

**PSYCHOLOGICAL GROWTH FOLLOWING
ADVERSITY:
THE ROLE OF SOCIAL SUPPORT**

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Abstract

The thesis begins with a review of the trauma literature as it relates to fire and rescue work and the attention given to the negative psychological consequences of involvement in such work. Clinical authorities warn of the psychological harm caused by exposure to traumatic incidents despite the recognition that psychological growth often follows adversity. To address this, firefighters were used in a series of studies to investigate the role of social support in facilitating growth. A philosophical overview of current understandings of trauma and growth was made along with the methodology chosen to pursue this investigation.

The first empirical chapter is a test of the relation of growth to two different philosophical types of well-being. It found growth to be related to eudaimonic change, rather than hedonic change. A comprehensive review of the literature on social support and growth then found mixed findings for the association of social support and growth but no strong evidence of a causal relation. Four empirical chapters follow that examine the relations between different types of social support and growth in firefighters. The final empirical chapter is a longitudinal study of social support and growth in firefighters based on the findings of earlier cross-sectional studies.

Overall, findings were mixed and the role that social support plays in the facilitation of growth remains unclear. A critical realist perspective was taken at the end of the thesis that raises philosophical concerns about clinical understandings of trauma, its treatment and reliance upon a medical framework for explaining psychological

change. The findings offer directions in which future research may progress to establish the role of social support in the facilitation of growth following adversity.

Publication Status of Chapters

The following chapters are based on manuscripts either published or submitted for publication. Each paper is referenced with all contributing authors' names, title of article, current status of the manuscript, and the journal where the paper was published (where applicable).

Chapter Three

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Chapter Four

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Dedication

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Declaration

This thesis is an original piece of work. I have enjoyed many hours of stimulating debate and conversation with Stephen Joseph and Hugh Middleton and have appreciated their differing and sometimes challenging perspectives. However, all the work in this thesis is my own.

Abbreviations and Notes for Guidance

APA	American Psychiatric Association
CBT	Cognitive Behavioural Therapy
CiOQ	Changes in Outlook Questionnaire
CSS	Crisis Support Scale
CSU	Counseling Services Unit
DSM-IV	Diagnostic and Statistical Manual, Fourth Edition
FDNY	Fire Department of New York
IES	Impact of Event Scale
M	Mean
NHS	National Health Service
PANAS	Positive and Negative Affect Scales
PSR	Provision of Social Resources
PTGI	Posttraumatic Growth Inventory
PTSD	Posttraumatic Stress Disorder
PWB	Psychological Well Being
PWBS	Psychological Well Being Scales
SD	Standard Deviation
SSQ-6	Social Support Questionnaire
SWB	Subjective Well Being
SWLS	Satisfaction with Life Scale
UK	United Kingdom
USA	United States of America
USII	Unsupportive Social Interactions Inventory

Use of Terminology

There are many terms that have been used to describe the positive psychological changes that can occur in the aftermath of highly distressing experience. The literature review reported in Chapter Four shows how numerous and varied the different terms are. Throughout the thesis the term “growth following adversity” will be used as an umbrella-term that captures the overall construct that each of the other terms attempt to depict. Reference to “posttraumatic growth” will be used where the unique theoretical conditions of its definition pertain, i.e., where a definable traumatic event has occurred and growth has been attributed to it. Also where the construct has been measured using the PTGI instrument, posttraumatic growth will be assumed. As other terms are less closely tied to a single event, the more general terms “growth” and “growth following adversity” will apply in these other, less specific, cases.

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- Appendix 8 Questionnaire pack for Chapter 8, Time 2**

Chapter 1: Psychological Changes following Adversity: A critique

1.1 Introduction

Firefighters can expect to face several incidents throughout their careers that they will find physically and emotionally challenging. They will train to operate in hostile environments that are dangerous and uncertain whilst attempting to save threatened lives and bring aid and comfort to survivors. Despite research being undertaken with survivors of disaster over several decades, little notice had been taken of the effects of disaster on rescuers until the 1980's (Raphael, Bradbury, & Lambert, 1984). Since then numerous studies have followed. Stressors known to be relevant to fire and rescue personnel include personal injury, gruesome incidents, helping the seriously injured, vulnerable others and exposure to death and dying (Beaton, Murphy, Johnson, Pike and Corneil, 1998). The variety and severity of incidents attended may have cumulative effects that threaten long-term mental health and motivate coping efforts that could prove maladaptive (Clohessy & Ehlers, 1999; North, Tivis, McMillen, et al., (2002)). Coping processes, particularly those of avoidance, have been shown to play an important role in predicting psychological distress in firefighters exposed to 30 years of violent political conflict (Brown, Mulhern, & Joseph, 2002).

Fire and rescue situations often demand physical and emotional involvement with dying people, mutilated bodies and difficult, sometime futile, extrication efforts. Primary victims in disaster situations are those who are directly affected by the traumatic experience while secondary victims are those who are witness to primary victims (Figley, 1995). As such, firefighters may become both primary and

secondary victims (Baird & Kracen, 2006). The traumatic situation can have direct effects upon the firefighter's safety while witnessing the distress of others can have vicarious, or secondary, effects that reflect the key features of posttraumatic stress (Wagner, Heinrichs, & Ehler, 1998).

Firefighters rarely operate alone at fire and rescue scenes and usually work in teams with a single mission in mind, such as searching a building or extinguishing a specific seat of fire. They train as multi-skilled individuals to enable all members to substitute for each other and to emphasise the importance of cooperation and adaptability in achieving a particular operational end. Teamwork appears to foster an unusual level of reliance and trust between the members of the team that finds its expression in peer-support and efforts to maintain cohesiveness. The role of supportive colleagues in fire and rescue work has been associated with buffering the effects of posttraumatic stress (Haslam & Mallon, 2003) and underpins the debriefing process following exposure to critical incidents (Mitchell, 1983). After working under pressure and in dangerous and threatening situations firefighters may be emotionally affected but are likely to act in ways that restore the team to its prior level of function.

Firefighters are known to respond in positive ways to the setbacks of operational adversity through support, humour and commitment (Fullerton, McCarroll, Ursano, & Wright, 1992) almost regardless of the stressors encountered. Despite this positive motivation to see the team restored after encountering emotionally difficult situations the risk for posttraumatic symptoms of stress remains. Some pre-incident trait factors may predict posttraumatic stress over incident factors

(McFarlane, 1988) and post-incident factors (Heinrichs, Wagner, Schoch et al., 2005). The accumulated evidence for both personal and event-related factors suggests that firefighters are at risk for meeting criteria for possible diagnosis of posttraumatic stress disorder (PTSD: American Psychiatric Association, 2000).

Despite the threats to mental health that highly-distressing experiences seem to pose, the psychological literature has seen an upsurge of interest in the positive psychological changes that can emerge from highly-distressing experiences.

Psychological growth following adversity offers a positive alternative to the negative interpretations of traumatic experience and its emotional consequences. Firefighters, therefore, may prove to be an important group to study in seeking an understanding of growth. They have been the target for research into the negative consequences of traumatic exposure but the prospect of such exposure triggering positive changes appears to have been overlooked. Given their exposure to events that have the capacity to trigger psychological changes, both positive and negative, a study employing firefighters that examines the role of social support in facilitating those changes appears overdue.

In current understandings of the psychological aftermath of a traumatic event either a negative response that sees symptoms of stress emerge, or recovery that sees symptoms abate, is expected. However, there is an increasing recognition that positive responses are likely. In this chapter the broad distinction between positive and negative psychological changes following serious setbacks will be considered. At the outset the “medical-model” will be described to show how psychological phenomena have come to be expressed using the language of a profession that

specialises in bodily disease, its treatment and the restoration of health. Notably, the acceptance of the term “trauma”, a medical term, will be shown to have coloured academic, legal and research discourses whilst overlooking the prospect of the psychological changes that describe growth. The oversight seems to have found a remedy in those who describe “posttraumatic growth” and those who espouse a “positive” psychology. Whether positive remedies to so-called trauma can be regarded as qualitatively distinct from current medical approaches will be considered philosophically in the more comprehensive terms of well-being. Besides the authority of the medical model and the different forms of well-being lie the established psychological literatures on human and personality development. These literatures appear to account for changes consistent with growth but without recourse to the discrete and extraordinary experience leading to reactions that are likely to be labelled as “post-traumatic”. An alternative field that does refer to a discrete and unpleasant event is that of “crisis”. However, crisis theory offers an explanation that expects personal development, rather than disorder, out of a serious life stressor. Crisis is anticipated to trigger positive rather than negative change through the assistance of a committed and skilled helper.

In summary, psychological changes will be considered from medical, positive, well-being, developmental and crisis viewpoints to establish the validity of growth as a construct worthy of empirical investigation alongside social support. As social support has been shown to enhance health, well-being and other beneficial states it represents an attractive and benign influence following distressing experiences. However, the emotional benefits of social support may be pleasant but being

pleasant not mean that it will lead to growth. What is meant by growth will be considered first in terms of how different disciplines interpret psychological changes that occur at critical and distressing moments in life.

1.1.1 The medical model

Medical ways of thinking about trauma apply to psychiatry and clinical psychology and mimic the ways of thinking in physical medicine both in language and concept. Trauma is a relatively recent term to come into common usage. This does not mean that traumatic events did not happen until recently, but that their effects had not been well understood. The common psychological problem recorded during the 19th century in the West was hysteria, noted for its pattern of emotional outbursts, trembling and paralysis in its sufferers (Healy, 1990). Hysteria was believed to be confined to women but, in common with other psychological disturbances, was attributed to weak personal constitutions. Explaining psychological problems relied upon investigating those who evidently suffered from them. Such people were to be found in asylums where psychiatrists, as doctors, could apply the principles of medical science to make their discoveries.

Although psychiatrists specialise in mental, rather than physical problems, the philosophical perspectives behind the science of medicine are the same in both fields. Medicine relies on the philosophical perspectives of positivism (dependence upon observable experience) and rationalism (gaining knowledge through reasoning) as ways of thinking about the causes of illness (Bracken, 2002). At the time of the Enlightenment, when medical science was advancing, the universe was taking on the appearance of a machine whose parts could be observed to

determine their function (Healy, 1990). As post-mortem examinations had revealed the nervous system, a positivist and rationalist view could see a malfunction in the system. A biological fault explained the tremor, stupor and somatic sensations that were common in the psychologically distressed inmates of asylums. A psychological problem that stemmed from a disorder of the nervous system, it was reasoned, had a biological root that medical science could investigate further (Healy, 1990). Therefore, a psychological problem received a medical name; it was called *neurosis*.

