemed to put participants at greater risk for a wider range of negative outcomes relative to the other groupings. Subjects who were initially highly invested but then experienced the event as not helpful to the achievement of their goals relative to subjects who initially viewed the event as being of low Relevance to their goals, seemed at greater risk for threat emotions through the event, general negative emotions and Depression, Anxiety, Social Dysfunction and general symptomology. In addition, High Relevance 1 low Congruence 2 subjects had significantly higher mean scores for Threat emotions and symptoms relating to Social Dysfunction at time 2 in contrast to the high Relevance 1 high Congruence 2 group (but otherwise had comparable but slightly higher scores on negative outcomes). These findings suggest that people who had high anticipatory Relevance and low retrospective appraisal of Congruence fared the worst relative to the other Relevance 1 Congruence 2 combinations. The high Relevance 1 low Congruence 2 (relative to high Relevance 1 low Congruence 1) had a more significant influence in terms of distinguishing between different patterns in relation to the dependent variables relative to the other groups. The combined initial high investment in the event and later sense of the event as unhelpful to the achievement of goals was linked to anxiety and negative emotion, with these

people feeling anxiety, hopelessness and a sense of disempowerment into the event.

The Relevance 2 combinations had much less impact in terms of distinguishing outcomes. **High Relevance 2 low Congruence 2** was associated with a significantly higher mean for Threat 2 score relative to groups A and C. Other than this, the high Relevance 2 low Congruence 2 combination was not associated with higher scores on any other negative outcomes relative to the other groupings. So subjects who viewed the event as salient but not helpful into the examination, felt more anxious, fearful and worried in comparison to subjects who did not view the event as relevant and subjects who viewed the event as relevant and helpful to their goals. These Threat emotions seem to reflect the degree of raw anxiety subjects were experiencing, but it does not seem that being a member of the high Relevance 2 low Congruence 2 group put participants at any greater risk for other negative emotions or symptoms on the GHQ than the other groupings. Interestingly however the high Relevance low Congruence after the event grouping had lower scores on positive affective outcomes relative to the high Relevance 2 high Congruence 2 group. Hence it would appear that people who viewed the event as important but unhelpful experienced less positive emotions than those who viewed the event as important and helpful to their goals into the event, but had comparable levels of negative emotions. This finding is elaborated on in more detail in discussing the high Relevance, high Congruence combination.

**Overall** it would seem that negative affective outcomes were associated with the high

Relevance low Congruence combination. More specifically high Relevance and low Congruence prior to the event had some association with elevated negative outcomes. This association strengthened for subjects who anticipated the event to be relevant but experienced it as incongruent with their goals into the exam period. The high Relevance at time 2 low congruence at times 1 or 2 combinations had less impact on negative outcomes. These findings endorse but qualify research question 6(i). They indicate the primacy of high Relevance 1 low Congruence 1 and 2 time combinations in distinguishing between scores on negative outcomes.

**Research question 6(ii) and 7.**

This section addresses whether **high Motivational Relevance and high Motivational Congruence (group C)** was associated with positive affective outcomes and reduced scores on the GHQ and whether this association varied across time. On the whole, Group C had highly varying effects on outcomes according to the time combination of appraisals at the anticipatory stage and appraisals into the stressful transaction.

**High Relevance and Congruence at the anticipatory phase** seemed to place participants at higher risk for negative outcomes into the examination period. People who saw the situation as highly Relevant and highly Congruent prior to the event had significantly higher mean scores (compared to the low Relevance group) for Threat, Negative Affect, Anxiety, Depression and the total GHQ at time 2. Moreover these participants' scores on these negative outcomes were generally higher but comparable

to the high Relevance1 low Congruence 1 grouping (given no significant differences in mean scores for these groups). Subjects with high Relevance 1 seem to have fared the worst at time 2; with high Relevance 1 defining the negative response and high Congruence 1 relative to low Congruence 1 marginally increasing negative outcomes. People who **anticipated** the situation to be highly Relevant and Congruent to their goals were at greater risk for negative outcomes into the stressful event. More specifically they experienced more general negative feelings and anxious emotions into the exam as well as feeling disempowered, worthless, overwhelmed and highly anxious relative to people who were not invested in the examination period. They may enter the situation highly invested, which seemed to gear their experience of the event toward negative affective responses and outcomes. The event becomes highly loaded and implicitly stressful. While this finding is logical, it is somewhat surprising in that the theory would suggest that people with high Relevance and Congruence would manifest positive affective outcomes and reduced symptoms on the GHQ.

The **high Relevance at time 1 and high Congruence at time 2** combination seemed to incline participants to the experience of positive affective outcomes but was also linked with long-term negative outcomes. The high Relevance 1 Congruence 2 group had elevated scores on Anxiety and the GHQ2 relative to the low Relevance 1 group. The high Relevance 1, high Congruence 2 group had significantly lower mean scores relative to the high Relevance 1, low Congruence 2 group for Threat 2 and Social Dysfunction 2, with otherwise lower but comparable scores on negative outcomes (given no significant differences in the means). The mean scores for positive affective

outcomes of Challenge 1 and 2, Positive Affect 2 and Benefit 2 were higher for the high Relevance 1 high Congruence 2 group relative to the High Relevance 1 low Congruence 2 group. These findings suggest that the high Relevance 1 high Congruence 2 cohort experienced more pervasive positive emotions as well as satisfied, happy feelings directly related to a successful experience of the event (i.e. benefit). The high anticipatory Relevance of the group also meant that the high Relevance 1 high Congruence 2 cohort experienced more anxiety and general symptomology than the low Relevance 1 group, and less anxiety-based emotions and disempowerment relative to the high Relevance 1, low Congruence 2 group. Hence the high Relevance 1, high Congruence 2 group still seems to have experienced anxiety and negative emotion around the event, while also experiencing positive emotions given the perceived helpfulness of the event to the achievement of their goals. While the perceived helpfulness of the event allowed for the experience of positive affective experiences, it did not assuage the negative impact of a highly loaded initial investment in the event. Although there did appear to be a bolstering effect when Congruence was high at time 2, the high Relevance 1 Congruence 2 group's intensity of emotional experience seems to have put them in line to experience relatively high levels of both negative and positive immediate outcomes and negative long-term outcomes.

**High Relevance and Congruence into the exam period** mirrored the theoretically proposed association with positive affective outcomes. Both in comparison to the low Relevance 2 and the high Relevance 2 low Congruence 2 cohorts, subjects with high Relevance and high Congruence at time 2 experienced significantly higher levels of

positive emotions across the exam period. In addition, mean scores for Threat 2 for the high Relevance and high Congruence at time 2 group were significantly lower than for the high Relevance 2 low congruence 2 grouping but significantly higher than the low Relevance 2 group (as was the case for the high Relevance 2 and high Congruence 1 combination). These appraisals and emotions seem to reflect a positive affective and appraisal-based stance to the event. The timing of the appraisals into the event, suggests the alignment of the experience in reality as relevant and helpful with appraisals of Relevance and Congruence and hence with positive emotions. The additional association of high Relevance 2 Congruence 2 with positive affect at time 1 seems to endorse the possible value of an upbeat optimistic outlook and the interplay between a buoyant emotional experience of an event and appraisals of Relevance and Congruence. These findings are consistent with the mediation-based Motivational Congruence findings which point to the interplay between positive affective outcomes and appraisal, providing some indication of the processes that may underpin the variations in mean scores associated with these positive affective outcomes.

**Overall**, in keeping with the correlational and mediational analyses, it would seem that the initial appraisal of high Relevance sets subjects up to experience the event as anxiety provoking. If a person entered the situation very loaded on Relevance it would seem that negative outcomes were an inevitable component of an even favourable stressful transaction. High Congruence at Time 1 only further served to load the event, as anticipating the event to be potentially helpful to goals may imply further high, unverified expectations of the event. As the event unfolded, high Congruence at time 2

(in keeping with the correlational and mediational analyses) served to elicit positive affective outcomes but the negative effects of high anticipatory Relevance at time 1 seem to be sustained. The literature assumes that high Relevance high Congruence subjects should score higher on Positive Affective outcomes but certainly would not anticipate elevated negative outcomes in contrast to the low Relevance grouping. It would appear that, in contrast to subjects with minimal emotional investment, across the various time combinations, the high Relevance high Congruence grouping had a strong emotional response. On the one hand this highly loaded experience of the event elicited strong positive emotion as the event unfolded, but on the other hand, was also be associated with negative immediate and long-term outcomes, particularly at these intense appraisals occurred in the anticipatory phase of the event. Thus greater investment at the anticipatory phase appeared to make subjects more vulnerable to negative outcomes, but as the event proceeded implies a generally stronger emotional response which, depending on how the event transpired, could either take the form of positive and/or negative outcomes.

**Research Question 6(iii) and 7.**

This section addresses whether **low Relevance and unspecified Congruence (group A)** was associated with reduced affective outcomes and scores on the GHQ, and whether this association varied across time. Across the various time combinations, the results indicate that the low Relevance grouping was characterised by reduced affective outcomes.

This was particularly so with regard to negative affective outcomes and scores on the GHQ with regard to the anticipatory appraisal of Relevance. Subjects with **low Relevance at time 1** tended to experience less Anxiety and lower GHQ total scores at time 2, in contrast to those who viewed the event as highly Relevant at time 1 (with low or high Congruence at time 1 not distinguishing between subject's level of Anxiety and total GHQ score at time 2). Moreover subjects with low Relevance 1 also had significantly lower mean scores on Threat and Negative Affect at time 2 in contrast to subjects with high Relevance 1 and High Congruence at time 1.

Scores for **low Relevance 1 unspecified Congruence 1** relative to **high Relevance 1 low Congruence 2** indicated significantly lower mean scores on Threat 1 and 2, Negative Affect 2, the GHQ2 and its sub-scales (excluding Somatisation). Scores on Anxiety 2 and the GHQ 2 were also lower relative to the high Relevance 1 high Congruence 2 grouping. These findings again indicate reduced negative affective outcomes and symptomology for those subjects reporting low Relevance relative to those individuals who were highly invested in the situation, with the gap between the low Relevance 1 and the High Relevance 1 low Congruence 2 group becoming evident across a wider range of negative outcomes (relative to the high Relevance 1 low Congruence 1 group). These findings suggest that people who at the anticipatory phase viewed the event as not salient to their goals had less negative outcomes at time 2 in contrast to those who were invested in the event.

Low appraisals of Relevance into the event were associated with reduced Threat emotion and lower scores on positive affective outcomes. With regard to the **low Relevance 2 group**, while mean scores on positive affective outcomes (relative to the high Relevance 2 high Congruence 2 group) and Threat 2 (relative to the high Relevance 2 low Congruence 2 group) were lower, scores on other negative outcomes including the GHQ were comparable with the other groupings. With regard to subjects with high Relevance 2 and high Congruence 1, the low Relevance 2 group only had significantly lower scores on Threat 2 relative to this grouping.

**Overall** subjects who rated the situation as not relevant to their goals did not seem to hold as strong an investment in the situation and hence their general emotional response and levels of symptomology were lower relative to participants who viewed the event as significant in relation to their goals. It seems that lower investment in the event was confirmed by a lack of strong affect, either positive or negative (depending on the course of the event) and a reduced likelihood of experiencing stress-related symptomology.

**Additional Comments**

These findings endorse the centrality of Relevance at time 1 with regard to links to negative affective and long-term outcomes. It would seem that, in keeping with the correlational and mediational findings regarding Goal Relevance at time 1, that it is the anticipatory judgement of Relevance that sets the stage for anxiety and other negative

outcomes, which in combination with Congruence had varying influences across the stressful transaction. In contrast, variations in appraisals of Relevance and Congruence at Time 2 did not have varying impacts on measures of negative affective outcomes (besides Threat 2) and on scores on the GHQ at all. The findings do nevertheless support the role of high Congruence at time 2 (assuming high Relevance) in generating positive outcomes. These findings were consistent with the correlational and mediational results regarding Motivational Congruence 2.

In discussing the findings regarding the Motivational Relevance and Congruence combinations and variations, it is interesting to note that only one study (Nguyen & McColl-Kennedy's methodologically weak 2002 study) could be located that specifically explored the combined influence of these primary appraisal constructs. In addition no studies exploring the relative contribution of primary appraisal components (at various points in time) were identified. Brunstein's (1993) research is partially relevant but this study challenges the automatic association of Relevance with eliciting emotion, high Congruence with the generating of positive emotion and low Congruence with the generating of negative emotion. Rather it highlights the importance of Relevance 1 (associated with negative outcomes) and Congruence 2 (associated with positive affect overall), and otherwise points to the variability in the relations between Relevance and Congruence and their implications for outcomes across time. Hence this study makes a unique and valuable contribution to the literature by highlighting the role of primary appraisal in elaborating on the combined influence of the primary appraisal components of Relevance and Congruence, pointing to the influence of timing of appraisal, and

relating these appraisal components specifically to stress-related, appraisal-based emotion categories.

## 6. SUMMARY OF THE DISCUSSION

**With regard to the role of the personal strivings constructs:**

The correlational findings indicated that the **Goal Complementarity** and **Goal Conflict** directly influenced primary appraisal processes but did not directly influence affective and wellbeing outcomes, despite theoretical assertions to the contrary. The mediational analyses suggested possible paths through which Goal Complementarity and Conflict influenced appraisal processes. These findings indicated a rather minor direct role for the personal strivings constructs in the unfolding of the stressful transaction in this subject population. It was proposed that within the framework of a stressful experience, primary appraisal processes more directly linked to the event, were the conduit through which the impact of Goal Complementarity and Goal Conflict were expressed. It was the influence of Complementarity or Conflict on the personal assessment of how important and facilitative a potentially stressful situation is (i.e. primary appraisal) in relation to one's goals that shapes outcomes. While this clearly makes intuitive sense it has not previously been empirically verified as in this study.

**With regard to the role of primary appraisal:**

The correlational findings indicated that **Motivational Relevance** specifically at time 1

had a clear association with negative outcomes. The mediational results indicated that it was the direct impact of Relevance 1 on negative emotion states primarily at time 2 that placed participants at greater risk for the manifestation of symptomology into the event. In contrast to the common perspective put forward in the literature that Relevance is a prerequisite for emotional investment, high Relevance at time 1 in the context of a stressful transaction seemed to imply a highly significant, anxiety-provoking, "loaded" event with negative affective and long-term consequences into the event.

The correlational findings also highlighted the importance of **Motivational Congruence** at time 1 but more notably at time 2, in influencing positive outcomes and bolstering subjects against negative effects. The mediational analyses indicated that an initial favourable Congruence appraisal and positive affective outlook were significant in shaping later Congruence appraisals and affective outcomes. They also indicated that it was the interrelationship between these later Congruence and affective responses that reduced symptomology. The findings suggested that subjects entering the event with positive appraisals and a positive affective stance may anticipate the event to be facilitative and may be more inclined to frame the event as congruent at time 2, which in turn may amplify positive effects and dampen negative effects. Such participants may be "optimists", approaching the situation with a positive outlook enabling them to manage it more effectively.

The ANOVA analyses were congruent with the correlational and mediational analyses

but provided a more nuanced understanding and added the additional dimension of the influence of different Relevance Congruence combinations. Negative affective outcomes were associated with the **high Relevance low Congruence** combination. More specifically high Relevance and low Congruence prior to the event had some association with elevated negative outcomes. This association strengthened for subjects who anticipated the event to be relevant but experienced it as incongruent with their goals into the exam period. The high Relevance at time 2 low congruence at times 1 or 2 combinations had less impact on negative outcomes. These findings indicate the primacy of high Relevance 1 low Congruence 1 and 2 combinations in distinguishing between scores on negative outcomes. The initial appraisal of **high Relevance** set subjects up to experience the event as anxiety provoking. If a person entered the situation very loaded on Relevance it would seem that negative outcomes were an inevitable component of an even favourable stressful transaction. **High Congruence** at Time 1 only further served to load the event toward negative outcomes. As the event unfolded high Congruence at time 2 served to elicit positive affective outcomes but the negative effects of high anticipatory Relevance at time 1 were sustained. In contrast to subjects with minimal emotional investment, the high Relevance high Congruence grouping had a strong emotional response, which on the one hand elicited strong positive emotion as the event unfolded but on the other hand, given how loaded the experience of the event was, was also associated with negative immediate and long-term outcomes, particularly at the anticipatory phase. Participants who rated the situation as being of **low relevance** to their goals did not seem to hold as strong an investment in the situation and hence their overall emotional response and levels of

symptomology were lower relative to participants who viewed the event as significant in relation to their goals. It seemed that lower investment in the event was confirmed by a lack of strong affect, either positive or negative (depending on the course of the event) and less likelihood of experiencing stress-related symptomology.

These findings highlight the complexity of the role of primary appraisal within the stressful transaction. In contrast to Lazarus's (1999) shift toward secondary appraisal, and prior theory and research that presented Motivational Relevance and Congruence as single item, static constructs, the findings indicated the highly complex and subtle role of primary appraisal in shaping emotion and long-term outcomes. The findings significantly elaborated the theoretical understanding of the role of primary appraisal constructs in the stressful transaction and suggest that their influence is highly intricate and has varying impacts across time.

# CHAPTER NINE - IMPLICATIONS AND LIMITATIONS OF THE STUDY

This chapter addresses the findings in terms of their primary implications. Limitations of the study, suggestions for future research and concluding comments are also addressed.

## 1. IMPLICATIONS OF THE STUDY

In terms of the literature the focus of this study is unique and makes a significant contribution to both personality psychology and psychological stress research. The core contributions are addressed below.

### 1.1. The role of antecedent variables

In exploring the motivational aspects of the stressful transaction, the study made a unique contribution by incorporating both situational (i.e. primary appraisal) and individual –based (i.e. personal strivings) motivational constructs. Whereas appraisal research has been critiqued for neglecting the influence of antecedent variables, this study distinguished between antecedent factors that shape appraisal, the appraisal process itself, and affective and long-term outcomes (Frijda & Zellenberg, 2001; Monroe & Kelly, 1995). More specifically, it operationalised antecedent factors through the use of the middle level units of personal strivings - variables which bridge the gap between personality and context. The personal strivings generated by subjects provided a useful

framework for the exploration of the role of motivationally-based antecedent variables.

The findings of this study highlighted the role of more situation-based appraisal components in shaping the stressful transaction, as opposed to the underlying motivational features of Goal Conflict and Complementarity. This research suggests that these underlying motivational features may underpin and inform Motivational Relevance and Congruence appraisals, but do not in and of themselves shape outcomes. The findings thus serve to endorse Lazarus's emphasis on situationally-based psychological processes within the stressful transaction, and offer insight into the role of these situational variables in relation to their links with both middle-level units and outcome variables.

**1.2. Refining transactional theory**

The findings of the study expanded on and refined Lazarus's theoretical propositions regarding the relations between motivational factors and the stressful transaction. Specifically, the study highlighted that the primary appraisal processes of Relevance and Congruence have a significant and complex role to play in the shaping of the stressful transaction. This study took the understanding of the role of these primary appraisal components further than previous research. It elaborated on the specific and very significant contribution of the primary appraisal components of Relevance and Congruence in shaping affective and long-term outcomes. The study also illustrated the influence of the timing of these appraisals across the stressful transaction, and is unique

in that it addressed the influence of Relevance Congruence combinations on outcomes. In so doing it refined and contributed to the theoretical underpinnings of the transactional model of stress.

### 1.3. Methodological contribution

This study offered an interesting methodological approach in that it based many of the measures utilised on the individual-specific personal strivings generated by subjects, and compared trends across subjects. As such, the study incorporated both nomothetic and idiographic influences in the research design. It did not rely on a purely quantitative methodology characteristic of much stress research which Lazarus views as "incomplete as an approach to gaining knowledge" (Lazarus, 1999, p.195), nor did it fully embrace Lazarus's (1999) suggestion of a methodological overhaul as epitomised in his championing of a narrative approach to research. It embodied an approach that straddled what are conventionally seen as epistemologically dichotomous approaches to research and aimed to challenge other researchers to think differently about the possible interrelationships between "subjective" and "objective" research endeavours. In endeavouring to accommodate a subjective and contextual understanding of the individual, the current study represented an attempt to remain within the cognitive-mediational paradigm whilst responding to some of its limitations.

The study also substantially expanded upon conventional approaches to the measurement and analysis of primary appraisal components. It offered an

individualised and expanded measure of Motivational Relevance and Congruence and incorporated a longitudinal research design.

### 1.4. Practical implications

The findings of the study pointed to the centrality of exploring overarching goals in assisting individuals in managing their stress. The generating of goals and a goal matrix can in itself serve as a useful tool in aiding individuals to gain insight into the nature of their goals and the interrelationships between them. The process of exploring the interface between one's core goals and the environment may be very useful. Prior to entering a stressful situation, it may be useful for individuals to consider the Relevance and Congruence of a potentially stressful event for their goals. For instance, it would appear that the high rating of Relevance prior to an event is perhaps an inevitable aspect of commitment to an event and implicit to the experiencing of certain kinds of events as stressful. This loading of Relevance could serve as a useful indicator of a person's anticipated response within a stressful transaction. Relevance implies investment in an event which may be helpful under optimal conditions, but as suggested by this study when events are less controllable or less facilitative of goals, high Relevance may place people at risk of greater damage or stress. Possibly through identifying individuals high in Relevance where this places them at risk for stress, negative emotional states could be addressed early on in the actual stressful situation in

order to counter the possible outcome of negative effects. Ongoing support may serve as a further means of reducing negative outcomes.

## 2. LIMITATIONS OF THE STUDY

The design, implementation and findings of this study raise questions of a practical as well as theoretical nature, which could be addressed by future researchers in the field. In locating itself within the transactional framework, the study was constrained by many of the limitations of this approach. Whilst not exhaustive, this section highlights some of the core conceptual and methodological limitations of the study.

### 2.1. Conceptual limitations

#### 2.1.1. Contextualising the stress process

The transactional approach does not allow for the consideration of the impact of the broader social and political context on the individual's experience of the stressful transaction. Nevertheless, it is proposed that in order to fully understand the manner in which a situation is appraised and the emotion and outcomes it elicits, it is crucial to suitably locate the experience in its broader context. For instance, in the current study many of the participants' goals, appraisals of Relevance and Congruence, affective and long-term responses may have been shaped by broader social and personal factors. The high crime levels in South Africa, political and financial uncertainty and other

societal problems may have had an influence on scores on the GHQ as well as the way in which a 'minor' stressor, such as an examination, is perceived. In addition, factors such as the subject's family background and financial status may well play a central role in shaping the stressful transaction. For instance the experience of the examination period may be entirely different for a subject from a working class family where the family's future hinges on the student's successful completion of his/her studies and limited funds are available to support the studies, in contrast to a student with financial security and a guaranteed future in the family business.

While the focus of this study was theoretically and methodologically justified, perhaps the study would have been further enhanced by considering the interplay between the individual and other dimensions of the stressful transaction. For instance physiological measures of subjects' stress response could have been taken or goals could have been categorised as collectivist or individualist, and the influence of this categorisation on appraisal processes explored. However, given the originality of the study in other respects, it would have been highly complicated to include these dimensions prior to establishing relationships between the other proposed core dimensions.