1.1.2 Diagnosis and disorder

The medical model is therefore constructed from medical ways of thinking and is used to explain psychological conditions of interest in clinical psychology and psychiatry. The medical model is dominant in Western ways of thinking about psychological distress. An early critic of the use of the medical model in psychiatry was Laing (1971) who described its use as a product of the formal training of doctors; in other words this is how doctors were trained to interpret. Psychiatrists, all of whom have been trained as medical doctors, can be seen to identify, classify and declare causes of certain conditions in the way that other branches of medicine do. The outstanding example of this in psychological distress is in the classification system embodied in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000). In common with medical conditions of disease and disorder there are categories of conditions that are grouped according to common features and causes, and typified by the symptoms that express them. It is acknowledged by some psychiatrists that the foundations of the diagnostic criteria are not strong, given the reliance on a consensus of descriptive behavioural

and verbal patterns (Weich, Phelan, & Mann, 1997) and diagnostic judgement that has been shown to be less than reliable (Middleton & Shaw, 2000). While judgments made on what is normal are categorical, the errors that can occur with a reliance on diagnosis are categorical too, where well people may be diagnosed as sick, or sick ones considered to be healthy (Scott, 1970). It nevertheless falls to the psychiatrist to follow the medical model approach and continue to make diagnostic decisions (Mullen, 1997).

Having a disorder is abnormal, at least in the medical view of those who would then treat its symptoms. In the cases of First World War soldiers who displayed extremes of terror, forgetfulness or confusion, it would be at the judgment of a military psychiatrist whether they were expressing genuine neuroses or not. If not they could be regarded as malingerers. Such an either/or dilemma forced a choice upon medical opinion as to whether or not symptoms could be excused. The record of executions of soldiers shot as cowards demonstrates the social control that could be exerted on the basis of a judgement of category, and the effects that news of the executions was expected to have on others who may be tempted to stop fighting. While representing an extreme example, the principle remains that categorisation can enable relatively powerful people to manipulate the behaviour of others on the basis of allocation to a category, and what is regarded as normal.

Problems have been highlighted, not just in clinical psychology, but also in psychiatry itself with charges of expertism, drugs-agency, self-interest and lack of theoretical and philosophical authority (Middleton & Shaw, 2007). Psychologists invested in the same medical framework as psychiatry may be open to the same

critiques. However, a rich theoretical heritage exists within various disciplines of psychology that may already account for the changes that occur both in trauma and in personal development, regardless of an extraordinary event being proposed to trigger change. Despite the existence of a wide and varied literature on psychological change the decline into clinical anxiety and depressive states (American Psychiatric Association, 2000) appears to dominate academic and research discourses.

In addition to the procedures that typify the medical profession generally the language of psychiatry is also common to other branches of medicine. General medical terms such as “disorder”, “etiology” and “diagnosis” occur in psychiatry and more specific terms, such as depression, posttraumatic stress disorder (PTSD) and Acute Stress Disorder (ASD; American Psychiatric Association, 2000) pertain only to psychiatry. What this crossover of medical language into psychiatric conditions threatens to do is to imply that the reality of physical conditions in medicine is of a similar status to that of the psychological conditions of psychiatry. However, in the absence of physical evidence for a psychological condition, descriptions can be no more than metaphors, or literary devices, to assist in visualising abstract entities. In other words, the reality of the diagnostic label attached to a distressed individual has not been established according to common medical standards. Evidence that metaphors can be realised can be found in successful litigious claims of psychological injury following exposure to traumatic events. The notion that traumatic events can cause personal injury became possible upon the inclusion of the diagnostic category of posttraumatic stress disorder

(PTSD) in the Diagnostic and Statistical Manual (DSM) in 1980. For the first time a psychological injury was established as a possible consequence of a non-somatic event. With this another medical term was introduced into the psychiatric and psychological lexicon, that of the now familiar term *trauma*.

1.2 Psychological models

Psychological changes are addressed in the literature in two broad themes, one positive and the other negative. The positive theme includes developmental, learning and maturational processes that see personality and cognitive abilities improve throughout life. The negative theme includes clinical and psychiatric processes that see delay or decline in personality and cognitive abilities, usually in reaction to unpleasant events. The positive theme explores gains in problem solving and social skills abilities, well-being and social aspects of life over time and seeks to identify optimal conditions for human development. The negative theme explores cognitive limitations over time and identifies interventions likely to counteract the decline that has been attributed to the setback. While the positive theme pays little regard to the prospect of decline, the negative theme has, until recently, paid little regard to the prospect of development.

Growth following adversity appears to represent a bridge between the two themes where positive development is understood to emerge from negative experience.

The prospect that a positive psychology can rebalance and enrich the negative consequences of crises described in the clinical literature has already been discussed (Joseph & Linley, 2006; Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005; Linley, 2003). However, the use of the terms

“positive” and “negative” may be somewhat misleading. The assumption that “positive equals good” and “negative equals bad” may be simple, but may be unhelpful in appraising psychological change. Numerically a positive value cancels out a negative value of the same size. If a certain amount of distress is matched by the same amount of comfort then an individual may be rebalanced after being destabilised by an upsetting incident. Such rebalancing resembles the homeostatic model of stress and to some extent a medical way of thinking. Whatever the injury, infection or condition that brings about a state of ill-health or imbalance, a medical approach to dealing with it would seek recovery as the end-point of treatment. Recovery is likely to be matched by the individual’s perception that they are no longer affected by the condition and that they are back to the state they were before the threat. A positive contribution to a negative situation describes counterbalancing forces that somehow restore normality. Once normality has been restored the emotional swing from negative to neutral is likely to see an improvement in how the survivor feels. Thus, how the individual feels is an important marker of success in a medical interpretation of well-being.

The restoration of health following illness is a key aim of medicine. While the principles of medicine pursue that aim it may overlook the prospect of developing personally as a result of the traumatic experience. Growth will be discussed later, but a model of treatment that looks only to restore an individual to a previous state seems unlikely to account for positive psychological change (Joseph & Linley, 2005).

1.2.1 Positive psychology

Positive psychology is a relatively recent movement within mainstream psychology that focuses on human strengths, virtues and abilities. This focus contrasts with the traditional approaches to problems that use medical terms of the “negative” language of pathology. As discussed above, the use of such terminology is necessary where clinicians adopt the medical model as their theoretical framework. The use of a positive lexicon in clinically-relevant areas appears to have met with early success in raising happiness and has since encouraged calls for such a modification to clinical interventions (Seligman et al., 2005). Furthermore, positive psychology appears to have readily taken the attention of rehabilitation psychologists already aware of the recuperative advantages conferred on those who take an optimistic and constructive view of their disability (Dunn & Dougherty, 2005). The positive language and rapid acceptance of this new form of therapeutic psychology appears as a new direction for clinical work to move in, one that appears to be distinct from the medical model.

Such a distinction however, may be possible only where the term “positive” is accepted at face value and without regard for some philosophical and theoretical uses of the same term in contemporary psychology (Taylor, 2001). Firstly, there is positive in the philosophical field of *positivism* as a set of assumptions employed in empirical research where hypotheses are proposed and tested according to probabilistic outcomes. Secondly, in behaviorist psychology, reinforcement can be regarded as positive (or negative) depending on its effects on the frequency of future behaviour. Thirdly, Taylor points out that “positive” is also a relative term used to denote the opposite of anything regarded as “negative”.

The claim for a set of techniques being referred to as “positive” may suggest something superior to current practice despite the lack of a convincing volume of empirical evidence. Even if evidence should accrue, however, how it would differ substantially from current clinical practice invites two tests, one semantic and the other philosophical. The semantic test derives from the notion that “positive equals good”, and “negative equals bad”. It seems clear that creative success can emerge, as growth psychologists have noted, out of many seemingly negative experiences (Linley & Joseph, 2004). The philosophical test derives from the notion that if a so-called positive psychology does prove superior to current clinical practice, what has changed, and how we know it, will have to be addressed. As will be discussed later in the thesis, two philosophically-distinct forms of well-being, subjective well-being and psychological well-being, may allow this latter test to be quantified and undertaken. As symptom reduction addresses only subjective well-being a positive approach that also addresses subjective well-being will not be a convincing alternative merely on the basis of an alternative lexicon.

1.3 Theoretical alternatives to growth following trauma

Psychological growth following traumatic experience is the natural, genetically-guided outcome for humanity (Christopher, 2004). By this account, the universal human reactions to distress can be taken as evidence of inherited survival mechanisms and strategies developed and honed in the ancestral environment. The notion of enabling inherited abilities permeates the developmental psychology literature and generally asks what impact life experience has on personality (Caspi & Roberts, 2001; Caspi, Roberts, & Shiner, 2005). The personality literature

generally reverses the direction of this relationship and asks what impact personality has on life experience (e.g., Kobasa, 1979; Kobasa, Maddi, & Kahn, 1989). From the developmental and personality perspectives there may be nothing remarkable about the single event that a medical perspective would see as traumatic, beyond its occurrence as one of numerous interruptions in life that invite psychological change or resistance.

There are infrequent references to growth in these literatures which suggests that growth researchers may need to satisfy themselves of the validity of a construct that they see as worthy of empirical consideration. If, in keeping with evolutionary and developmental accounts, growth is a likely and natural consequence of distressing experience, clinical attention may be directed less toward counting symptoms and more toward asking why growth has not emerged. This would switch the focus from a medical perspective toward a person-centred one aligned to the humanistic tradition that sees the emergence of growth as an innate tendency. The role that others have to play in promoting this tendency has been articulated in Rogers' descriptions of congruence, unconditional positive regard and empathy (Rogers, 1957; 1959) that underpin client-centred therapy. If the tendency toward growth can be assisted, identifying the type of social interaction that fosters it should prove fruitful both theoretically and clinically.

The social environment is one that has been posited to play an important role in the emergence of posttraumatic growth (Tedeschi & Calhoun, 1995; 1998) and other positive psychological changes (Joseph & Linley, 2005). Certainly, social support has been shown to statistically predict posttraumatic stress disorder (PTSD) (Ozer, Best,

Lipsey & Weiss, 2003) and to be an effective adjunct in the treatment of other psychiatric disorders (Brugha, 1995). As a buffer of distress (Cohen & Wills, 1985) social support is a likely candidate for influencing the psychological changes that are perceived after a traumatic experience. The effects of social support on growth, however, are not well known. The literature on social support is comprehensive and well-established. It contains a range and diversity of theoretical types and processes that makes its contribution double-edged. On the one hand, if social support facilitates growth it is likely that the type or process has already been described and merely awaits empirical testing to establish its potency. On the other hand, identifying the type or types most likely to facilitate growth from a wide-range of theoretically established constructs is likely to prove a resource-consuming task. Importantly, for an explanatory model of growth to be described social support may need to be addressed in specific rather than general terms, with theory used to determine likely candidates from those available in the literature.

1.3.1 Developmental theory

Developmental psychologists, notably those who take a lifespan perspective, offer views on the psychological changes that occur through encounters in life that may be related to those that are described as growth. Two forms of personality change have been identified that occur with age. Social-cognitive maturity is the complex ways of thinking about self and social interactions that increase through life, and social-emotional well-being is the development that occurs through adjustment to life's difficulties (Bauer & McAdams, 2004). Increasingly complex cognitive operations have been noted in the literature on positive emotions (e.g., Burns, Brown, Sachs-Ericsson, et al., 2008; Fredrickson, 2001) and accounts of growth itself

(Tedeschi & Calhoun, 2005). Of particular interest to this thesis is Bauer and Adams' indication of the clinical relevance of social-emotional well-being which brings into focus psychological well-being and subjective well-being as targets for clinical change.