### 2.1.2. Relations between cognition and affect

Lazarus's approach to the stressful transaction and to the analysis of the findings of this study, assumed the primacy of appraisal in shaping affect. It is not clear that this assumption always fitted the data generated by this study. The artificiality of attempting

to tease out a direct linear causality with regard to appraisal and affect was perhaps most clearly apparent regarding the partial correlations for Motivational Relevance and Congruence. These analyses raised questions as to when you measure affect and appraisal and where "mediational" processes begin and end. This study indicated that appraisal can both be a consequence and an antecedent of emotion. In addition, the elicitation of emotion may be influenced by other factors such as pre-existing Goal Complementarity and, features of the stressful event. The relationship between appraisal and emotion is not as clear-cut as appraisal theory proposes and as the initial research questions suggested. Nevertheless the study was framed in such a way as to endorse the primacy of appraisal relative to emotion which needs to be considered with some caution. These considerations raise the broader issue of linear causality within the transactional model and will be further elaborated on below.

### 2.1.3. Interrelations between variables in the stress process

In contrast to what the theory proposes and yet common to many studies within stress research, the mediational analyses conducted in this study attempted to establish linear causality. As such they reflect the limitation of much research in the field, in attempting to establish cause-effect relationships. Appraisals of Relevance and Congruence were understood to generate emotions which in turn would lead to various long-term outcomes. The study thus endorsed the model of a causal path, suggesting the primacy of appraisal and yet the concerns regarding appraisal and how to locate it in relation to other variables within the stressful transaction persist. For instance,

appraisals may not generate outcomes but may be markers of underlying individual features such as the level of Goal Complementarity, Positive Affect or Depressive symptomology. Certainly, with regard to this study, the ANOVA analyses (in not assuming a linear approach) better accommodate this complexity and appeared to throw more light on the interrelationships between the various transactional components. The use of ANOVA methods offered a more relational conceptualisation of the stressful transaction and a possible route for exploring interactional pathways within the constraints of a statistical approach. It seems more accurate to make comments of association with regard to appraisal and outcome and to view attempts at establishing causal relations with caution (Monroe & Kelly, 1995).

## 2.2. Methodological limitations

### 2.2.2. Application of motivational aspects

While the study's conceptualisation of strivings was feasible and yielded valuable findings with regard to motivation, there were nevertheless limitations to this aspect of the study (which relate to the limitations of strivings theory as a whole - see chapter 4, section 4). The goal unit of personal strivings, whilst claiming to be idiographic, nevertheless adopted a reductionist approach to understanding goals in relation to the individual. The study may not have sufficiently accounted for participant's particular subjective perceptions and associations with each goal across the stressful transaction. For instance participants may have viewed a particular goal as highly important prior to

the event and rated it as not important as the event proceeded. The subjective features of their particular perception of that specific goal would not be accommodated by a composite rating of Relevance. However, given the method and number of parameters included in the study, it was not possible to operationalise every feature of motivation.

### 2.2.2. Excluding features of the stressful transaction

For purposes of expediency and manageability, the study excluded some variables important to the transactional framework. For example, while the study explored antecedent motivational variables, it did not unpack antecedent conditions of appraisal with regard to environmental variables nor did it consider the role of secondary appraisal, coping and more dimensioned emotion variables. For reasons of research efficacy and focus, this study exclusively addressed primary appraisal and still involved a large number of variables relative to its sample size. As indicated by other research, the variables excluded from this particular study may nevertheless play an important role, and future studies would most certainly have to consider their contribution.

### 2.2.3. Research design

Implicit in the location of the study in a naturalistic stress situation, was the fact that no manipulation of the independent variables could be undertaken by the researcher. Furthermore, environmental and individual influences could not be controlled for.

However the naturalistic location ensured realism, relevance, authenticity and allowed for the empirical application of theoretical concepts. Nevertheless, the statement of relations between variables was weaker in contrast to research conducted in an experimental setting (Kerlinger, 1986).

While attempting to incorporate the complexity of the stress process through the use of measures that incorporated idiographic features and the employment of a variety of statistical methods, this research was still located within a quantitative paradigm and like most stress research was limited in its capacity to accommodate the multi-dimensional, process-oriented nature of the stress process. It is difficult to do justice to both depth-oriented, idiosyncratic features of stress whilst simultaneously advancing generic, comprehensive understandings.

### 2.2.4. Sample size and composition

The location of the study within a "real-life" examination period ensured that the size of the participant grouping was a factor over which limited control could be exerted. The modest sample size curtailed the methods of analyses that could be employed. The sample was a sample of convenience and a stratified sample. As such, the characteristics of the sample impact on the validity of the findings and limit the extent to which the findings of this research can be generalised to other stressful transactions. The subjects of this study were primarily white, English speaking educated individuals. They also were all psychology students – an over researched segment of the general population. Furthermore participation in the study was voluntary and involved a process

of individual self-selection, which may have biased the sample somewhat (Neale & Liebert, 1986). In addition the participants were mostly female and young adults and hence these cognitive processes may be more reflective of the experiences of this population. Also, while the study intended to research a 'normal' population, their scores on the GHQ indicate high levels of pathology. The application of these findings to other populations needs to be viewed with caution given the high GHQ scores. These features of the sample introduce a range of variables (e.g. gender) that may impact on the external validity, bias the findings of the study and limit its generalisability.

### 2.2.5. Method of data gathering

A further limitation of the study lay in the use of questionnaires employing self-report measures as the sole means of assessment, which are viewed sceptically by many in the psychology fraternity (Lazarus, 1999). The self-report nature of the instrument and the parameters in which subjects were asked to generate strivings, appraisals ad emotions curtailed the exploration of these variables within particular constraints, which may have resulted in inevitable oversights regarding features of these variables central to the stressful transaction. As such, self-report measures only tap what lies in the participant's conscious awareness as directed by the nature of the questions asked, but as Lazarus (1999) cautions "What is reported cannot be accepted at face value" (p. 84).

Yet in this instance, in order to gain insight into the psychological characteristics under investigation, this method of inferred access to an individual's goals, appraisals and emotions offered the closest access point to these processes. In addition, the

perception or appraisal of these processes through the individual's cognitive filter is congruent with the assumptions of the transactional model of stress, for ultimately such an approach assumes that the experience of stress is indeed subjective and the individual's communication of what he/she thinks and feels cannot be objectified (Lazarus, 1999). Nevertheless, the subjective responses of the participants, although implicit given the nature of this research, also presented the researcher with certain limitations as regards the data reliability. In addition, data reliability may have been compromised given that some subjects had finished their examinations and others had not (see Chapter Six for further discussion of this issue).

**2.2.6. Research instruments**

Issues of reliability and validity were a concern for a number of the measures utilised in this study. The primary appraisal measures in particular were constructed for the purposes of this study and, beyond Cronbach's alpha scores, face validity and their methodological foundation in other measures, no other measures of their reliability and validity were undertaken. Furthermore, assessments of the validity and reliability of the personal strivings construct were also limited. Issues of reliability and validity for these measures were further complicated by the idiographic features of the personal strivings and appraisal constructs, which call into question conventional ways of assessing reliability and validity. These issues are further compounded by the fact that the measures employed in this study were mostly developed overseas and although these measures have been utilised in South Africa, they have not been adapted or validated in relation to any sector of the South African population. However, there was no reason to

assume inaccuracy in the measures and findings concerning these dimensions were coherent.

This study, as discussed in the methodology section, incorporated the range of Threat, Harm, Benefit and Challenge emotions, but could not account for more subtle qualities and possible relational meaning inherent to more specific emotion dimensions. With regard to the measure of long-term outcomes, these were symptomology-based. This approach did not allow for the exploration of more positive long-term outcomes.

The above methodological and conceptual weaknesses should be taken into consideration in the assessment of the findings of this study. Many of these limitations reflect the reality of choices required in order to implement this research. The researcher was aware of many of these constraints prior to the implementation of the research and, as with any research process, held them in mind whilst acknowledging the potential contribution and strengths of the approach adopted. Hence, while limited, the rich and unique data generated from this study provides a potential basis for further theoretical exploration and empirical research.

## 3. IMPLICATIONS FOR FUTURE RESEARCH

The current study illustrated the diversity and complexity of the realm of stress research. It pointed to the theoretical necessity of specifying aspects of the stress process and unpacking broad theoretical assertions. Although the transactional model is not

disputed, it appears that there is a need for greater refinement of the inter-relationships between the various components of this model. A number of specific findings both directly related to the hypotheses under investigation and beyond this focus require further investigation. In addition, the limitations of the study also point to potential avenues for future research

The study identified various significant relations between motivational constructs and the stress process. In this regard the findings of this study point to the utility of the personal strivings construct and its application to appraisal as a means of exploring this link. Research is required into the relation between motivationally-based antecedent and appraisal processes and other variables in the stress process. Further clarification of the influence of Goal Conflict and Goal Complementarity on appraisal and other aspects of the stressful transaction as well as further exploration of the implications of high Relevance combined with low versus high Congruence on outcomes would be of theoretical interest. The detailed exploration of the relation between primary appraisal and more specific emotion dimensions than the ones utilised in this study is a possible research direction. The role of time in terms of incorporating various phases of the stressful transaction and exploring their impact on outcomes of primary and other appraisal constructs is also worthy of further investigation. The relation of these strivings constructs to other variables identified as significant in the literature and indicated as such in this study (e.g. positive affect and a possible optimistic demeanour) could serve as a useful focus for future research.

Research in this field would benefit from a diversity of research approaches utilising a variety of populations and including both in-depth, qualitative-based research and more large-scale quantitative investigations using multi-level research measures. Future research should also incorporate attempts to move beyond the positivistic, scientific paradigm within which the transactional model is located. Alternative frameworks need to be established which more adequately facilitate an exploration of the complexity of the stress process. Such a framework requires a shift in both the conceptualisation of stress and the methodological repertoire which characterises stress research.

## 4. CONCLUDING COMMENT

The study focussed on the operationalisation of motivational factors and the clarification of their theoretically proposed role as components of the stress process. The overarching aim of this study was to explore the relations between specific features of personal strivings, appraisals, emotions and responses of participants over the course of an examination period. In so doing, it has contributed to the limited existing knowledge regarding the role of motivational factors as components of the stress process. The study indicated that this indeed appeared to be a fruitful direction for exploration. The study has provided some insight into how the striving characteristics of Goal Conflict and Complementarity and the appraisal processes of Motivational Relevance and Congruence impact on the individual's experience of stress. While acknowledging its limitations, the study has nevertheless made a valuable theoretical

and methodological contribution to the understanding of the stress process.

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# APPENDICES

# Appendix 1 - Questionnaires 1 and 2

**DECLARATION**

My name is Stacey Leibowitz and I am doing research into the relationship between goals and stress. Gill Haiden is administering the questionnaires for me. The study will explore the role goals play in the way people appraise and respond to a stressful experience. I would greatly appreciate your participation in this study. Participation will involve the completion of two questionnaires - one prior to your examination period and the other following the examination period. The questionnaires will each take approximately 20 minutes to complete. You are free to choose not to participate or to participate, and may withdraw your consent at any time.

All the information gathered during the course of this research will be treated with the utmost confidentiality. Any information gathered will not be disclosed to individual students or members of staff. Participants are assured of anonymity in the writing up of this research.

I would greatly appreciate your complete honesty and cooperation in filling in the questionnaire. By filling in the forms to the best of your ability, you are contributing to a growth of knowledge in the area of stress research and a better understanding of the factors which impact on students under examination conditions. Please fill in every question - do not leave anything out. If you have any inquiries regarding the study, please feel free to contact me.

Thank-you for your cooperation!

STACEY LEIBOWITZ.
717 4544
ss 314

**STUDENT'S GOALS QUESTIONNAIRE I**

CONSENT FORM AND COVER SHEET

In signing this consent form, you have agreed to participate in completing the first questionnaire of this study. You will be required to hand in this consent form (attached to your questionnaire) with your name and student number written on the form. This is necessary as the goals listed in your first questionnaire will be referred to by you if you choose to fill in the second questionnaire.

Following completion of the first questionnaire, the questionnaires will be placed in a sealed envelope until they are handed back to you with your second questionnaire. If you participate in completing the second questionnaire you will be asked to tear off this consent form before handing back the questionnaires. If you do not participate in completing the second questionnaire I will automatically discard your consent form. These measures will allow you to match your first and second questionnaires whilst protecting your privacy in that at no time during this procedure, will I be able to view the questionnaire with your name on it.

SURNAME:

FIRST NAME:

STUDENT NUMBER:

INDIVIDUAL INFORMATION

1. Age:

2. Home Language:

3. Gender: male
female

4. What course are you registered for (e.g. 3rd year B.A.)?

5. How stressful do you anticipate this examination period to be?

very stressful

stressful

not at all
stressful

TYPICAL GOALS AS A STUDENT DURING THE EXAMINATION PERIOD

You are about to enter into an examination period. You may have thought about what this examination period means to you, what you hope to achieve over this period. These objectives may reflect central goals or concerns you may have, or may not be very central to what you are generally focussed on. This section of the questionnaire is designed to look at these ideas more systematically by exploring the strivings you generally pursue.

Please list 6 goals or objectives that you typically or characteristically try to achieve in different situations. I want you to ask yourself the question **"What goals am I typically trying to achieve?"**. Spend about 5 minutes just thinking about your goals before writing anything down.

These goals may include things you wish to experience or achieve (eg. doing well academically, trying to help others, trying to seek new and exciting experiences), as well as things you'd prefer to avoid (eg. try to avoid being hurt, try to avoid being the centre of attention, try to avoid failure). These goals can be abstract (eg. showing I am superior to others) or quite practical (eg. to go to a lot of parties, to only drink alcohol occasionally ).

Please list your goals in order of importance, giving the most important goal first and the least important last. Please list these goals in the space provided below and write in a key word which best describes the meaning of the goal:

1.

KEY WORD 1 :

2.

KEY WORD 2 :

3.

KEY WORD 3 :

4.

KEY WORD 4 :

5.

KEY WORD 5 :

6.

KEY WORD 6 :

HOW THE DIFFERENT GOALS RELATE TO EACH OTHER

You have just listed 6 goals that you typically try to achieve. Now we want to see how these goals relate to each other. I want you to ask yourself the question: **"Does being successful in this goal have a helpful or harmful (or no effect at all) on the other goal?".** To do this please list the goal key-words in the rows and columns on the matrix below. Then please compare each goal with every other goal in terms of how achieving any one goal will effect the achievement of any other goal. In order to do this you need to indicate the degree to which they conflict, compliment or contradict each other by rating them according to the following:

-2= very harmful effect

-1 = somewhat harmful effect

0 = no effect at all

1 = somewhat helpful effect

2 = very helpful effect

Write in each goal key word and then fill in the appropriate rating where the row goal key-word meets the column goal key-word in the vacant blocks in the matrix.

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| KEY WORDS | | | | | | |
| 1 | X | X | X | X | X | X |
| 2 | | X | X | X | X | X |
| 3 | | | X | X | X | X |
| 4 | | | | X | X | X |
| 5 | | | | | X | X |
| 6 | | | | | | X |

]

THE SIGNIFICANCE OF THE UPCOMING EXAMINATION PERIOD IN RELATION TO YOUR GOALS

I want you to look at the list of the 6 goals you are typically trying to achieve. Now I want you to think about to what extent the examination period touches on your personal goals. I want you to ask yourself the question: **"How important is this examination period in relation to each of my goals?"**. For instance if one of your goals was "to have fun" you may rate the examination period as not at all important in relation to this goal. In this section please indicate the significance of the upcoming examination period in relation to each goal where:

1= not at all important

2 = somewhat important

3 = important

4 = very important

5 = extremely important

Write down each goal key word and then place a tick in the box which best describes the importance of the exams in relation to the goal

| KEY WORDS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

THE CONGRUENCE OF THE UPCOMING EXAMINATION PERIOD IN RELATION TO YOUR GOALS

I want you to once again look at the list of the 6 goals you are typically trying to achieve. Now I want you to think about to what extent the examination period will facilitate or hinder the achievement of the these goals. I want you to ask yourself the question: **"Will this examination period aid or obstruct the achievement of each of my goals?".** For instance if one of your goals was "to have fun" you may rate the examination period as very unhelpful in relation to this goal. In this section please indicate the congruence of the upcoming examination period in relation to each goal where:

1 = very unhelpful to the achieving the goal

2 = somewhat unhelpful to achieving the goal

3 = no real impact on the goal

4 = somewhat helpful to achieving the goal

5 = very helpful to achieving the goal

Write down each goal key word and then place a tick in the box which best describes the congruence of the exams in relation to the goal

| KEY WORDS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

FEELINGS AND EMOTIONS ABOUT THE UPCOMING EXAMINATION PERIOD

Please mark an X in one of the boxes next to each emotional state listed below, to show the extent to which you feel each of these states, in relation to your anticipated experience over the examination period.

Your answer key is:

0 = not at all 1 = slightly 2 = moderately 3 = strongly 4 = extremely

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. worried | 0 | 1 | 2 | 3 | 4 | 19.distressed | 0 | 1 | 2 | 3 | 4 |
| 2. confident | 0 | 1 | 2 | 3 | 4 | 20.excited | 0 | 1 | 2 | 3 | 4 |
| 3. angry | 0 | 1 | 2 | 3 | 4 | 21.upset | 0 | 1 | 2 | 3 | 4 |
| 4. indifferent | 0 | 1 | 2 | 3 | 4 | 22.strong | 0 | 1 | 2 | 3 | 4 |
| 5. overjoyed | 0 | 1 | 2 | 3 | 4 | 23.scared | 0 | 1 | 2 | 3 | 4 |
| 6. guilty | 0 | 1 | 2 | 3 | 4 | 24.hostile | 0 | 1 | 2 | 3 | 4 |
| 7. fearful | 0 | 1 | 2 | 3 | 4 | 25.enthusiastic | 0 | 1 | 2 | 3 | 4 |
| 8. hopeful | 0 | 1 | 2 | 3 | 4 | 26.proud | 0 | 1 | 2 | 3 | 4 |
| 9. unconcerned | 0 | 1 | 2 | 3 | 4 | 27.irritable | 0 | 1 | 2 | 3 | 4 |
| 10.sad | 0 | 1 | 2 | 3 | 4 | 28.alert | 0 | 1 | 2 | 3 | 4 |
| 11.pleased | 0 | 1 | 2 | 3 | 4 | 29.ashamed | 0 | 1 | 2 | 3 | 4 |
| 12.disgusted | 0 | 1 | 2 | 3 | 4 | 30.inspired | 0 | 1 | 2 | 3 | 4 |
| 13.anxious | 0 | 1 | 2 | 3 | 4 | 31.nervous | 0 | 1 | 2 | 3 | 4 |
| 14.eager | 0 | 1 | 2 | 3 | 4 | 32.determined | 0 | 1 | 2 | 3 | 4 |
| 15.disappointed | 0 | 1 | 2 | 3 | 4 | 33.attentive | 0 | 1 | 2 | 3 | 4 |
| 16.happy | 0 | 1 | 2 | 3 | 4 | 34.jittery | 0 | 1 | 2 | 3 | 4 |
| 17.relieved | 0 | 1 | 2 | 3 | 4 | 35.active | 0 | 1 | 2 | 3 | 4 |
| 18.interested | 0 | 1 | 2 | 3 | 4 | 36.frightened | 0 | 1 | 2 | 3 | 4 |

Please choose the answer which **BEST DESCRIBES** how you have been feeling during the **LAST MONTH** (place a tick in the box which best describes your feelings)

1. Have you recently been able to enjoy your normal day to day activities?

| | | | |
|---|---|---|---|
| 1.More so than usual | 2. Same as usual | 3. Less so than usual | 4. Much less than usual |

2. Have you recently found everything getting on top of you?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

3. Have you recently found at times you couldn't do anything because your nerves were too bad?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

4. Have you recently felt on the whole that you were doing things well?

| | | | |
|---|---|---|---|
| 1. Better than usual | 2. About the same | 3. Less than usual | 4. Much less well |

5. Have you recently been feeling in need of a good tonic (vitamins, etc.)

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

6. Have you felt constantly under stress?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

7. Have you recently been feeling perfectly well and in good health?

| | | | |
|---|---|---|---|
| 1. Better than usual | 2. Same as usual | 3. Worse than usual | 4. Much worse than usual |

8. Have you recently found the idea of taking your own life kept coming into your mind?

| | | | |
|---|---|---|---|
| 1. Definitely not | 2. I don't think so | 3. Has crossed my mind | 4.Definitely has |

9. Have you recently been having hot or cold spells?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

10. Have you recently thought of the possibility that you might do away with yourself?

| 1. Definitely not | 2. I don't think so | 3. Has crossed my mind | 4.Definitely have |
|---|---|---|---|

11. Have you recently felt capable of making decisions about things?

| 1. More so than usual | 2. Same as usual | 3. Less so than usual | 4. Much less capable |
|---|---|---|---|

12. Have you recently been getting scared or panicky for no good reason?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

13. Have you recently been getting any pains in your head?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

14. Have you recently lost much sleep over worry?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

15. Have you recently been thinking of yourself as a worthless person?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

16. Have you recently found yourself wishing you were dead and away from it all?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

17. Have you recently felt that you are playing a useful part in things?

| 1. More so than usual | 2. Same as usual | 3. Less useful than usual | 4. Much less useful |
|---|---|---|---|

18. Have you recently felt that life is entirely hopeless?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

19. Have you recently been getting a feeling of tightness or pressure in the head?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

20. Have you recently been feeling run down and out of sorts?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

21. Have you recently been taking longer over the things you do?

| | | | |
|---|---|---|---|
| 1. Quicker than usual | 2. Same as usual | 3. Longer than usual | 4. Much longer than usual |

22. Have you recently been satisfied with the way you've carried out your tasks?

| | | | |
|---|---|---|---|
| 1. More satisfied | 2. Same as usual | 3. Less satisfied than usual | 4. Much less satisfied |

23. Have you recently felt that life isn't worth living?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

24. Have you recently been managing to keep yourself busy and occupied?

| | | | |
|---|---|---|---|
| 1. More so than usual | 2. Same as usual | 3. Less than usual | 4. Much less than usual |

25. Have you recently had difficulty staying asleep?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

26. Have you recently been feeling nervous and uptight all the time?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

27. Have you recently felt that you are ill?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

28. Have you recently been getting edgy and bad tempered?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

**STUDENT'S GOALS QUESTIONNAIRE 2**

CONSENT FORM

In signing this consent form, you have agreed to participate in completing the second questionnaire of this study. Where necessary please refer to your list of goals (from Questionnaire 1) in filling out this questionnaire. Following completion of this questionnaire, please hand in both questionnaires 1 and 2. Please tear off the consent form with your identifying information before handing back the questionnaires. If you do not participate in completing the second questionnaire I will automatically discard your consent form.

SIGNED

BACKGROUND INFORMATION

1. Please list the examinations you have written during this exam period (eg. RDA, Stats, psychology II, sociology III).

2. Besides your examinations, did any particularly challenging or difficult experience(s) or event(s) happen to you during this period? This might include experiences such as breaking up with a boyfriend, being the victim of a hijacking or losing a loved one).

Yes

No

3. If you answered yes to question 2 please write down the nature of the experience(s).

4. How stressful do you rate this examination period to have been?

very stressful

stressful

not at all stressful

5. PLEASE NOTE:

The questionnaire refers to the examination period up till this point. You may still have other edams ahead of you. Please list the number of exams you still have to write (e.g. 0, 1, 2, 3 exams).