1.3.2 Well-being

Psychological well-being (PWB) has been distinguished from subjective well-being (SWB; Diener, Emmons, Larson, & Griffin, 1985; Ryff & Singer, 2000) such that PWB describes purposeful relationships with self and others through engagement with the world, and SWB describes overall life-satisfaction and its emotional consequences. PWB and SWB differ largely on the value of emotional responses to life and each find their philosophical roots in eudaimonism and hedonism, respectively (Ryan & Deci, 2001; Waterman, 1993). Eudaimonism emerged from Aristotelean thought around the development of personal integrity, authenticity, self-knowledge and self-discipline. This contrasts with hedonism which sees happiness in the cruder sense of accumulating physical satisfactions and pleasures. These two philosophical perspectives offer a critical touchstone to clinical psychologists who seek an optimal resolution to the problems of posttraumatic distress – that of resolution through eudaimonic change with its implications for personality development, or that of resolution through hedonic change and merely feeling better.

These two types of well-being can be measured. Psychologists wishing to establish an empirical evidential base can operationalise eudaimonism using measures of psychological well-being (PWB; Ryff, 1989; Ryff & Singer, 2000) and hedonism using

measures of subjective well-being (SWB: Diener, et al., 1985; Diener, Suh, Lucas, & Smith, 1999). Efforts to raise PWB, may not fit easily alongside efforts to directly reduce distress, as SWB, unless the primacy of PWB in these efforts is appreciated. What is predicted from the literature is that there may be a place for SWB where PWB takes priority, but where SWB takes priority, PWB is not likely to follow (Linley & Joseph, 2004). Put simply, to feel wiser and stronger after a traumatic experience may lead a survivor to feel better, but to merely make the survivor feel better is unlikely to lead them to feel wiser and stronger. Although the conceptual link between growth and psychological well-being has been made it has not been demonstrated empirically (King & Hicks, 2007). If an empirical link can be established then pursuing psychological well-being should encourage psychologists to seek growth only where its facilitating conditions can be met. Once PWB has been achieved, both types of well-being should be enhanced.

1.3.3 Growth and context

Psychological growth has been reported in several contexts that have been assumed to be traumatic (for reviews see Helgeson, Reynolds & Tomich, 2006; Linley & Joseph, 2004). Growth is recognised from the self-reported changes that have been perceived to have emerged since the occurrence of a specific and unpleasant event. While the disciplines of literature, religion and philosophy have long acknowledged positive outcomes emerging from setbacks in life its acknowledgement in mainstream psychology has occurred only relatively recently. Since its early recognition in the humanistic tradition (Maslow, 1970; Rogers, 1957, 1959) growth has gained a resurgent interest from psychologists after the description of *posttraumatic growth* was introduced and elaborated (Tedeschi &

Calhoun, 1995) and a measurement scale developed to assess it (Tedeschi & Calhoun, 1996). Whilst the term has spawned increasing research in growth, it has attracted sceptical attention also. Some have argued that reporting positive outcomes from distressing events may be, for some, a means of coping and positive self-presentation that in terms of actual change is illusory (Taylor, 1983). Others have presented evidence that perceptions of enhanced psychological change after a stressful life event can be partially accounted for through the denigration of a former self (McFarland & Alvaro, 2000) and others that it accommodates both coping efforts and actual growth (Zoellner & Maercker, 2006).

Posttraumatic growth is presumed to underlie the self-reported positive psychological changes occurring after an experience that is likely to be described as “traumatic”, a term derived from the definition of posttraumatic stress disorder (PTSD; American Psychiatric Association, 1980; 1987; 1994; 2000). In terms of growth some authors point to the “..transformative power of trauma...” (Tedeschi, Park & Calhoun, 1998, p. vii) as the focus of academic interest. However, the transformative power of trauma has been the preserve of clinical psychiatry and psychology where the transformation has been described in largely negative and disruptive terms. Whether it is trauma that has the transformative power, or whether such power lies in the person who struggles to make the adjustment, remains unclear. Even the terminology used to describe growth following adversity awaits universal agreement amongst researchers. References to “benefit finding”, “positive changes in outlook” and “posttraumatic growth” are just three of the terms that can be found in the literature (see Linley & Joseph, 2004). The term

posttraumatic growth demands some attention because it bears close resemblance to the psychiatric term *posttraumatic stress disorder*. This may have confused some into thinking that the two terms describe outcomes of opposing possibilities following an extremely upsetting event. To assume that either outcome is independent of the alternative is to be deceived into thinking that if an event is of sufficient emotional impact it will either damage or develop the person and the way they live the rest of their life. Acceptance of this dichotomous way of thinking about the aftermath of trauma prevents a more sophisticated way of understanding how distress may not represent a negative outcome, nor its absence represent a positive one. Despite the term of “posttraumatic” more sophisticated developments in thinking about growth can be found in several literatures.

The organismic valuing process theory (Joseph & Linley, 2005) builds on the innate motivation of the *fully-functioning person* (Rogers, 1959), *self-actualisation* (Maslow, 1968) and the *completion tendency* (Horowitz, 1982; 1986) to describe the force behind growth following adversity. A traumatic event is seen not simply as an unpleasant, overwhelming event. It also provides the trigger for growth which is maintained through the emotional processing described by Rachman (1980) and Creamer, Burgess and Pattison (1992). Although painful, such processing is regarded as necessary for the rebuilding of cognitive structures and *assumptive worlds* (Janoff-Bulman, 1992; 2004) that may have been lost to the traumatic event. As such the intrusive and avoidant experiences of those who have survived a traumatic episode are seen as evidence of processing and likely movement toward growth, rather than as symptoms of uncontrollable distress or disorder.

Engagement in emotional processing is predicted to result in either *assimilation*, where little or no engagement occurs, or *accommodation* where engagement and processing does occur. Assimilation seems likely to be associated with resilience as little change is expected. Accommodation seems likely to see growth emerge as change is inevitable (Joseph & Linley, 2005).

Important in this brief review of growth is the acknowledgement that personal effort and intention are implicit in the processes that are likely to result in growth. Changes appear to accrue only when engagement rather than comfort has been pursued. There seems to be little in detailed accounts of growth's emergence that encourages passivity towards or direct manipulation of distress.

1.3.4 Growth and coping

Psychological adjustments made during a period of distress may be influenced by many factors. Some are more-or-less fixed, trait-like responses such as those associated with personality variables and developmental life-stage. Others are rapidly fluctuating state-like responses such as would be found with alternating success and failure to cope during an unfolding and uncertain aftermath. Both types of response may alter the subjective appraisals of threat and the emotional balance that a stressful incident can provoke (Folkman & Lazarus, 1988). Stressful incidents are usually unpleasant and aversive experiences that demand a personal response to reduce the negative affect that has been aroused. For example, problem-focused and emotion-focused coping are different ways of attempting to control distress (Folkman & Lazarus, 1985). Problem-focused coping would tackle the perceived source of the threat, such as confronting an aggressor to stop an attack on a

helpless victim while an emotion-focused approach would probably avoid or indulge the aggressor to limit the fear of becoming a victim. In the first case success would see the problem resolve, distress abate and further coping as unnecessary. In the second case success would see the problem remain unsolved even with attenuated distress but still with a need to cope. This may lead to subsequent efforts to tackle the emotion itself by “self-medicating” with alcohol or other drug to calm any residual affective turmoil. The problem-focused approach demands an engagement with the external cause rather than the subjective reaction, while the emotion-focused approach demands an engagement with the subjective reaction rather than the external cause.

These two broad categories of coping are reflected in approach-coping and avoidance-coping (Moos & Schaefer, 1993) where approach coping is expected to generate positive psychological change while avoidance coping is not. Although successful coping appears to reduce distress with the selection of one type of coping approach over another, this may be too simplistic to predict growth. The early growth model described by Schaefer and Moos (1992) sees the dynamic interplay of several personal and environmental resources being employed as the aftermath unfolds, appraisals change and challenges arise.

The engagement that appears to be demanded for growth processes to be initiated also seems apparent in the descriptions of problem-focussed and approach-coping. Coping style, therefore, may be a worthy candidate for promoting growth, where it demands confrontation with the source of distress.

1.3.5 Crisis theory

Whilst neither psychiatry nor clinical psychology speak directly of growth as an anticipated outcome of treatment, psychiatry has seen a movement away from the medical way of thinking, at least in diagnostic terms, and called on other disciplines to inform a socially-engaging form of tackling distress. Crisis theory was introduced by the psychiatrist Caplan (1964) who used convergent strands of sociology, social psychology and ego psychology to develop it. Interventions built on crisis theory saw clinical expertise removed from the aftermath of trauma and replaced by a committed helper willing and able to endure the range of intense emotional expression that can unfold and to act as guide towards resolution and growth.

The interpersonal encounter evident in crisis-intervention along with the expectation of growth and symptom resolution suggests that both positive and negative aspects of the aftermath can be accommodated in crisis theory. In comparison to a traditional medical approach to trauma, crisis theory raises a number of distinctions. Firstly, symptom resolution is relegated in favour of acknowledging reality, encouraging emotional expression and identifying the key aspects of the situation that triggered the crisis. The personal development that comes from such an encounter suggests that symptom resolution occurs as a consequence of experiential learning, not expert treatment. Secondly, crisis theory moves the emphasis away from expert opinion and towards the psychosocial relationship in facilitating progress towards resolution. Thirdly, crisis theory predicts life change and growth as expected consequences of crisis intervention following traumatic episodes.

Once more it seems that engagement rather than passivity is a necessary component of the processes that see crisis intervention being effective. It follows then that, as with problem-focused and approach-coping, growth may be a likely product of successful crisis intervention. Specifically, crisis intervention requires the presence and commitment of a competent and willing other. The kind of social engagement that would see the source of distress confronted suggests a key role for certain people in the social environment. For participants in future studies the types of support that are expected to be available to them demands consideration as candidates for facilitating growth.

1.3.6 Growth and well-being

While several variables of social support have been established in a large literature the reality, or veridicality, of growth has not been established to the satisfaction of some researchers. As reports of growth have been argued to do no more than bolster coping efforts (Taylor, 1983; Taylor & Brown, 1984; Zoellner & Maercker, 2006) that can be achieved by denigration of a former self rather than through real post-event enhancements, an obstacle to progress is apparent. Evidence that growth is a real phenomenon worthy of investigation demands an effort to establish its association with other positive forms of psychological experience and ability. So before the empirical work of testing the relations that exist between types of social support and growth is undertaken, an empirical test of growth as a eudaimonic phenomenon will be made. As has been discussed above, hedonic approaches appear to dominate medical thinking in clinical work. If growth stands on a different philosophical platform to that of current clinical approaches it needs to be established empirically if it is to attract clinical attention. Operationalising

eudaimonism as psychological well-being and hedonism as subjective well-being would allow an empirical test of the relations that are assumed by many thinkers in growth to exist; the belief that growth is a eudaimonic phenomenon. Were growth to be linked to psychological changes related to positive personality traits evidence of growth's veridicality might begin to accrue. Psychological well-being is a multi-faceted construct of qualities that represent maturity, agency and personal confidence in life, all of which are borne of encounters with difficulties in life and engaging with them to resolution. A test of association of growth with well-being is undertaken in Chapter Three.