GOAL OUTCOME

You have just gone through an examination period. During this period the outcome of the goals you listed before this period may or may not have been influenced by your experience of this situation. I want you to look at the list of the 6 goals you are typically trying to achieve. I want you to ask yourself this question **" Did I achieve each of my goals during the examination period?"**. In this section please indicate the outcome of each goal. Your options are:

1 = goal not achieved at all

2 = goal somewhat achieved

3 = goal partially achieved

4 = goal almost completely achieved

5 = goal completely achieved

Write down each goal key word and then place a tick in the box which best describes the outcome of the goal over the examination period.

| KEY WORDS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

THE SIGNIFICANCE OF THE EXAMINATION PERIOD IN RELATION TO YOUR GOALS

I want you to look at the list of the 6 goals you are typically trying to achieve. Now I want you to think about to what extent the examination period touched on your personal goals. I want you to ask yourself the question: **"How important was this examination period in relation to each of my goals?"**. For instance if one of your goals was "to have fun" you may rate the examination period as not at all important in relation to this goal. In this section please indicate the significance of the examination period in relation to each goal where:

1= not at all important

2 = somewhat important

3 = important

4 = very important

5 = extremely important

Write down each goal key word and then place a tick in the box which best describes the importance of the exams in relation to the goal.

| KEY WORDS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

THE CONGRUENCE OF THE EXAMINATION PERIOD IN RELATION TO YOUR GOALS

I want you to once again look at the list of the 6 goals you are typically trying to achieve. Now I want you to think about to what extent the examination period facilitated or hindered the achievement of the these goals. I want you to ask yourself the question: **"Did this examination period aid or obstruct the achievement of each of my goals?".** For instance if one of your goals was "to have fun" you may rate the examination period as very unhelpful in relation to this goal. In this section please indicate the congruence of the upcoming examination period in relation to each goal where:

1 = very unhelpful to the achieving the goal

2 = somewhat unhelpful to achieving the goal

3 = no real impact on the goal

4 = somewhat helpful to achieving the goal

5 = very helpful to achieving the goal

Write down each goal key word and then place a tick in the box which best describes the congruence of the exams in relation to the goal

| KEY WORDS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

FEELINGS AND EMOTIONS ABOUT THE EXAMINATION PERIOD

Please mark an X in one of the boxes next to each emotional state listed below, to show the extent to which you feel each of these states, in relation to your experience over the examination period.

Your answer key is:

0 = not at all 1 = slightly 2 = moderately 3 = strongly 4 = extremely

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. worried | 0 | 1 | 2 | 3 | 4 | 19.distressed | 0 | 1 | 2 | 3 | 4 |
| 2. confident | 0 | 1 | 2 | 3 | 4 | 20.excited | 0 | 1 | 2 | 3 | 4 |
| 3. angry | 0 | 1 | 2 | 3 | 4 | 21.upset | 0 | 1 | 2 | 3 | 4 |
| 4. indifferent | 0 | 1 | 2 | 3 | 4 | 22.strong | 0 | 1 | 2 | 3 | 4 |
| 5. overjoyed | 0 | 1 | 2 | 3 | 4 | 23.scared | 0 | 1 | 2 | 3 | 4 |
| 6. guilty | 0 | 1 | 2 | 3 | 4 | 24.hostile | 0 | 1 | 2 | 3 | 4 |
| 7. fearful | 0 | 1 | 2 | 3 | 4 | 25.enthusiastic | 0 | 1 | 2 | 3 | 4 |
| 8. hopeful | 0 | 1 | 2 | 3 | 4 | 26.proud | 0 | 1 | 2 | 3 | 4 |
| 9. unconcerned | 0 | 1 | 2 | 3 | 4 | 27.irritable | 0 | 1 | 2 | 3 | 4 |
| 10.sad | 0 | 1 | 2 | 3 | 4 | 28.alert | 0 | 1 | 2 | 3 | 4 |
| 11.pleased | 0 | 1 | 2 | 3 | 4 | 29.ashamed | 0 | 1 | 2 | 3 | 4 |
| 12.disgusted | 0 | 1 | 2 | 3 | 4 | 30.inspired | 0 | 1 | 2 | 3 | 4 |
| 13.anxious | 0 | 1 | 2 | 3 | 4 | 31.nervous | 0 | 1 | 2 | 3 | 4 |
| 14.eager | 0 | 1 | 2 | 3 | 4 | 32.determined | 0 | 1 | 2 | 3 | 4 |
| 15.disappointed | 0 | 1 | 2 | 3 | 4 | 33.attentive | 0 | 1 | 2 | 3 | 4 |
| 16.happy | 0 | 1 | 2 | 3 | 4 | 34.jittery | 0 | 1 | 2 | 3 | 4 |
| 17.relieved | 0 | 1 | 2 | 3 | 4 | 35.active | 0 | 1 | 2 | 3 | 4 |
| 18.interested | 0 | 1 | 2 | 3 | 4 | 36.frightened | 0 | 1 | 2 | 3 | 4 |

Please choose the answer which **BEST DESCRIBES** how you have been feeling during the **LAST MONTH** (place a tick in the box which best describes your feelings)

1. Have you recently been able to enjoy your normal day to day activities?

| | | | |
|---|---|---|---|
| 1.More so than usual | 2. Same as usual | 3. Less so than usual | 4. Much less than usual |

2. Have you recently found everything getting on top of you?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

3. Have you recently found at times you couldn't do anything because your nerves were too bad?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

4. Have you recently felt on the whole that you were doing things well?

| | | | |
|---|---|---|---|
| 1. Better than usual | 2. About the same | 3. Less than usual | 4. Much less well |

5. Have you recently been feeling in need of a good tonic (vitamins, etc.)

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

6. Have you felt constantly under stress?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

7. Have you recently been feeling perfectly well and in good health?

| | | | |
|---|---|---|---|
| 1. Better than usual | 2. Same as usual | 3. Worse than usual | 4. Much worse than usual |

8. Have you recently found the idea of taking your own life kept coming into your mind?

| | | | |
|---|---|---|---|
| 1. Definitely not | 2. I don't think so | 3. Has crossed my mind | 4.Definitely has |

9. Have you recently been having hot or cold spells?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

10. Have you recently thought of the possibility that you might do away with yourself?

| 1. Definitely not | 2. I don't think so | 3. Has crossed my mind | 4.Definitely have |
|---|---|---|---|

11. Have you recently felt capable of making decisions about things?

| 1. More so than usual | 2. Same as usual | 3. Less so than usual | 4. Much less capable |
|---|---|---|---|

12. Have you recently been getting scared or panicky for no good reason?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

13. Have you recently been getting any pains in your head?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

14. Have you recently lost much sleep over worry?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

15. Have you recently been thinking of yourself as a worthless person?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

16. Have you recently found yourself wishing you were dead and away from it all?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

17. Have you recently felt that you are playing a useful part in things?

| 1. More so than usual | 2. Same as usual | 3. Less useful than usual | 4. Much less useful |
|---|---|---|---|

18. Have you recently felt that life is entirely hopeless?

| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |
|---|---|---|---|

19. Have you recently been getting a feeling of tightness or pressure in the head?

| 1. Not at all | 2. No more than | 3. Rather more than | 4. Much more than usual |
|---|---|---|---|

| | | | |
|---|---|---|---|
| | usual | usual | |

20. Have you recently been feeling run down and out of sorts?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

21. Have you recently been taking longer over the things you do?

| | | | |
|---|---|---|---|
| 1. Quicker than usual | 2. Same as usual | 3. Longer than usual | 4. Much longer than usual |

22. Have you recently been satisfied with the way you've carried out your tasks?

| | | | |
|---|---|---|---|
| 1. More satisfied | 2. Same as usual | 3. Less satisfied than usual | 4. Much less satisfied |

23. Have you recently felt that life isn't worth living?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

24. Have you recently been managing to keep yourself busy and occupied?

| | | | |
|---|---|---|---|
| 1. More so than usual | 2. Same as usual | 3. Less than usual | 4. Much less than usual |

25. Have you recently had difficulty staying asleep?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

26. Have you recently been feeling nervous and uptight all the time?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

27. Have you recently felt that you are ill?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

28. Have you recently been getting edgy and bad tempered?

| | | | |
|---|---|---|---|
| 1. Not at all | 2. No more than usual | 3. Rather more than usual | 4. Much more than usual |

# Appendix 2 – Ethics Approval Form

# Appendix 3 - Correlation tables

| | Somat 1 | Anx 1 | Soc Dys1 | Depress1 | Ghq1 | Relev 2 | Congr 2 | Pos Aff 2 |
|---|---|---|---|---|---|---|---|---|
| **Goal Diff** | -0.12865<br>0.1326<br>138 | -0.10794<br>0.2076<br>138 | -0.04480<br>0.6018<br>138 | -0.13263<br>0.1210<br>138 | -0.12722<br>0.1370<br>138 | 0.30554<br>0.0003<br>134 | 0.33140<br><.0001<br>133 | 0.05666<br>0.5123<br>136 |
| **Goal Conflict** | 0.11647<br>0.1737<br>138 | 0.11718<br>0.1711<br>138 | -0.05587<br>0.5152<br>138 | 0.1254<br>0.1428<br>138 | 0.09856<br>0.2501<br>138 | -0.1685<br>0.0516<br>134 | -0.15055<br>0.0837<br>133 | 0.04924<br>0.5692<br>136 |
| **Goal Compl** | -0.08862<br>0.3013<br>138 | -0.04908<br>0.5675<br>138 | -0.02517<br>0.7695<br>138 | -0.12679<br>0.1384<br>138 | -0.09038<br>0.2918<br>138 | 0.32475<br>0.0001<br>134 | 0.33455<br><.0001<br>133 | 0.04254<br>0.6229<br>136 |
| **Relev 1** | -0.00983<br>0.9050<br>150 | 0.03443<br>0.6757<br>150 | -0.01926<br>0.8151<br>150 | 0.00014<br>0.9986<br>150 | 0.00403<br>0.9610<br>150 | 0.58613<br><.0001<br>145 | 0.31081<br>0.0002<br>143 | 0.11922<br>0.1504<br>147 |
| **Congr 1** | -0.09714<br>0.2354<br>151 | -0.12708<br>0.1200<br>151 | -0.05412<br>0.5093<br>151 | -0.07195<br>0.3800<br>151 | -0.10551<br>0.1973<br>151 | 0.44411<br><.0001<br>146 | 0.47971<br><.0001<br>143 | 0.27217<br>0.0008<br>148 |
| **Pos Aff 1** | -0.27311<br>0.0007<br>151 | -0.29988<br>0.0002<br>151 | -0.39989<br><.0001<br>151 | -0.22023<br>0.0066<br>151 | -0.35003<br><.0001<br>151 | 0.16417<br>0.0477<br>146 | 0.21310<br>0.0106<br>143 | 0.59034<br><.0001<br>148 |
| **Neg Aff 1** | 0.35796<br><.0001<br>151 | 0.54529<br><.0001<br>151 | 0.38550<br><.0001<br>151 | 0.47144<br><.0001<br>151 | 0.53123<br><.0001<br>151 | 0.14806<br>0.0745<br>146 | -0.06520<br>0.4391<br>143 | 0.01261<br>0.8791<br>148 |
| **Threat 1** | 0.31033<br>0.0001<br>151 | 0.52027<br><.0001<br>151 | 0.33273<br><.0001<br>151 | 0.33279<br><.0001<br>151 | 0.45000<br><.0001<br>151 | 0.11993<br>0.1493<br>146 | -0.10105<br>0.2298<br>143 | -0.04554<br>0.5826<br>148 |
| **Harm 1** | 0.30281<br>0.0002<br>150 | 0.40404<br><.0001<br>150 | 0.43176<br><.0001<br>150 | 0.52809<br><.0001<br>150 | 0.49975<br><.0001<br>150 | -0.04762<br>0.5695<br>145 | -0.18957<br>0.0238<br>142 | -0.02948<br>0.7230<br>147 |
| **Chall 1** | -0.18463<br>0.0232<br>151 | -0.25942<br>0.0013<br>151 | -0.37874<br><.0001<br>151 | -0.24743<br>0.0022<br>151 | -0.31500<br><.0001<br>151 | 0.16223<br>0.0504<br>146 | 0.17078<br>0.0414<br>143 | 0.36365<br><.0001<br>148 |
| **Benefit 1** | -0.26583<br>0.0010<br>150 | -0.26184<br>0.0012<br>150 | -0.29225<br>0.0003<br>150 | -0.22890<br>0.0048<br>150 | -0.31386<br><.0001<br>150 | 0.07936<br>0.3427<br>145 | 0.20311<br>0.0153<br>142 | 0.38996<br><.0001<br>147 |
| **Somat 1** | 1.00000<br><br>151 | 0.68038<br><.0001<br>151 | 0.58385<br><.0001<br>151 | 0.49694<br><.0001<br>151 | 0.82808<br><.0001<br>151 | 0.01555<br>0.8527<br>145 | -0.05528<br>0.5135<br>142 | -0.08839<br>0.2871<br>147 |

| | Somat 1 | Anx 1 | Soc Dys1 | Depress1 | Ghq1 | Relev 2 | Congr 2 | Pos Aff 2 |
|---|---|---|---|---|---|---|---|---|
| **Anx 1** | 0.68038<br><.0001<br>151 | 1.00000<br><br>151 | 0.65043<br><.0001<br>151 | 0.60480<br><.0001<br>151 | 0.87919<br><.0001<br>151 | 0.04427<br>0.5970<br>145 | -0.04179<br>0.6215<br>142 | -0.16052<br>0.0521<br>147 |
| **Soc Dys 1** | 0.58385<br><.0001<br>151 | 0.65043<br><.0001<br>151 | 1.00000<br><br>151 | 0.58674<br><.0001<br>151 | 0.82607<br><.0001<br>151 | 0.02809<br>0.7373<br>145 | -0.06685<br>0.4293<br>142 | -0.22671<br>0.0058<br>147 |
| **Depress 1** | 0.49694<br><.0001<br>151 | 0.60480<br><.0001<br>151 | 0.58674<br><.0001<br>151 | 1.00000<br><br>151 | 0.81227<br><.0001<br>151 | -0.12508<br>0.1339<br>145 | -0.12953<br>0.1245<br>142 | -0.04899<br>0.5557<br>147 |
| **Ghq 1** | 0.82808<br><.0001<br>151 | 0.87919<br><.0001<br>151 | 0.82607<br><.0001<br>151 | 0.81227<br><.0001<br>151 | 1.00000<br><br>151 | -0.01237<br>0.8826<br>145 | -0.08863<br>0.2942<br>142 | -0.15095<br>0.0680<br>147 |
| **Relev 2** | 0.01555<br>0.8527<br>145 | 0.04427<br>0.5970<br>145 | 0.02809<br>0.7373<br>145 | -0.12508<br>0.1339<br>145 | -0.01237<br>0.8826<br>145 | 1.00000<br><br>146 | 0.52686<br><.0001<br>142 | 0.14913<br>0.0724<br>146 |
| **Congr 2** | -0.05528<br>0.5135<br>142 | -0.04179<br>0.6215<br>142 | -0.06685<br>0.4293<br>142 | -0.12953<br>0.1245<br>142 | -0.08863<br>0.2942<br>142 | 0.52686<br><.0001<br>142 | 1.00000<br><br>143 | 0.34322<br><.0001<br>143 |
| **Pos Aff 2** | -0.08839<br>0.2871<br>147 | -0.16052<br>0.0521<br>147 | -0.22671<br>0.0058<br>147 | -0.04899<br>0.5557<br>147 | -0.15095<br>0.0680<br>147 | 0.14913<br>0.0724<br>146 | 0.34322<br><.0001<br>143 | 1.00000<br><br>148 |
| **Neg Aff 2** | 0.39045<br><.0001<br>146 | 0.49285<br><.0001<br>146 | 0.28450<br>0.0005<br>146 | 0.44021<br><.0001<br>146 | 0.48534<br><.0001<br>146 | 0.12490<br>0.1344<br>145 | -0.14031<br>0.0958<br>142 | -0.06458<br>0.4371<br>147 |
| **Threat 2** | 0.38236<br><.0001<br>147 | 0.46502<br><.0001<br>147 | 0.30136<br>0.0002<br>147 | 0.30701<br>0.0002<br>147 | 0.43524<br><.0001<br>147 | 0.09792<br>0.2397<br>146 | -0.22766<br>0.0062<br>143 | -0.10871<br>0.1884<br>148 |
| **Harm 2** | 0.35292<br><.0001<br>146 | 0.42795<br><.0001<br>146 | 0.35285<br><.0001<br>146 | 0.51046<br><.0001<br>146 | 0.49436<br><.0001<br>146 | 0.04371<br>0.6017<br>145 | -0.24944<br>0.0028<br>142 | -0.01038<br>0.9007<br>147 |
| **Chall 2** | -0.06148<br>0.4595<br>147 | -0.18941<br>0.0216<br>147 | -0.25995<br>0.0015<br>147 | -0.14582<br>0.0780<br>147 | -0.19219<br>0.0197<br>147 | 0.04097<br>0.6234<br>146 | 0.30176<br>0.0002<br>143 | 0.66874<br><.0001<br>148 |
| **Benefit 2** | -0.12520<br>0.1321<br>146 | -0.16363<br>0.0484<br>146 | -0.15866<br>0.0558<br>146 | -0.06562<br>0.4313<br>146 | -0.15075<br>0.0693<br>146 | -0.03200<br>0.7024<br>145 | 0.17352<br>0.0389<br>142 | 0.63500<br><.0001<br>147 |

| | Somat 1 | Anx 1 | Soc Dys1 | Depress1 | Ghq1 | Relev 2 | Congr 2 | Pos Aff 2 |
|---|---|---|---|---|---|---|---|---|
| **Somat 2** | 0.59271<br><.0001<br>147 | 0.58548<br><.0001<br>147 | 0.40267<br><.0001<br>147 | 0.41282<br><.0001<br>147 | 0.59633<br><.0001<br>147 | 0.08663<br>0.2985<br>146 | -0.06701<br>0.4265<br>143 | -0.19171<br>0.0196<br>148 |
| **Anx 2** | 0.50801<br><.0001<br>147 | 0.66856<br><.0001<br>147 | 0.36378<br><.0001<br>147 | 0.42436<br><.0001<br>147 | 0.59049<br><.0001<br>147 | 0.15045<br>0.0699<br>146 | -0.12534<br>0.1358<br>143 | -0.16848<br>0.0407<br>148 |
| **SocDys 2** | 0.39580<br><.0001<br>147 | 0.46725<br><.0001<br>147 | 0.52732<br><.0001<br>147 | 0.42172<br><.0001<br>147 | 0.53504<br><.0001<br>147 | -0.02237<br>0.7887<br>146 | -0.30331<br>0.0002<br>143 | -0.38019<br><.0001<br>148 |
| **Depress 2** | 0.37744<br><.0001<br>147 | 0.47300<br><.0001<br>147 | 0.35519<br><.0001<br>147 | 0.76079<br><.0001<br>147 | 0.59606<br><.0001<br>147 | -0.04797<br>0.5653<br>146 | -0.18175<br>0.0298<br>143 | -0.11104<br>0.1791<br>148 |
| **Ghq 2** | 0.56559<br><.0001<br>147 | 0.66105<br><.0001<br>147 | 0.48330<br><.0001<br>147 | 0.60382<br><.0001<br>147 | 0.69367<br><.0001<br>147 | 0.05629<br>0.4998<br>146 | -0.18850<br>0.0242<br>143 | -0.24115<br>0.0032<br>148 |

| Pearson Correlation Coefficients<br>Prob > \|r\| under H0: Rho=0<br>Number of Observations | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Neg Aff 2** | **Threat2** | **Harm2** | **Chall2** | **Ben 2** | **Somat2** | **Anx 2** | **Soc Dys 2** | **Depress2** | **Ghq 2** |
| **Goal Diff** | -0.06597<br>0.4471<br>135 | -0.06068<br>0.4828<br>136 | -0.05706<br>0.5110<br>135 | -0.07096<br>0.4117<br>136 | -0.05395<br>0.5343<br>135 | 0.03547<br>0.6818<br>136 | -0.07655<br>0.3757<br>136 | 0.03737<br>0.6658<br>136 | -0.03184<br>0.7129<br>136 | -0.01461<br>0.8659<br>136 |
| **Goal Conflict** | 0.09819<br>0.2572<br>135 | 0.09368<br>0.278<br>136 | 0.05964<br>0.492<br>135 | 0.11434<br>0.185<br>136 | 0.05536<br>0.5237<br>135 | 0.01905<br>0.8258<br>136 | 0.08805<br>0.3081<br>136 | -0.06239<br>0.4705<br>136 | 0.048<br>0.5789<br>136 | 0.03435<br>0.6914<br>136 |
| **Goal Compl** | -0.0606<br>0.4851<br>135 | -0.05239<br>0.5447<br>136 | -0.06871<br>0.4285<br>135 | -0.02905<br>0.7371<br>136 | -0.07197<br>0.4068<br>135 | 0.0769<br>0.3735<br>136 | -0.03571<br>0.6798<br>136 | 0.05079<br>0.5571<br>136 | -0.03555<br>0.6811<br>136 | 0.01379<br>0.8734<br>136 |
| **Relev 1** | 0.24644<br>0.0027<br>146 | 0.25469<br>0.0019<br>147 | 0.12523<br>0.1321<br>146 | 0.04424<br>0.5947<br>147 | 0.03750<br>0.6532<br>146 | 0.16425<br>0.0468<br>147 | 0.22384<br>0.0064<br>147 | 0.14466<br>0.0804<br>147 | 0.14661<br>0.0764<br>147 | 0.20373<br>0.0133<br>147 |
| **Congr 1** | 0.05807<br>0.4848<br>147 | -0.01711<br>0.8365<br>148 | 0.06025<br>0.4685<br>147 | 0.12241<br>0.1383<br>148 | 0.11714<br>0.1577<br>147 | -0.06501<br>0.4325<br>148 | -0.04259<br>0.6073<br>148 | -0.06744<br>0.4154<br>148 | 0.02501<br>0.7629<br>148 | -0.04137<br>0.6176<br>148 |
| **Pos Aff 1** | -0.10539<br>0.2039<br>147 | -0.12511<br>0.1297<br>148 | -0.03096<br>0.7097<br>147 | 0.47454<br><.0001<br>148 | 0.40743<br><.0001<br>147 | -0.15968<br>0.0525<br>148 | -0.17773<br>0.0307<br>148 | -0.27124<br>0.0009<br>148 | -0.12243<br>0.1382<br>148 | -0.21139<br>0.0099<br>148 |
| **Neg Aff 1** | 0.63182<br><.0001<br>147 | 0.59938<br><.0001<br>148 | 0.54434<br><.0001<br>147 | -0.12687<br>0.1244<br>148 | -0.11658<br>0.1597<br>147 | 0.31549<br><.0001<br>148 | 0.49372<br><.0001<br>148 | 0.36668<br><.0001<br>148 | 0.43591<br><.0001<br>148 | 0.48114<br><.0001<br>148 |
| **Threat 1** | 0.61175<br><.0001<br>147 | 0.67103<br><.0001<br>148 | 0.43090<br><.0001<br>147 | -0.13749<br>0.0956<br>148 | -0.18036<br>0.0288<br>147 | 0.27644<br>0.0007<br>148 | 0.49213<br><.0001<br>148 | 0.37010<br><.0001<br>148 | 0.33694<br><.0001<br>148 | 0.43742<br><.0001<br>148 |
| **Harm 1** | 0.46047<br><.0001<br>146 | 0.40685<br><.0001<br>147 | 0.63927<br><.0001<br>147 | -0.07742<br>0.3513<br>147 | -0.11692<br>0.1585<br>147 | 0.17478<br>0.0342<br>147 | 0.29061<br>0.0004<br>147 | 0.35925<br><.0001<br>147 | 0.46707<br><.0001<br>147 | 0.37868<br><.0001<br>147 |
| **Chall 1** | -0.12270<br>0.1387<br>147 | -0.12579<br>0.1277<br>148 | -0.07372<br>0.3749<br>147 | 0.49265<br><.0001<br>148 | 0.41470<br><.0001<br>147 | -0.03542<br>0.6691<br>148 | -0.08177<br>0.3231<br>148 | -0.24600<br>0.0026<br>148 | -0.11688<br>0.1571<br>148 | -0.13416<br>0.1040<br>148 |