Chapter 2: Methodology

2.1 Theoretical considerations

The thesis extends prior empirical work reported in the literatures on growth and social support. It draws, therefore, on the same methodology by taking a logical, positivist approach. Assumptions implicit in this approach include the validity of instruments employed as being representative of the constructs measured and their reliability as being both internally consistent and stable in repeated use over time. Reliability coefficients of measures used are given below, as reported by samples employed in the empirical studies in the thesis. All measures used in the studies are described and presented below in alphabetical order. Reference to each is made by its title in each study in the thesis.

2.2 Measures

Changes in Outlook Questionnaire

The Changes in Outlook Questionnaire (CiOQ: Joseph, Williams, & Yule., 1993) is a 26-item self-report measure. It records changes in outlook in response to a focal event that was previously identified as subjectively stressful. It is scored according to a six-point scale (1 = *Strongly Disagree*; 6 = *Strongly Agree*). The CiOQ comprises two subscales: Positive changes (CiOP: 11 items: e.g., *"I value my relationships much more now"*, *"I look upon each day as a bonus"* scoring in the range 11-66 and Negative changes (CiON: 15 items; e.g., *"I don't look forward to the future anymore"*, *"I have very little trust in other people now"*), scoring in the range 15-90

with higher scores indicating greater positive and negative changes respectively.

Reliability coefficients: CiOP $\alpha = .84$; CiON $\alpha = .90$

Crisis Support Scale

The Crisis Support Scale (CSS; Joseph, Williams, & Yule, 1992) is a six-item measure of social support received in the aftermath of a crisis (e.g., *"Are you able to talk about your thoughts and feelings?"*). An additional single item asks, *"Overall, are you satisfied with the support you receive?"* Ratings are made on a 7-point scale from 1 (never) to 7 (always). Scores on the CSS can range from 0 to 42, with higher scores indicating greater support. Scores on the single item can range from 0-7, with higher scores indicating greater satisfaction. Reliability coefficient: $\alpha = .80$ for support received – satisfaction subscale only one item.

Impact of Event Scale

The Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979) is a 15-item self-report measure of the frequency with which intrusions and avoidance are experienced in the aftermath of a distressing event. The IES uses a four-point scale that is scored 0 = *Not at all*; 1 = *Rarely*; 3 = *Sometimes*; 5 = *Often* to record how true each statement is for the participant during the past week. Higher scores indicate greater levels of intrusions and avoidance. The IES is one of the most widely used instruments in research on stress and trauma, with good psychometric properties (Joseph, 2000). Reliability coefficients: IES overall $\alpha = .92$; Intrusions $\alpha = .89$; Avoidance $\alpha = .84$.

Positive and Negative Affect Schedule

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a 20-item self-report scale that measures positive and negative dimensions of mood within a given time period. It is scored according to a five-point scale (1 = *very slightly or not at all*; 5 = *extremely*). The PANAS comprises two subscales: Positive Affect (10 items: e.g., *“interested”*, *“alert”*, *“excited”*) scoring in the range 10-50 and Negative Affect (10 items; e.g., *“irritable”*, *“distressed”*, *“ashamed”*) scoring in the range 10-50 with higher scores indicating greater positive and negative mood, respectively. Reliability coefficients: Positive Affect $\alpha = .83$; Negative Affect $\alpha = .84$.

Psychological Well-Being Scales

The Psychological Well-Being Scales (PWBS; Ryff, 1989) comprise six subscales measuring Autonomy (e.g., *“I have confidence in my opinions, even if they are contrary to the general consensus”*), Environmental Mastery (e.g., *“I am quite good at managing the many responsibilities of my daily life”*), Personal Growth (e.g., *“I am not interested in activities that will expand my horizons”*, reverse-scored), Positive Relations with Others (e.g., *“I enjoy personal and mutual conversations with family members or friends”*), Purpose in Life (e.g., *“I enjoy making plans for the future and working to make them a reality”*) and Self-Acceptance (e.g., *“I like most aspects of my personality”*). Responses to the items are made on a 1 *“Strongly Disagree”* to 6 *“Strongly Agree”* scale. In the present thesis the nine-item subscales (Chapter 3) and the 3-item subscales (Chapter 8) were used and only the total PWB

score was reported, with higher scores indicating greater psychological well-being.

Reliability coefficients: $\alpha = .93$ overall (9-item); $\alpha = .75$ overall (3-item).

Posttraumatic Growth Inventory

The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) is a 21-item self-report measure. It records responses to positive outcomes to a focal event that was previously identified as subjectively stressful. It is scored according to a six-point scale (0 = *"I did not change as a result of the event I described"*; 5 = *"I changed to a very great degree as a result of the event I described"*). Sample items include *"I established a new path for my life"*, *"Appreciating each day"* and *"New opportunities are available that wouldn't have been otherwise"* that contribute to subscales of *Relating to Others*; *New Possibilities*; *Appreciation for Life*; *Spiritual Change* and *Personal Strength*. The inventory generates an overall score in the range 0-105 with higher scores indicating greater posttraumatic growth. Reliability coefficient: $\alpha = .94$ overall.

Provision of Social Relations

The Provision of Social Relations (PSR; Turner, Frankel, & Levin, 1983) is a 15-item self-report scale measuring perceived social support from two sources using the *Support from Family Members* subscale and *Support from Friends* subscale. The family subscale comprises six items and the friends subscale comprises nine items. Sample items include *"I know my family will stand my by me"* and *"I feel very close to some of my friends"*. Each subscale is scored on a 5-point scale from 1 *"not at all like me"* to 5 *"very much like me"* with higher scores indicating greater perceived support. Reliability coefficients: $\alpha = .87$ Family; $\alpha = .79$ Friends.

Satisfaction with Life Scale

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) is a 5-item self-report scale measuring life satisfaction as judged by the respondent. It is scored on a 7-point scale from 1 “*strongly disagree*” to 7 “*strongly agree*”. Sample items include “*In most ways my life is close to ideal*” and “*If I could live my life over, I would change almost nothing*” offering a scoring range of 5-35 with higher scores indicating greater satisfaction with life. $\alpha = .84$.

Social Support Questionnaire

The Short-Form of the Social Support Questionnaire (SSQ-6; Sarason, Sarason, Shearin, & Pierce, 1987) is a 6-item version of the 27-item Social Support Questionnaire (SSQ; Sarason, Levine, Basham, & Sarason, 1983). Two subscales measure the number of supportive others in the respondent’s network on each of six items (from 0 to 9) and satisfaction with those supportive others (from 1 to 6) where higher scores indicate increased satisfaction. Statements include “*Whom can you really count on to listen to you when you need to talk?*” and “*With whom can you totally be yourself?*” Scores on the SSQ-6 for network size have a possible range of 0-54 divided by six (the number of items) giving a mean score for network size, and 0-36 for satisfaction divided by six (the number of items). Higher scores indicate greater perceived support. $\alpha = .87$ Network size; $\alpha = .93$ Satisfaction.

Unsupportive Social Interactions Inventory

The Unsupportive Social Interactions Inventory (USII; Ingram, Betz, Mindes, Schmitt, & Smith, 2001) is a 24-item self report measure. It records responses received from other people who act in an unhelpful manner in the wake of a specific stressful

event. Each item is answered on a five-point scale (0 = *None* to 4 = *A lot*). The USII comprises four subscales:

Distancing (six items: e.g., *"Refused to take me seriously"*, *"Discouraged me from expressing feelings such as anger, hurt, or sadness"*);

Bumbling (six items: e.g., *"Did things for me that I wanted to do and could have done for myself"*, *"Tried to cheer me up when I was not ready to"*);

Minimizing (six items: e.g., *"Felt that I should not be worrying about the event and just forget about it"*, *"Felt that I was overreacting"*);

Blaming (six items: e.g., *"Seemed disappointed in me"*, *"Blaming me, trying to make me feel responsible for the event"*).

Each subscale has a potential score of 0-24 with higher scores indicating more unsupportive interactions. The total USII has a potential score of 0-96. In the current study subscale scores were summed to generate an overall score for unsupportive interactions. $\alpha = .94$.

2.3 Ethical considerations

Research ethics clearance was sought from the Research Ethics Officer of the School of Sociology and Social Policy prior to testing. The application for approval involved a written summary of the research proposal that included details of participants, methods of data collection, where data collection would occur and how access to participants would be arranged. No vulnerable adults were to be

tested and no emotional or physical risk was foreseeable other than the possibility that recalling potentially traumatic experiences could prove unpleasant. No deception, personally identifiable disclosure or risk beyond everyday life was involved.

Agreement to abide by the *Research Code of Conduct* guidelines and the *Data Protection Policy* of the University of Nottingham was made, as was the undertaking to make clear that participation was voluntary and that withdrawal from the study, without sanction, was available to all participants. Anonymity was assured, informed consent obtained and contact information relating to the supervisor and Research Ethics Officer of the School provided. An *Information for Participants* sheet that included the relevant information was given to all participants prior to testing and retained by them for future reference.

As the researcher is also a psychologist with specialised training in dealing with psychological trauma, distress following administration of the questionnaires was to be handled wherever it occurred. In addition, student participants were informed of the availability of the Counselling Service at the University should they find their participation caused them any upset. Firefighter participants were informed of Occupational Health staff within their fire and rescue service who would deal with incident-related reactions that may be triggered by participation in the research.

The research proposal was submitted to the Research Ethics Officer in accordance with the May 2007 version of the *Guidance on Research Ethics* following completion

of the School's *Ethical Checklist*. Approval was granted in September 2007 and data collection commenced in October 2007.

Chapter 3: Growth as Well-Being

3.1 Introduction

It is now understood that while traumatic events can have severe and chronic psychological effects, for many people the struggle with adversity also leads to posttraumatic growth. Posttraumatic growth has been documented in a variety of populations following accidents, illnesses, and disasters, and is known to be associated with various cognitive and social factors (see Linley & Joseph, 2004). One area that has yet to be investigated is the association between posttraumatic growth and well-being, and in particular whether growth is associated with subjective well-being (SWB) or psychological well-being (PWB).

The importance of this study to the thesis is three-fold. Firstly, the theoretical link between growth following adversity and eudaimonic processes of change has been assumed but without any empirical support being available for that link (King & Hicks, 2007). Secondly, suggestions that positive, or other forms of psychological approach, are different to current clinical approaches, may be established on the basis of which type of well-being they affect. Thirdly, the veridicality of growth has not been established given rival explanations for growth suggesting that positive psychological change following trauma may be illusory (e.g., Taylor 1983; Zoellner & Maercker, 2006). If growth is related to a specific type of change this should clarify its definition as a eudaimonic phenomenon and therefore unlikely to be illusory.

There are important conceptual differences between SWB and PWB. Whereas SWB refers to affective states coupled with life satisfaction, PWB refers to existential engagement with life and includes notions of purpose, autonomy, and mastery.