| Pearson Correlation Coefficients<br>Prob > \|r\| under H0: Rho=0<br>Number of Observations | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Neg Aff 2** | **Threat2** | **Harm2** | **Chall2** | **Ben 2** | **Somat2** | **Anx 2** | **Soc Dys 2** | **Depress2** | **Ghq 2** |
| **Benefit 1** | -0.23914<br>0.0036<br>146 | -0.29051<br>0.0004<br>147 | -0.18272<br>0.0267<br>147 | 0.40617<br><.0001<br>147 | 0.37159<br><.0001<br>147 | -0.17895<br>0.0301<br>147 | -0.24111<br>0.0033<br>147 | -0.23498<br>0.0042<br>147 | -0.19717<br>0.0167<br>147 | -0.25250<br>0.0020<br>147 |
| **Somat 1** | 0.39045<br><.0001<br>146 | 0.38236<br><.0001<br>147 | 0.35292<br><.0001<br>146 | -0.06148<br>0.4595<br>147 | -0.12520<br>0.1321<br>146 | 0.59271<br><.0001<br>147 | 0.50801<br><.0001<br>147 | 0.39580<br><.0001<br>147 | 0.37744<br><.0001<br>147 | 0.56559<br><.0001<br>147 |
| **Anx 1** | 0.49285<br><.0001<br>146 | 0.46502<br><.0001<br>147 | 0.42795<br><.0001<br>146 | -0.18941<br>0.0216<br>147 | -0.16363<br>0.0484<br>146 | 0.58548<br><.0001<br>147 | 0.66856<br><.0001<br>147 | 0.46725<br><.0001<br>147 | 0.47300<br><.0001<br>147 | 0.66105<br><.0001<br>147 |
| **Soc Dys 1** | 0.28450<br>0.0005<br>146 | 0.30136<br>0.0002<br>147 | 0.35285<br><.0001<br>146 | -0.25995<br>0.0015<br>147 | -0.15866<br>0.0558<br>146 | 0.40267<br><.0001<br>147 | 0.36378<br><.0001<br>147 | 0.52732<br><.0001<br>147 | 0.35519<br><.0001<br>147 | 0.48330<br><.0001<br>147 |
| **Depress 1** | 0.44021<br><.0001<br>146 | 0.30701<br>0.0002<br>147 | 0.51046<br><.0001<br>146 | -0.14582<br>0.0780<br>147 | -0.06562<br>0.4313<br>146 | 0.41282<br><.0001<br>147 | 0.42436<br><.0001<br>147 | 0.42172<br><.0001<br>147 | 0.76079<br><.0001<br>147 | 0.60382<br><.0001<br>147 |
| **Ghq 1** | 0.48534<br><.0001<br>146 | 0.43524<br><.0001<br>147 | 0.49436<br><.0001<br>146 | -0.19219<br>0.0197<br>147 | -0.15075<br>0.0693<br>146 | 0.59633<br><.0001<br>147 | 0.59049<br><.0001<br>147 | 0.53504<br><.0001<br>147 | 0.59606<br><.0001<br>147 | 0.69367<br><.0001<br>147 |
| **Relev 2** | 0.12490<br>0.1344<br>145 | 0.09792<br>0.2397<br>146 | 0.04371<br>0.6017<br>145 | 0.04097<br>0.6234<br>146 | -0.03200<br>0.7024<br>145 | 0.08663<br>0.2985<br>146 | 0.15045<br>0.0699<br>146 | -0.02237<br>0.7887<br>146 | -0.04797<br>0.5653<br>146 | 0.05629<br>0.4998<br>146 |
| **Congr 2** | -0.14031<br>0.0958<br>142 | -0.22766<br>0.0062<br>143 | -0.24944<br>0.0028<br>142 | 0.30176<br>0.0002<br>143 | 0.17352<br>0.0389<br>142 | -0.06701<br>0.4265<br>143 | -0.12534<br>0.1358<br>143 | -0.30331<br>0.0002<br>143 | -0.18175<br>0.0298<br>143 | -0.18850<br>0.0242<br>143 |
| **Pos Aff 2** | -0.06458<br>0.4371<br>147 | -0.10871<br>0.1884<br>148 | -0.01038<br>0.9007<br>147 | 0.66874<br><.0001<br>148 | 0.63500<br><.0001<br>147 | -0.19171<br>0.0196<br>148 | -0.16848<br>0.0407<br>148 | -0.38019<br><.0001<br>148 | -0.11104<br>0.1791<br>148 | -0.24115<br>0.0032<br>148 |
| **Neg Aff 2** | 1.00000<br><br>147 | 0.81398<br><.0001<br>147 | 0.71168<br><.0001<br>146 | -0.17554<br>0.0334<br>147 | -0.31524<br>0.0001<br>146 | 0.50254<br><.0001<br>147 | 0.71212<br><.0001<br>147 | 0.54321<br><.0001<br>147 | 0.57670<br><.0001<br>147 | 0.69730<br><.0001<br>147 |

| Pearson Correlation Coefficients<br>Prob > \|r\| under H0: Rho=0<br>Number of Observations | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Neg Aff 2** | **Threat2** | **Harm2** | **Chall2** | **Ben 2** | **Somat2** | **Anx 2** | **Soc Dys 2** | **Depress2** | **Ghq 2** |
| **Threat 2** | 0.81398<br><.0001<br>147 | 1.00000<br><br>148 | 0.55175<br><.0001<br>147 | -0.19830<br>0.0157<br>148 | -0.31028<br>0.0001<br>147 | 0.45515<br><.0001<br>148 | 0.61786<br><.0001<br>148 | 0.48122<br><.0001<br>148 | 0.39914<br><.0001<br>148 | 0.58260<br><.0001<br>148 |
| **Harm 2** | 0.71168<br><.0001<br>146 | 0.55175<br><.0001<br>147 | 1.00000<br><br>147 | -0.16244<br>0.0493<br>147 | -0.10273<br>0.2156<br>147 | 0.36012<br><.0001<br>147 | 0.51545<br><.0001<br>147 | 0.54227<br><.0001<br>147 | 0.68157<br><.0001<br>147 | 0.62308<br><.0001<br>147 |
| **Chall 2** | -0.17554<br>0.0334<br>147 | -0.19830<br>0.0157<br>148 | -0.16244<br>0.0493<br>147 | 1.00000<br><br>148 | 0.62476<br><.0001<br>147 | -0.14052<br>0.0885<br>148 | -0.19320<br>0.0186<br>148 | -0.36559<br><.0001<br>148 | -0.16692<br>0.0426<br>148 | -0.24618<br>0.0026<br>148 |
| **Benefit 2** | -0.31524<br>0.0001<br>146 | -0.31028<br>0.0001<br>147 | -0.10273<br>0.2156<br>147 | 0.62476<br><.0001<br>147 | 1.00000<br><br>147 | -0.17788<br>0.0311<br>147 | -0.28445<br>0.0005<br>147 | -0.26985<br>0.0009<br>147 | -0.11267<br>0.1742<br>147 | -0.24654<br>0.0026<br>147 |
| **Somat 2** | 0.50254<br><.0001<br>147 | 0.45515<br><.0001<br>148 | 0.36012<br><.0001<br>147 | -0.14052<br>0.0885<br>148 | -0.17788<br>0.0311<br>147 | 1.00000<br><br>148 | 0.70302<br><.0001<br>148 | 0.62027<br><.0001<br>148 | 0.52568<br><.0001<br>148 | 0.85678<br><.0001<br>148 |
| **Anx 2** | 0.71212<br><.0001<br>147 | 0.61786<br><.0001<br>148 | 0.51545<br><.0001<br>147 | -0.19320<br>0.0186<br>148 | -0.28445<br>0.0005<br>147 | 0.70302<br><.0001<br>148 | 1.00000<br><br>148 | 0.63007<br><.0001<br>148 | 0.56567<br><.0001<br>148 | 0.87158<br><.0001<br>148 |
| **Soc Dys 2** | 0.54321<br><.0001<br>147 | 0.48122<br><.0001<br>148 | 0.54227<br><.0001<br>147 | -0.36559<br><.0001<br>148 | -0.26985<br>0.0009<br>147 | 0.62027<br><.0001<br>148 | 0.63007<br><.0001<br>148 | 1.00000<br><br>148 | 0.61073<br><.0001<br>148 | 0.82823<br><.0001<br>148 |
| **Depress 2** | 0.57670<br><.0001<br>147 | 0.39914<br><.0001<br>148 | 0.68157<br><.0001<br>147 | -0.16692<br>0.0426<br>148 | -0.11267<br>0.1742<br>147 | 0.52568<br><.0001<br>148 | 0.56567<br><.0001<br>148 | 0.61073<br><.0001<br>148 | 1.00000<br><br>148 | 0.80329<br><.0001<br>148 |
| **Ghq 2** | 0.69730<br><.0001<br>147 | 0.58260<br><.0001<br>148 | 0.62308<br><.0001<br>147 | -0.24618<br>0.0026<br>148 | -0.24654<br>0.0026<br>147 | 0.85678<br><.0001<br>148 | 0.87158<br><.0001<br>148 | 0.82823<br><.0001<br>148 | 0.80329<br><.0001<br>148 | 1.00000<br><br>148 |

# Appendix 4 - Frequency tables for Motivational Relevance and Congruence

The FREQ Procedure

**Relevance 1**

| Goal1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 8 | 5.26 | 8 | 5.26 |
| 2 | 10 | 6.58 | 18 | 11.84 |
| 3 | 11 | 7.24 | 29 | 19.08 |
| 4 | 18 | 11.84 | 47 | 30.92 |
| 5 | 105 | 69.08 | 152 | 100.00 |

| Goal2 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 23 | 15.23 | 23 | 15.23 |
| 2 | 15 | 9.93 | 38 | 25.17 |
| 3 | 20 | 13.25 | 58 | 38.41 |
| 4 | 30 | 19.87 | 88 | 58.28 |
| 5 | 63 | 41.72 | 151 | 100.00 |

Frequency Missing = 1

| Goal3 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 29 | 19.08 | 29 | 19.08 |
| 2 | 23 | 15.13 | 52 | 34.21 |
| 3 | 37 | 24.34 | 89 | 58.55 |
| 4 | 26 | 17.11 | 115 | 75.66 |
| 5 | 37 | 24.34 | 152 | 100.00 |

| Goal4 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 44 | 29.14 | 44 | 29.14 |
| 2 | 21 | 13.91 | 65 | 43.05 |
| 3 | 21 | 13.91 | 86 | 56.95 |
| 4 | 23 | 15.23 | 109 | 72.19 |
| 5 | 42 | 27.81 | 151 | 100.00 |