However, measurement within the growth literature has sometimes conflated these concepts; e.g., Frazier & Kaler (2006: study 2) described *life appreciation* as a domain of growth and measured it as a combination of satisfaction with life, a component of SWB, and gratitude, a disposition associated with PWB. Furthermore, sometimes the terms SWB and PWB have been used interchangeably. Abraído-Lanza, Guier and Colón (1998), for example, measured positive and negative affect, components of SWB, but referred to them as psychological well-being. Thus, although their study might be taken to provide evidence for the relationship between growth and PWB, their results actually reflect hedonic responses rather than the eudaimonic responses to which Ryff's (1989) concept of PWB refers.

Although several studies have now found posttraumatic growth to be associated with SWB, i.e., higher positive affect (Abraído-Lanza et al., 1998; Evers, Kraaimaat, van Lanveld et al., 2001; Park, Cohen, & Murch, 1996), and lower negative affect (Abraído-Lanza et al., 1998; Evers et al., 2001), the concept of posttraumatic growth is derived from the eudaimonic tradition of psychology rather than the hedonistic tradition (Joseph & Linley, 2005). SWB is derived from the hedonistic tradition whereas psychological well-being (PWB) is derived from the eudaimonic tradition (Keyes, Shmotkin, & Ryff, 2002). Consequently, while it would seem that growth is related to SWB it is not certain that growth is related to PWB, although it might be suggested that posttraumatic growth would be expected to be more strongly related to PWB than to SWB. The aim of this study is to bring some clarity to the mixed findings on growth and well-being by testing for the association between growth and both SWB and PWB.

3.2 Study 1

3.2.1 Method

3.2.1.1 Participants and Procedure

Questionnaire batteries were distributed to 300 university students during private study, of which 246 were returned completed. Participants were 143 women (58%) and 103 men (42%) with a mean age of 20.6 ($SD = 2.6$) and all spoke English as their native language. Of these 246 participants, most reported experiencing a negative life event in the previous year, of whom 125 scored at or above 35 on the Impact of Event Scale, a cut-off which is often used to indicate significant psychological distress following a traumatic event (Joseph, 2000). Subsequent analyses were conducted on these 125 (51%) in order to ensure that our sample contained those most likely to have met the elevated level of event-related distress that has been argued to initiate posttraumatic growth processes (Tedeschi & Calhoun, 1995). This final group were 81 women (65%) and 44 men (35%) with a mean age of 20.4 years ($SD = 1.78$) and were mostly single (91%).

The most commonly reported events were the loss of a relative or friend through death (22.3%), followed by termination of a romantic relationship (17.9%), problems with relationships (16.1%), interpersonal conflicts (13.4%), career upsets (9.8%), becoming victims of violence or accident (9.8%), learning of others' illnesses (3.6%), causing self-inflicted injuries (2.7%), and various other incidents (4.5%). The time elapsed since the event was between 0-140 months ($M = 16.3$; $SD = 21.3$).

3.2.1.2 Measures

Changes in Outlook Questionnaire

Impact of Event Scale

Positive and Negative Affect Schedule

Posttraumatic Growth Inventory

Psychological Well-Being Scales

Satisfaction with Life Scale

(see Appendix 1)

3.2.2 Results

Higher scores on the PTGI were associated with higher scores on the PWB scale. It was found that higher scores on the CiOP were associated with higher scores on positive affect and higher scores on the PWB scale (see Table 3.1).

Table 3.1 Descriptive Statistics for Study Variables and Correlations with GrowthMeasures ($N = 125$)

	M (SD)	Observed Range	CiOP (r)	PTGI (r)
PANAS Positive Affect	31.84 (6.72)	13-48	.18*	.15
PANAS Negative Affect	23.27 (6.77)	11-39	-.04	.12
SWLS	22.37 (5.91)	8-34	.12	.08
PWBS	233.12 (27.73)	158-305	.26**	.20*
CiOP	43.20 (8.40)	20-60	-	.67***
PTGI	50.4 (19.40)	0-105	-	-

Note. PANAS = Positive and Negative Affect Schedule; SWLS = Satisfaction with Life Scales; PWBS = Psychological Well-Being Scales (9-item); CiOP = Changes in Outlook Questionnaire - positive change subscale; PTGI = Posttraumatic Growth Inventory.

* $p < .05$. ** $p < .01$. *** $p < .001$.

As CiOP was associated with both positive affect and PWB, partial correlations were conducted to test for unique effects. With PWB partialled out, the association with positive affect was no longer statistically significant ($pr = .08$, *ns*), but with positive affect partialled out, the association with PWB remained statistically significant ($pr = .21$, $p < .01$).

3.2.3 Discussion

Progress toward an understanding of the processes underlying growth following adversity has been constrained by conceptual uncertainties, including the relationship with well-being (Park & Helgeson, 2006). This is the first study to present empirical evidence that growth following adversity is related to PWB over and above SWB, supporting the theoretical position that growth can be regarded as a developmental process of self-motivated engagement rather than a restorative process of emotion regulation and symptom management.

However, although little support was found for the association with hedonic aspects of well-being it does not necessarily negate the contribution that positive emotions may make to growth. Positive emotions have been shown to facilitate problem-solving (Isen, Daubman, & Nowicki, 1987) and enhance cognitive responses and actions toward discovering positive meaning (Fredrickson, 2001). Such suggestive links between SWB and PWB may be of value in attempting to identify the processes involved in growth but await more sophisticated methods to unearth the direction and magnitude of any relationships. Studies using longitudinal, and preferably prospective, designs would allow causal inferences to be made that cannot be made from cross-sectional studies such as this one.

There are clinical implications to be drawn from this study. In general, intervention strategies are either developed to target SWB or PWB. Approaches that target SWB may not tap processes that underlie PWB sufficiently and traditional approaches to clinical work may therefore be ineffective in promoting growth. For this reason, what is known about the alleviation of posttraumatic stress may not generalise to the facilitation of posttraumatic growth.

3.2.3.1 Methodological considerations

The use of a university student sample is a limitation, however the use of the IES to select only those experiencing a significant level of distress suggests that these results may generalise to clinically relevant populations. Some caution is indicated however that our sample was self-selected for high distress, insofar as 51% of those who were recruited to take part in the study scored above 35 on the Impact of Event Scale. Such a high proportion of a student sample reporting these levels of distress was not expected. However, if participation was more likely amongst those who were distressed, of the original 300 invited to take part, 125 may be a more representative proportion of the student population who are distressed, than the 51% reported here.

As a correlational study causality cannot be inferred, and it is likely that over time there is a complex relationship between SWB and PWB, and we would suggest that in the longer term PWB is likely to lead to increases in SWB.

3.3 Conclusion

The empirical support for growth's association with eudaimonic rather than hedonic processes allows for a refinement in seeking the social facilitators of growth. It seems likely that the kinds of social support that are candidates for facilitating growth are those that initiate and maintain eudaimonic processes. Eudaimonic processes are those of engagement rather than avoidance or passivity in the wake of a traumatic experience. However, engagement is likely to raise distress in the early aftermath, and avoidance seems likely to limit it. The social conditions that influence the experience of distress are likely to prove important to growth. Distress is key to conceptual and theoretical accounts of both trauma and growth. As social support has been shown to be a predictor of posttraumatic stress disorder in meta-analyses (Brewin, Andrews, & Valentine, 2000; Ozer, et al., 2003) and to reduce distress (Joseph, Williams, & Yule, 1995) its role in facilitating growth is of particular interest. Despite early assumptions of a role for social support in facilitating posttraumatic growth (Tedeschi & Calhoun, 1995) little empirical evidence had accrued even a decade later (see Linley & Joseph, 2004 for a review). As other evidence has built up in more recent years it would be important to determine the current state-of-knowledge of the relation between social support and growth. To do so a comprehensive review of the empirical literature was proposed to determine whether sufficient evidence had been gathered to allow inferences of causality between social support and growth.

Chapter 4: Social Support and Growth: A literature review

4.1 Introduction

From the inception of growth following adversity as a field of study, theoretical formulations have included the notion that social support is likely to play a generally facilitative role (Schaefer & Moos, 1992), although empirical evidence has been slow to follow with only one study identified in the Linley and Joseph (2004) review, in which it was concluded that evidence for social support was lacking. Since their review, however, the role of social support has attracted new research interest. The aim of this review was to systematically review what is now known about the relationship between social support and posttraumatic growth.

4.1.1 Growth and social support

Social support is used as an umbrella-term used to identify the variety of personal interactions and social provisions available to those who may seek the company of others following a distressing experience. The literature on social support confirms its beneficial contribution to mental health directly through its availability (Cohen & Wills, 1985) as a buffer of stress (Cobb, 1976) and in aiding recovery from stress (Joseph & Williams, 2005). The likely affiliation of a particular type of social support with growth requires a comprehensive review of the field. Growth was considered from several perspectives in the opening chapter, including those that placed no demand on the experience of a traumatic stressor to trigger change. Similar attention is now demanded of social support before reviewing and assessing the way it has been related to growth. To prepare the way for that review and

assessment consideration is due to the way that social support has been represented in the literature.

4.1.2 Main effects

The direct or main effects model of social support represents it as an ever-present resource with its influence being exerted continuously regardless of the level of stress being encountered. Main effects are attributable to a feeling of belonging and integration whether or not a stressful incident has occurred (Cohen & Wills, 1985) and is often described in structural terms, such as a network of supportive others (Sarason, Levine, Basham, & Sarason, 1983) especially family and friends (Procidano & Heller, 1983). Assumptions that others are capable of providing assistance and that they are available are likely to give an individual a sense of belonging that appears to exert a positive effect on health and well-being. Poor social integration was noted during periods of industrialisation where immigrant workers were observed to commit suicide at higher rates than those who had the company and support of family and compatriots (Durkheim, 1897/2006). In the pre-trauma environment attachments, companionship and information could build and enhance personal resources with assurances of additional assistance in future. In the post-trauma environment both practical and psychological resources can be mobilised to assist. As a member of a network an individual may feel assured of the availability of others and the prospect of benefitting from their support should the need arise. To the extent that growth is facilitated by this type of social structure it is a cognitive process related to beliefs and assumptions of the availability, willingness and ability of others to act.

4.1.3 Moderating effects and buffering

The moderating effects of social support are evident only when particular conditions arise, as at a time of heightened threat or valuable loss. Stress that is reduced by the actions and involvement of others through the provision of resources such as physical comfort, information and emotional ventilation is said to be “buffered”. Where social support buffers distress a specific response is likely to be required as the response will have to match the negative impact for its effects to be felt (Cohen & Wills, 1985). The nature of buffering is functional rather than structural as it is related to appraisals of the actual impact of threat or loss, the demands that it creates and the reaction of supportive others in meeting those demands.

For an individual who is highly distressed by an experience, reactions such as disbelief, dread and arousal are likely to be unpleasant and to be accompanied by a sense of meaninglessness. Such reactions have been explained as a consequence of having previously-held beliefs and assumptions that made the world understandable suddenly overthrown in the face of experience (Janoff-Bulman, 1989). To the extent that other individuals can assist by confronting the existential concerns of the victim and remaining open to their emotional expression, they may set in train the processes that can lead to growth. Such processes would foreseeably involve reappraisals of safety and threat, the rebuilding of cognitive schema to accommodate recent information and to finding meaning in survival (Janoff-Bulman, 1989; Joseph & Linley, 2005; Tedeschi & Calhoun, 1995; 1998).

Whilst main effects imply that social support is effective simply through it being available, buffering effects can be seen in the physical presence and influence of supportive others interacting with, or on behalf of, a distressed individual. Buffering is the benign effect of engaging with the physical and psychological aftermath of a threat or loss and thereby reducing subjective distress. Growth, if it is facilitated by buffering seems likely through the enhanced relationships that could develop through successfully interacting with others when in need. Self-esteem and self-efficacy might also be enhanced through the recognition that the individual has managed to attract the support of others and found that support to be effective.

4.1.4 Social resources

Social support has been conceptualised as a resource that can be lost and accrued through transactions that occur in the wake of a threatening experience.

Conservation of resources (Hobfoll, 1988) is a psychosocial model that describes the perceived loss of resources, rather than the perception of a tangible threat, as the trigger that precipitates distress. Objects, personal characteristics, conditions or energies valued by the individual, or serve to attain them, are all regarded as resources in this model. Social support can be seen to act as a replenishment of resources as they become consumed by the efforts at adjustment to the changed environment (Hobfoll, 1989). Growth would most likely be perceived in the replenishment of resources, which suggests that growth is unlikely to emerge in the early aftermath while losses are being appraised and calculated. The source of replenishment might affect perceptions of different aspects of growth. For example, were friends able to console and assist in restoring perceived losses enhanced relationships are a likely result. Were the individual themselves able to

resist losses and acquire resources independently of others self-efficacy may lead to enhanced self-perceptions. An eventual surplus of resources may even bring a sense of ultimate good fortune that turns attention to interest in spiritual matters should there be a sense of feeling blessed. A once impoverished individual that acquires resources that can benefit others may then become a source, rather than receiver, of support. Those who provide support to others have also been shown to gain personally (Jung, 1988).

4.1.5 Stressor-specificity

The stressor-specificity model of social support sees the demand and provision of support changing with different types of support being suited to particular stressors and time so that different relationships meet different needs (Weiss, 1974). The stressor-specificity model recognises that the most effective type of support is that which best suits the need of the individual and the demands of their particular situation (see Cohen & McKay, 1984; Cutrona & Russell, 1990). Weiss (1976) described three phases to explain why demands changed over time and why different types of support were required. Firstly, and immediately in the wake of a stressful episode is *crisis* which is of sudden onset, time-limited and emotionally arousing. The second phase is *transition*, which is a period during which appraisals of threats and changes in the individual's assumptive world are made. The third phase is *deficit* which is a long period of excessive demands that can become central to the life of the survivor. Temporal changes in outlook, coping ability and recovery will come as differing demands are met, or otherwise, by the appropriate type of support. For example, in the crisis phase, emotional support would be most

appropriate, whilst in the transition phase, cognitive support may be the most effective and in the deficit phase, practical support (Jacobson, 1986).

Folkman & Lazarus (1988) took the notion of phased demands further by showing that more than one phase might exist at a time in which case more numerous sources and types of support would be required. A study of an American Army plane crash in which no crew survived reported a series of post-event phases referred to as “numb dedication”, “betrayal”, “resolve” and “integration” amongst colleagues (Bartone & Wright, 1990). Each phase lasted for several weeks and revealed a complexity of evolving emotional reactions and differing support needs in the post-traumatic aftermath. Growth, as revised cognitive schema, may have numerous opportunities to emerge in a complex emotional aftermath. If social support has a role to play in facilitating growth a stressor-specificity model shows that cognitive and emotional changes may be sensitive to types of support, not only in a particular context, but at particular points in time.

4.1.6 Cognitive support

Cognitive support is a candidate for facilitating growth in that it is the perceptions of positive psychological change that are reported and described in growth.

Posttraumatic growth has been described as a process of rebuilding shattered cognitive schema from successful efforts to emotionally process what has occurred (Tedeschi & Calhoun, 1995). Figley (1986) describes the cognitive struggle of survivors who are faced with the process of accepting the reality of unexpected and unpleasant events. Figley argues that others can assist the survivor in this process

by accepting the reality of the event while assisting the communication process that supports the development of new cognitive schema.

Harvey, Orbuch, & Weber (1990) took a socio-psychological view on the adaptation to a traumatic experience through “account making” by constructing a story, with descriptions, conclusions and emotional content and using it to form a prediction about future events. This is one way in which cognitive restructuring and processing can act during adaptation to unpleasant experiences (c.f. Affleck, Tennen, Croog, & Levine, 1987; Taylor & Brown, 1984).

Harvey, Agostinelli & Weber (1989) looked at the accounts of Vietnam veterans to show how the account-making process begins with confiding in others and proceeds through staged processes of increasing intensity. There are several reasons as to why a survivor would choose to confide in another person and to the extent that they would. Confidence in the relationship and concerns about the listener’s appraisal and reactions to the story would be two reasons for doing so. However, completing the story is an essential part of the process of resolution. Wigren (1994) argues that processing the narrative account is essential to the cognitive organisation of the event, in line with the conclusions of Pennebaker and colleagues in demonstrating the health-related improvements that can follow writing about upsetting experiences (Esterling, L’Abate, Murray, Pennebaker, 1999; Pennebaker, 1989; Pennebaker & Seagal, 1999).

Cognitive support will be seen as an important candidate for the facilitation of growth because, theoretically, growth will emerge only after an event of sufficient impact as to challenge cognitive schema has occurred. The ruminative efforts to

understand what has happened is largely a cognitive enterprise (Tedeschi & Calhoun, 1995; 1998; 2004). Socially then, opportunities appear to exist for others to engage in the cognitive task of schema-rebuilding through recollection, discussion and exchanging information about changes enforced since the traumatic event. Once more an engaging rather than passive style of processing seems to be called for.

4.1.7 Social context

The social context within which a traumatic event occurs has been shown to exert some influence over the emotional outcome. Summerfield (1993) drew attention to the social and political tensions in the USA at the time of the Vietnam War in the 1960s and 1970s. This created an unpleasant social climate for the homecoming of American soldiers from Vietnam compared to the social climate for British soldiers returning from the Falklands conflict in 1982. The Vietnam War was an unpopular and unsuccessful campaign for American forces while the Falklands conflict was a popular and victorious conflict for the British.

In a more contemporary setting the public demonstrations against terrorist attacks that had taken place in the Spanish city of Madrid in 2004 were found to attenuate collective distress and to promote the emotional climate and, through rituals increase social cohesion (Páez, Basabe, Ubillos, & González-Castro, 2007). To make overt protests against a known threat is an example of engagement that appears to represent psychological well-being, and by association, growth. As distress was reported to be reduced in this study it appears likely, given earlier consideration of

the importance of prioritising PWB over SWB, that engagement occurred first and an improved emotional level came later.

4.1.8 Unhelpful social interactions

While social support may be well-intended in its aim, it is possible that support is not welcome or perceived to be beneficial by those who receive it. Any distressing effects of the event on those to whom the survivor turns may also reduce the effectiveness of any support provided. For example, in cases of sexually assaulted women some of those they confide in blame the victim for the attack occurring (Ingram, Betz, Mindes, Schmitt, & Smith, 2001). Lebowitz and Roth (1994) showed how a variety of beliefs and attributions can exert an effect on the emotional processing ability of women who had survived rape. Negative reactions from people in the social environment were consistently related to poor mental health outcomes soon after and up to a year after the assault (Ullman, 1999). In a study of cancer patients partners or relatives who were critical or belittling of a patient's cancer were regarded as particularly unhelpful (Dakof & Taylor, 1990) so reactions that conflict with needs may lead to ambivalent relationships between survivors and those perceived as providers of support. Ambivalence is evident in studies that showed increased distress due to the presence of unsupportive others in a network. For example, wives of serving Israeli soldiers who were subject to news reports of disaster had to endure rumours circulating within their social network at a time they could have benefited from network support (Hobfoll & London, 1985).

Although growth may not be expected to emerge in an unsupportive and unhelpful social environment, such as finding normally sympathetic people to be critical,

there are theoretical grounds for considering them worthy of interest in growth. Firstly, distress precedes posttraumatic growth and is likely to be raised where the absence of social support removes buffering effects. Secondly, negative emotional effects that are so aversive as to enforce an independent means of coping may find personal skills and abilities developing that would not have been tapped in a supportive environment. Any success in coping may even lead to a change in the social network such that the old group is dropped in favour of a different and more supportive network of people. A successful change in finding support, recognising the benefits to taking autonomous action and seeing the critical event as the precursor to success may reflect perceptions of growth in several domains.

4.1.9 Psychotherapy

It has been shown that social support exerts a positive influence on outcome to treatment of a number of conditions of psychiatric disorder (Brugha, 1995). In clinical work there is a therapeutic purpose to be served in bringing a patient to an awareness of the size and structure of their social network and their resources (Parry, 1995). Much of the evidence for the effectiveness of social support interventions has accumulated in the psychotherapeutic field with the identification of resources in an individual's social network (Parry, 1995). Parry argues for the mobilisation of the network as an aim of cognitive therapy once the symptomatic problems have been addressed. Burns and Nolen-Hoeksma (1992) reported the causal contribution of therapeutic empathy to recovery in patients receiving cognitive-behavioural therapy (CBT) for depression.

Sudden therapeutic gains in the early stages of CBT have been reported in the clinical literature and have been associated with significant reductions in anxiety symptoms that are accompanied by large cognitive changes (Clerkin, Teachman, & Smith-Janik, 2008; Kelly, Roberts, & Ciesla, 2005). One question posed by relatively large and unexpected changes is to wonder whether they are temporary gains that will erode over time. Clerkin et al. report that in cases of CBT for treating panic disorder gains made early in treatment were largely maintained six months later. Tentatively then, given enduring improvements, it might be questioned as to whether gains of this type are growthful. Rapid improvements should not rule out the possibility of positive changes enduring as examples of “quantum” changes have been reported in the growth literature. These cases of unexpected personal transformation and spiritual conversion have been reported and found to have persisted 10 years later (C’de Baca & Wilbourne, 2004).

4.1.10 Emotional social support

Emotional support is an entirely psychological component of support, unlike practical and instrumental types, and it includes esteem-support and informational support (Cohen & Wills, 1985). Unlike tangible types of support its effects do not directly act on the individual or the situation that gives rise to the distress. Rather they allow the individual in need to have the subjective experience of communication, recall and emotional expression. In times of crisis it seems essential for some to talk (Raphael, 1986). Conceptually this could provide the opportunity for cognitive and emotional integration of the fragmented memories and meanings associated with the distressing event. As a complement to explanations of traumatic experience being expressed as “shattered assumptions”

(Janoff-Bulman, 1992) a number of theorists have explained recovery in terms of integration. Herman (1992), for example, describes the conditions for recovery as comprising safety, recall, mourning and reconnection. From a shattering, confused experience to an integrated and meaningful one, the conduit that emotional social support provides for the recently disconnected associations of prior experience and learning need to be reconfigured in a revised schema. Emotional social support, therefore, presents one more candidate for growth on the grounds of its demand for engagement with, rather than avoidance of, the reality of a distressing event.