Frequency Missing = 1

| Goal5 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 43 | 28.29 | 43 | 28.29 |
| 2 | 34 | 22.37 | 77 | 50.66 |
| 3 | 28 | 18.42 | 105 | 69.08 |
| 4 | 22 | 14.47 | 127 | 83.55 |
| 5 | 25 | 16.45 | 152 | 100.00 |

| Goal6 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 51 | 34.00 | 51 | 34.00 |
| 2 | 22 | 14.67 | 73 | 48.67 |
| 3 | 25 | 16.67 | 98 | 65.33 |
| 4 | 17 | 11.33 | 115 | 76.67 |
| 5 | 35 | 23.33 | 150 | 100.00 |

Frequency Missing = 2

**Congruence 1**

| Goal1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 9 | 5.92 | 9 | 5.92 |
| 2 | 10 | 6.58 | 19 | 12.50 |
| 3 | 6 | 3.95 | 25 | 16.45 |
| 4 | 17 | 11.18 | 42 | 27.63 |
| 5 | 110 | 72.37 | 152 | 100.00 |

| Goal2 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 13 | 8.61 | 13 | 8.61 |
| 2 | 22 | 14.57 | 35 | 23.18 |
| 3 | 11 | 7.28 | 46 | 30.46 |
| 4 | 47 | 31.13 | 93 | 61.59 |
| 5 | 58 | 38.41 | 151 | 100.00 |

Frequency Missing = 1

| Goal3 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 21 | 13.82 | 21 | 13.82 |
| 2 | 18 | 11.84 | 39 | 25.66 |
| 3 | 37 | 24.34 | 76 | 50.00 |
| 4 | 35 | 23.03 | 111 | 73.03 |
| 5 | 41 | 26.97 | 152 | 100.00 |

| Goal4 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 25 | 16.67 | 25 | 16.67 |
| 2 | 26 | 17.33 | 51 | 34.00 |
| 3 | 40 | 26.67 | 91 | 60.67 |
| 4 | 25 | 16.67 | 116 | 77.33 |
| 5 | 34 | 22.67 | 150 | 100.00 |

Frequency Missing = 2

| Goal5 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 22 | 14.47 | 22 | 14.47 |
| 2 | 21 | 13.82 | 43 | 28.29 |
| 3 | 41 | 26.97 | 84 | 55.26 |
| 4 | 44 | 28.95 | 128 | 84.21 |
| 5 | 24 | 15.79 | 152 | 100.00 |

| Goal6 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 34 | 22.82 | 34 | 22.82 |
| 2 | 25 | 16.78 | 59 | 39.60 |
| 3 | 33 | 22.15 | 92 | 61.74 |
| 4 | 27 | 18.12 | 119 | 79.87 |
| 5 | 30 | 20.13 | 149 | 100.00 |

Frequency Missing = 3

**Relevance 2**

| Goal1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 8 | 5.48 | 8 | 5.48 |
| 2 | 13 | 8.90 | 21 | 14.38 |
| 3 | 14 | 9.59 | 35 | 23.97 |
| 4 | 17 | 11.64 | 52 | 35.62 |
| 5 | 94 | 64.38 | 146 | 100.00 |

Frequency Missing = 5

| Goal2 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 17 | 11.56 | 17 | 11.56 |
| 2 | 19 | 12.93 | 36 | 24.49 |
| 3 | 27 | 18.37 | 63 | 42.86 |
| 4 | 29 | 19.73 | 92 | 62.59 |
| 5 | 55 | 37.41 | 147 | 100.00 |

Frequency Missing = 4

| Goal3 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 29 | 19.73 | 29 | 19.73 |
| 2 | 27 | 18.37 | 56 | 38.10 |
| 3 | 24 | 16.33 | 80 | 54.42 |
| 4 | 25 | 17.01 | 105 | 71.43 |
| 5 | 42 | 28.57 | 147 | 100.00 |

Frequency Missing = 4

| Goal4 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 29 | 19.59 | 29 | 19.59 |
| 2 | 24 | 16.22 | 53 | 35.81 |
| 3 | 32 | 21.62 | 85 | 57.43 |
| 4 | 32 | 21.62 | 117 | 79.05 |
| 5 | 31 | 20.95 | 148 | 100.00 |

Frequency Missing = 3

| Goal5 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 33 | 23.08 | 33 | 23.08 |
| 2 | 24 | 16.78 | 57 | 39.86 |
| 3 | 31 | 21.68 | 88 | 61.54 |
| 4 | 40 | 27.97 | 128 | 89.51 |
| 5 | 15 | 10.49 | 143 | 100.00 |

Frequency Missing = 8

| Goal6 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 42 | 28.97 | 42 | 28.97 |
| 2 | 29 | 20.00 | 71 | 48.97 |
| 3 | 29 | 20.00 | 100 | 68.97 |
| 4 | 23 | 15.86 | 123 | 84.83 |
| 5 | 22 | 15.17 | 145 | 100.00 |

Frequency Missing = 6

**Congruence 2**

| Goal1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 16 | 10.96 | 16 | 10.96 |
| 2 | 18 | 12.33 | 34 | 23.29 |
| 3 | 12 | 8.22 | 46 | 31.51 |
| 4 | 38 | 26.03 | 84 | 57.53 |
| 5 | 62 | 42.47 | 146 | 100.00 |

Frequency Missing = 5

| Goal2 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 20 | 13.79 | 20 | 13.79 |
| 2 | 26 | 17.93 | 46 | 31.72 |
| 3 | 24 | 16.55 | 70 | 48.28 |
| 4 | 37 | 25.52 | 107 | 73.79 |
| 5 | 38 | 26.21 | 145 | 100.00 |

| Goal3 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 32 | 21.77 | 32 | 21.77 |
| 2 | 23 | 15.65 | 55 | 37.41 |
| 3 | 37 | 25.17 | 92 | 62.59 |
| 4 | 34 | 23.13 | 126 | 85.71 |
| 5 | 21 | 14.29 | 147 | 100.00 |

Frequency Missing = 4

| Goal4 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 27 | 18.62 | 27 | 18.62 |
| 2 | 34 | 23.45 | 61 | 42.07 |
| 3 | 29 | 20.00 | 90 | 62.07 |
| 4 | 35 | 24.14 | 125 | 86.21 |
| 5 | 20 | 13.79 | 145 | 100.00 |

Frequency Missing = 6

| Goal5 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 24 | 16.78 | 24 | 16.78 |
| 2 | 27 | 18.88 | 51 | 35.66 |
| 3 | 44 | 30.77 | 95 | 66.43 |
| 4 | 32 | 22.38 | 127 | 88.81 |
| 5 | 16 | 11.19 | 143 | 100.00 |

Frequency Missing = 8

| Goal6 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 1 | 35 | 24.48 | 35 | 24.48 |
| 2 | 28 | 19.58 | 63 | 44.06 |
| 3 | 41 | 28.67 | 104 | 72.73 |
| 4 | 23 | 16.08 | 127 | 88.81 |
| 5 | 16 | 11.19 | 143 | 100.00 |

Frequency Missing = 8

# Appendix 5 - GHQ cut off scores

The FREQ Procedure

| Ghqq_1 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 0 | 12 | 7.95 | 12 | 7.95 |
| 1 | 10 | 6.62 | 22 | 14.57 |
| 2 | 8 | 5.30 | 30 | 19.87 |
| 3 | 9 | 5.96 | 39 | 25.83 |
| 4 | 4 | 2.65 | 43 | 28.48 |
| 5 | 15 | 9.93 | 58 | 38.41 |
| 6 | 6 | 3.97 | 64 | 42.38 |
| 7 | 10 | 6.62 | 74 | 49.01 |
| 8 | 5 | 3.31 | 79 | 52.32 |
| 9 | 10 | 6.62 | 89 | 58.94 |
| 10 | 2 | 1.32 | 91 | 60.26 |
| 11 | 10 | 6.62 | 101 | 66.89 |
| 12 | 7 | 4.64 | 108 | 71.52 |
| 13 | 9 | 5.96 | 117 | 77.48 |
| 14 | 4 | 2.65 | 121 | 80.13 |
| 15 | 1 | 0.66 | 122 | 80.79 |
| 16 | 7 | 4.64 | 129 | 85.43 |
| 17 | 5 | 3.31 | 134 | 88.74 |
| 18 | 2 | 1.32 | 136 | 90.07 |
| 19 | 2 | 1.32 | 138 | 91.39 |
| 20 | 2 | 1.32 | 140 | 92.72 |
| 22 | 2 | 1.32 | 142 | 94.04 |
| 23 | 2 | 1.32 | 144 | 95.36 |
| 24 | 4 | 2.65 | 148 | 98.01 |
| 25 | 1 | 0.66 | 149 | 98.68 |
| 27 | 2 | 1.32 | 151 | 100.00 |

Frequency Missing =1

| Ghqq_2 | Frequency | Percent | Cumulative Frequency | Cumulative Percent |
|---|---|---|---|---|
| 0 | 4 | 2.70 | 4 | 2.70 |
| 1 | 7 | 4.73 | 11 | 7.43 |
| 2 | 6 | 4.05 | 17 | 11.49 |
| 3 | 7 | 4.73 | 24 | 16.22 |
| 4 | 8 | 5.41 | 32 | 21.62 |
| 5 | 7 | 4.73 | 39 | 26.35 |
| 6 | 10 | 6.76 | 49 | 33.11 |
| 7 | 8 | 5.41 | 57 | 38.51 |
| 8 | 5 | 3.38 | 62 | 41.89 |
| 9 | 4 | 2.70 | 66 | 44.59 |
| 10 | 7 | 4.73 | 73 | 49.32 |
| 11 | 10 | 6.76 | 83 | 56.08 |
| 12 | 11 | 7.43 | 94 | 63.51 |
| 13 | 6 | 4.05 | 100 | 67.57 |
| 14 | 8 | 5.41 | 108 | 72.97 |
| 15 | 1 | 0.68 | 109 | 73.65 |
| 16 | 7 | 4.73 | 116 | 78.38 |
| 17 | 9 | 6.08 | 125 | 84.46 |
| 18 | 5 | 3.38 | 130 | 87.84 |
| 19 | 2 | 1.35 | 132 | 89.19 |
| 20 | 1 | 0.68 | 133 | 89.86 |
| 21 | 4 | 2.70 | 137 | 92.57 |
| 22 | 4 | 2.70 | 141 | 95.27 |
| 24 | 1 | 0.68 | 142 | 95.95 |
| 27 | 2 | 1.35 | 144 | 97.30 |
| 28 | 4 | 2.70 | 148 | 100.00 |

Frequency Missing = 4

# Appendix 6 - Examples of goal lists generated by subjects

**Example 1 – subject 30**

1. I want to do well academically, so I could achieve in life.
2. I want to improve the quality of life that I and my family are living right now.
3. I am preparing for my future.
4. I want to get better understanding of things as they happen in life.
5. To explore certain or various challenges and be ready for anything in life.
6. To accept myself and others the way they are and prepare a place for me in the future.

**Example 2– subject 43**

1. To be happy in life.
2. To do well academically
3. To be successful in everything I do.
4. To be healthy.
5. To travel overseas.
6. Stop smoking someday.

**Example 3 - subject 60**

1. Be successful in my studies.
2. Try to stay calm during the examinations.
3. Set aside time to have fun with my friends.
4. Make money in my spare time.
5. Help others as much as I can.
6. Be more adventurous.

**Example 4 - subject 83**

1. Pass my exams.
2. To be happy almost all the time.
3. Have good relationship with my friends.
4. To be honest as possible.
5. To make new friends.
6. Get a degree**.**

**Example 5 - subject 110**

1. To achieve high averages.
2. To perform well on certain examinations.
3. To assimilate the knowledge for future use.
4. To maintain a healthy attitude while writing and studying for exams.
5. To be academic yet creative in my subjects.
6. To attain a feeling of satisfaction from writing these exams with the knowledge that I have done my best.