Given the variety of social constructs that could be operationalised and tested in this thesis a theoretical decision will be enforced on pragmatic grounds. The theoretical distinction that appears most helpful is in comparing received social support with perceived social support. It seems that the overview of social support presented sees each type fitting into one of these categories. This offers a formal basis upon which to consider, broadly, the theoretical type of support that presents the social conditions that could most favour the facilitation of growth. If one type of support finds stronger association with growth than the other a more refined consideration may then be made of the constituent types within that category. Perceived social support relates to global beliefs in the presence, availability and access to sources of care, value and belonging (Cobb, 1976, Cohen & Wills, 1985). Received social support relates to the specific helping behaviours of others that were enacted at a critical time of need (Jacobson, 1986).

4.1.11 Perceived social support

Perceived social support is based upon the belief that assistance is available and will be provided by members of the social network should the need arise (Sarason, Shearin, Pierce & Sarason, 1987). Perceptions of the availability of social support has been shown to be positively related to health (Cohen & Wills, 1985) and negatively related to distress (Brewin, Andrews, & Valentine, 2000; Ozer et al., 2003; Lakey & Cassady, 1990). As perceived social support is a cognitive appraisal of the social structure it relies upon assumptions of availability and effectiveness. It is also likely to act in a general way as only when a specific stressor is encountered will the actual need become apparent. Perceived social support has been described in terms of the protective health benefits associated with receiving information that an individual is loved, valued and cared for (Cobb, 1976). As a member of a network that provides this information the individual can feel embedded and important. Belonging and being valued in a network are cognitive constructions that represent the perceptual social world that the individual finds themselves in. If growth is facilitated by perceived support it seems most likely to come from cognitive representations rather than behavioural representations of change.

4.1.12 Received social support

Received social support refers to the actual assistance provided during or following a distressing event. Received support is likely to be enacted when coping abilities are overwhelmed and assistance sought from the social environment (Haber, Cohen, Lucan, & Baltes, 2007). Compared to perceived social support, received support operates functionally. It is support that is actually employed in the wake of

a stressful experience and presents a behavioural, rather than a cognitive, response.

Received support is likely to be reported in specific terms as reference will be made to a single event. Perceived support may reflect idiosyncratic cognitive processes as reported received support reflects actual behaviour (Dunkel-Schetter & Bennett, 1990). This may explain why some associations between perceived and received types of support in studies which measure both constructs are low (Lakey & Cassady, 1990). Given that the main difference between perceived social support and received social support is in the enactment involved in received support, questions remain about how enacted support alters perceptions of support availability in the future. Which type of support mediates the relation between distress and growth will, therefore, be examined in the empirical phase of the thesis.

The buffering model of social support is likely to express itself in a study measuring received support. Buffering relies upon a certain level of a stressor in order to have something to buffer. As stress increases so too does buffering as a means to protecting an individual from the corrosive effect of exposure to high levels of distress. Users and providers of social support are likely to incorporate both types of support in their everyday repertoires. It appears that whilst awaiting a distressing event, perceptions of social support being available from others seems likely to exert their influence. In the confusion of such a distressing event and thereafter received support seems most likely to exert its influence. Which type is more likely to find association with growth awaits testing in the empirical chapters ahead.

4.2 Summary

It is well established that social support is an important factor in recovery from posttraumatic stress (e.g., Brewin, Andrews, & Valentine, 2000; Joseph & Williams, 2005) and psychiatric disorder (e.g., Brugha, 1995). Recent theoretical work has posited that social support is also related to the development of posttraumatic growth through, for example, its role in increasing coping resources and problem solving (e.g., Armeli, Gunthert, & Cohen, 2001; Park, Cohen, & Murch, 1996) or through facilitating ruminative processes and emotional disclosure (e.g., Joseph & Linley, 2005; Tedeschi & Calhoun, 1995, 1998). Social support is a broad construct. Operational definitions include practical, informational, cognitive and emotional types of social support (e.g., Cohen & Wills, 1986; Cutrona & Russell, 1987; Jacobson, 1986; Joseph, 1999). It is likely that the adaptive significance of different types of social support is a function of participants' needs, which will vary depending on the context. A further distinction is between the adaptive significance of perceiving that support is available if needed, and that which is actually received in a time of crisis (i.e., Haber et al., 2007; Joseph, 1999),

The main focus of this review has been to determine whether it is possible to find evidence that social support may be causally related to posttraumatic growth. To do so it would be necessary to measure social support and growth at more than one time point, and test for correlations between each pair of variables across time. If growth is causally related to social support, there is a need to account for correlations between variables both simultaneously and across time. Causality would be implied where studies carried out a test to rule out the influence of spurious common variables through cross-panel analysis (Kenny, 1975) or to

account for them by inclusion in multiple regression models (Cohen, Cohen, West, & Aiken, 2003).

4.2.1 Literature search strategies

The literature for the review was gathered by identifying peer-reviewed, empirical publications that reported on the relationship between social support and growth following adversity. The search for articles to be included in the review was carried out using the following strategy:

Step One. The databases of PsycINFO (1985-2009), Medline (1996-2009) and PILOTS [Published International Literature on Traumatic Stress] (1999-2009) were searched for peer-reviewed publications (excluding dissertations) during September 2009

The search terms of *posttraumatic growth*, *post-traumatic growth*, *stress-related growth*, *adversarial growth*, *thriving*, *perceived benefit*, *perceived benefits*, *positive adaptation*, *positive appraisal* and *change after trauma* were entered as keywords as they had been used in recent literature to describe the outcomes and processes involved in growth. These terms were combined with the keyword *social support* to identify publications that included both social support and growth. Literature containing these terms was identified and checked for relevance to the review. As this thesis was only concerned with studies testing for statistical association between social support and growth, non-empirical papers, such as theoretical and review publications were excluded. Thirty-five articles were retrieved from the databases using this strategy.

Step Two. Each of the 35 articles was checked for citations to other empirical work that had not been identified in Step One. In addition, the reference sections of two

more recent review articles on growth following adversity (Helgeson et al., 2006; Prati & Pietrantonio, 2009) were searched. As a result, eight further articles were identified.

Step Three. Each of the 43 articles was examined to see whether reliability and validity of their social support and growth instruments was appropriate. Studies were omitted in which instruments were reported for the first time without providing any details of their reliability and validity. For those studies that did report information on new instruments, minimum criteria were set where internal consistency reliability of 0.70 or greater (Urbina, 2004) and evidence of convergent validity with other well established instruments was reported. Three articles (Holland & Holahan, 2003; Prati & Pietrantonio, 2006; Revenson, Wollman, & Felton, 1983) did not report acceptable reliability coefficients for at least one measure and were therefore excluded from the review. Articles selected for the review are marked with asterisks in the reference section.

Across the resultant 40 articles, 27 self-report measures of social support were used. Following inspection of each of these measures were grouped into one of three categories: (1) measures of *perceived* social support, (2) measures of *received* social support, and (3) measures of social support as *coping*. Eleven self-report measures of growth were used (see Appendix 2). Twenty-three social support and four coping measures were used (see Appendix 3).

4.3 Results

The 40 selected reports are listed in Table 4.1 and grouped according to type of social support (see also Appendix 4). In total 43 separate tests of association were

conducted (some studies used more than one measure of a construct (i.e., Mosher, Danoff-Burg, & Brunker, 2006; Park et al., 1996) and there was one instance in which a study included two samples for statistical analysis (i.e., Thornton & Perez, 2006).

Thirty-three of the 43 tests conducted were cross-sectional co-relational analyses and 10 reported some form of analysis across time points.

4.3.1 Cross-sectional correlational data

In 27 of the 33 cross-sectional co-relational analyses a statistically significant association was found where higher levels of social support were associated with higher levels of growth. There were no instances of a statistically significant negative association. These 27 analyses were reported in 25 studies from a diverse range of samples. Fifteen studies were in health-related contexts: people with arthritis (Dirik & Karanci, 2008), heart disease (Sheikh, 2004), multiple sclerosis (Mohr, Dick, Russo, et al., 1999), HIV/AIDS (Littlewood, Vanable, Carey, & Blair., 2008; Luszczynska, Sarkar, & Knoll, 2007; Siegel, Schrimshaw, & Pretter, 2005; Siegel & Schrimshaw, 2007), HIV patients surviving hurricane (Cieslak, Benight, Schmidt, et al., 2009), following surgery for cancer (Morris, Shakespeare-Finch, & Scott, 2007), prostate cancer (Kinsinger, Penedo, Antoni, et al., 2008; Thornton & Perez, 2006), breast cancer, in patients, (Karanci & Ekram, 2007; Weiss, 2004b), husbands (Weiss, 2004a) and daughters (Mosher, Danoff-Burg, & Brunker, 2006 (two analyses)). Eleven studies were with people following other life threatening events; sexual assault (Borja, Callaghan, & Long, 2006), tsunami (Tang, 2006), earthquake (Sattler et al., 2006), combat (Maguen, Vogt, King, King, & Litz, 2006),

community trauma (Harris, Erbes, Engdahl, & Olson, 2008), Holocaust (Lev-Wiesel & Amir, 2003), various life-events (Park et al., 1996 (two analyses); Swickert & Hittner, 2009; Wilson & Boden, 2008), and bereavement (Hogan & Schmidt, 2002) including from HIV/AIDS (Cadell, Regehr, & Hemsworth, 2003). The six studies in which no association was reported were with adult survivors of a ship-sinking (Joseph, Williams, & Yule, 1993), former prisoners of war (Feder, Southwick, Goetz, et al., 2008), immigration (Berger & Weiss, 2007; bariatric surgery (Shiri, Gurevich, Feintuch, & Beglaibter, 2007), wives of prostate cancer patients (Thornton & Perez, 2006) and children and adolescent survivors of flooding (Cryder et al., 2006).

Comparison of the six studies that did not report a statistically significant association with the 27 (29 analyses) that did showed a mean sample size of 51.5 (range 30-100) compared to a mean sample size of 137.6 (range 30-335), respectively, suggesting that those studies that did not report association may have lacked sufficient power.

4.3.2 Longitudinal analyses

Of the 13 studies reporting data at more than one time point, only ten actually tested the relationship of social support with growth across time. Six of these ten reported a statistically significant association, in patients with cancer (Luszczynska et al., 2005; Schulz & Mohamed, 2004; Schwarzer et al., 2006) sexual assault in women (Frazier et al., 2004), prisoners of war, (Erbes et al., 2005) and students following various life events (Park et al., 1996). In four studies no association was found, bone marrow transplant (Widows, Jacobsen, Booth-Jones, & Fields, 2005), disaster work (Linley & Joseph, 2006) women with chronic arthritic illness (Abraído-

Lanza, et al., 1998) and breast cancer (Sears et al., 2003), Again, the four studies that did not report an association had a lower mean sample size of 71.5 (range 56-92) compared to the six that did which had a mean sample size of 121.2 (range = 95–171).

Of the six studies that associated social support at one time point with growth at a later time point, none tested for spuriousness (Kenny, 1975) or model-fit (Cohen et al., 2003) that would have allowed causal relationships to be inferred. However, such tests demand the measurement of both social support and growth at more than one time point and although most did not meet that demand, three of the six longitudinal studies did. Park et al. (1996) measured social support and growth at two time points, and using multiple regression found satisfaction with early social support predicted growth six months later. Schwarzer et al. (2006) measured social support and growth concurrently at three time points over a year and found early social support to be related to growth at all three time points, and social support at 12 months to be related to growth at 12 months. A structural equation model found early social support to be unrelated to changes in growth over time. Frazier et al. (2004) measured social support and growth several times throughout a year. This provides the strongest evidence to date for the role of social support. Concurrent measurement of social support and growth at four time points allowed tests not only of initial levels of variables but also of patterns of change in those variables over time. Using hierarchical linear modeling they tested initial and co-varying levels of several variables and reported several important findings. Firstly, early received social support was found to be related to early growth. Secondly,

early received social support was found to be unrelated to changes in growth over time. Thirdly, changes in received social support over time were related to changes in growth over time.

Table 4.1 Studies reporting tests of association between social support and growth

Perceived Social Support and Growth: Cross-sectional studies reporting association

Study and Relation	Growth and Social Support Measure
Cadell, Regehr, & Hemsworth (2003) Bereaved caregivers: $N = 174$ $r = .21, p < .05$	Posttraumatic Growth Inventory + Stress Related Growth Scale Social Support Questionnaire (O'Brien et al., 1993) + Provision of Social Relations
Dirik & Karanci (2008) Arthritis: $N = 117$ $\beta = .33, p < .001$	Posttraumatic Growth Inventory (Turkish version) Multidimensional Scale of Perceived Social Support (Turkish version)
Harris, Erbes, Engdahl, & Olson (2008) Community trauma: $N = 327$ $r = .14, p < .05$	Posttraumatic Growth Inventory Medical Outcomes Study
Hogan & Schmidt (2002) Bereavement : $N = 167$ $r = .29, p < .05$	Hogan Grief Reaction Checklist: Personal Growth Subscale Inventory of Social Support
Karanci & Erkam (2007) Breast cancer: $N = 90$ $pr = .22, p < .01$	Stress Related Growth Scale (Turkish version); Multidimensional Scale of Perceived Social Support (Turkish version)
Kinsinger, Penedo, Antoni, Dahn, Lechner, & Schneiderman (2008) Prostate cancer: $N = 250$ $r = .17, p < .01$	Benefit Finding Scale ENRICHD Social Support Instrument
Lev-Wiesel & Amir (2003) Holocaust child survivors: $N = 97$ $r = .24, p < .05$	Posttraumatic Growth Inventory (and subscales) Perceived Social Support Scale
Littlewood, Venable, Carey, & Blair (2008) HIV: $N = 221$ $r = .31, p < .01$	Benefit Finding Scale Author-developed HIV-specific support scale
Sattler, de Alvaro, de Castro, van Male, Zetino, & Vega (2006; Study 2) Earthquake survivors: $N = 83$ $r = .31, p < .01$	Posttraumatic Growth Inventory (modified) Louisville Social Support Scales

Sheikh (2004) Heart disease: $N = 110$ $r = .19, p < .05$	Posttraumatic Growth Inventory Social Support Questionnaire – Short Form
Siegel, Schrimshaw, & Pretter (2005) HIV/AIDS: $N = 138$ (women) $r = .54, p < .05$, between PTS and PES; $r = .40, p < .05$ between PTS and PPS	Psychological Thriving Scale (PTS) (modified) SSQ (O'Brien et al., 1993) HIV/AIDS specific Perceived Emotional Support = PES Perceived Practical Support = PPS
Siegel & Schrimshaw (2007) HIV/AIDS: $N = 138$ (women) $r = .50, p < .01$	Psychological Thriving Scale (PTS) (modified) HIV/AIDS specific social support
Weiss (2004a) Husbands of Breast Cancer Survivors: $N = 72$ $r = .36, p < .005$	Posttraumatic Growth Inventory (PTGI, and subscales) Quality of Relationship Inventory
Weiss (2004b) Breast Cancer Survivors: $N = 72$ $r = .24, p < .05$	Posttraumatic Growth Inventory (PTGI, and subscales) Quality of Relationship Inventory
Wilson & Boden (2008) Students' life events: $N = 104$ $r = .27, p < .01$ PTGI and SSQ-N $\beta = .12, p < .01$ PTGI and SSQ-S (variables controlled)	Posttraumatic Growth Inventory Social Support Questionnaire – Short form Network size subscale = SSQ-N Satisfaction with network subscale = SSQ-S

Perceived Social Support and Growth: Cross-sectional studies reporting no association

Study and Relation	Growth and Social Support Measure
Berger & Weiss (2006) Immigration. $N = 100$ (women) $r =$ not reported	Posttraumatic Growth Inventory Social Support Questionnaire – Short Form
Cryder, Ryan, Tedeschi, & Calhoun (2006) Flooding: $N = 46$ $r =$ not reported	Posttraumatic Growth Inventory (Children version) Inventory of Social Support for Children

Feder, Southwick, Goetz, Wang, Alonso, Smith, Bucholz, Waldeck, Ameli, Moore, Hain, Charney, & Vythilingam (2008)	Posttraumatic Growth Inventory Medical Outcomes Study
Former prisoners of war. $N = 30$ $r = .22, ns$	
Shiri, Gurevich, Feintuch, & Bechlaibter (2007)	Posttraumatic Growth Inventory Perceived Social Support (PSS-Fa = family subscale)
Bariatric Surgery: $N = 31$ $r = .16, ns$ between PTGI and PSS-Fa	

Perceived Social Support and Growth: Longitudinal studies reporting association

Study and Relation	Growth and Social Support Measure
Erbes, Eberly, Dikel, Johnsen, Harris, & Engdahl, (2005)	Posttraumatic Growth Inventory (PTGI, and subscales)
Former prisoners of war: $N = 95$ at 5-year follow up $r = .24, p < .05$ between Time 2 PTGI and Time 1 StSS.	Structural Social Support (StSS)
Park, Cohen, & Murch (1996; Study 3)	Stress Related Growth Scale
Students' adverse life events: $N = 142$ $\beta = .23, p < .01$; Time 2 SRGS and Time 1 SSQ-S (variables controlled)	Social Support Questionnaire – Short Form (SSQS = satisfaction with support network)

Perceived Social Support and Growth: Longitudinal studies reporting no association

Study and Relation	Growth and Social Support Measure
Sears, Stanton, & Danoff-Burg (2003)	Posttraumatic Growth Inventory (PTGI)
Breast cancer: $N = 92$ (women) $r = .15, ns$ Time 2 PTGI and Time 1 ES	Author-developed emotional support (ES)
Widows, Jacobsen, Booth-Jones, & Fields (2005)	Posttraumatic Growth Inventory (English or Spanish version)
Bone Marrow Transplant: $N = 72$ $r = .05, ns$ Time 2 PTGI and Time 1 ISEL-SF (variables controlled)	Interpersonal Support Evaluation List – Short Form (ISEL-SF) (English or Spanish version)

Received Social Support and Growth: Cross-sectional studies reporting association

Study and Relation	Growth and Social Support Measure
Borja, Callahan, & Long (2006) <i>N</i> = 115; women <i>r</i> = .62, <i>p</i> < .01	Perceived Benefits Scale Social Reactions Questionnaire
Cieslak, Benight, Schmidt, Luszczynska, Curtin, Clark, & Kissinger (2009) HIV hurricane Survivors <i>N</i> = 90 <i>r</i> = .23, <i>p</i> < .05	Posttraumatic Growth Inventory Inventory of Postdisaster Social Support
Luszczynska, Sarkar, & Knoll (2007) HIV patients: <i>N</i> = 104 <i>r</i> = .54, <i>p</i> < .001 BFS and RSS	Benefit Finding Scales (BFS) Berlin Social Support Scales (modified for HIV) (Received Social Support subscale = RSS)
Maguen, Vogt, King, King, & Litz (2006) Gulf War Veterans: <i>N</i> = 61 <i>F</i> (5, 54) = 3.21, <i>p</i> < .05, between PDSS and PTGI (variables controlled)	Posttraumatic Growth Inventory (PTGI, and subscales) Post-deployment Social Support (PDSS)
Mosher, Danoff-Burg, & Brunker (2006) Daughters of Breast Cancer Survivors <i>N</i> = 30 (women) <i>r</i> = .40, <i>p</i> < .05	Posttraumatic Growth Inventory Social Provisions Scale

Received Social Support and Growth: Cross-sectional studies reporting no association

Study and Relation	Growth and Social Support Measure
Joseph, Williams, & Yule (1993) Ship-sinking: <i>N</i> = 35 <i>r</i> = -.13, <i>ns</i> between CiOP and CSS	Changes in Outlook Questionnaire (CiOP = Positive subscale) Crisis Support Scale (CSS)

Received Social Support and Growth: Longitudinal studies reporting association

Study and Relation	Growth and Social Support Measure
Frazier, Tashiro, Berman, Steger, & Long (2004) Sexual Assault: <i>N</i> = 171 (women)	Positive Life Change (PLC) <i>author developed</i> Received social support (RSS) <i>author developed</i>

(χ^2) 26.51, $t = 5.37$, $p < .005$ testing
Time 1 social support and Time 1
PLC (comparing study variables)

Luszczynska, Mohamed, & Schwarzer
(2005)
Cancer surgery: $N = 97$
 $r = .26$, $p < .01$, between Time 2 ISO
and Time 1 RSS
 $\beta = .23$, $p < .01$, between Time 1 RSS
and Time 2 CFR

Benefit Finding Scales (e.g., Increased Sensitivity to
Others = ISO; Changes in Family Relationships
subscale = CFR)
Berlin Social Support Scales (Received Social
Support subscale = RSS)

Schulz & Mohamed (2004)
Cancer surgery: $N = 105$
 $\beta = .45$, $p < .01$ Time 2 BFS
and Time 1 RSS (*self-efficacy*
controlled)

Benefit Finding Scale (tumour specific)
Berlin Social Support Scales (e.g., Received Social
Support subscale = RSS)

Schwarzer, Luszczynska, Boehmer,
Taubert, & Knoll (2006)
Cancer surgery: $N = 117$
 $r = .26$, $p < .01$, between Time 3 BFS
and Time 1 RES

Benefit Finding Scale (7-item version)
Berlin Social Support Scales (e.g., Received
Emotional Support = RES)

Received Social Support and Growth: Longitudinal studies reporting no association

Study and Relation

Growth and Social Support Measure

Abraído-Lanza, Guier, & Colón (1998)
Arthritic Illness: $N = 66$ (women)
 $r = .00$, *ns* Time 2 PTS and Time 1 RSS

Psychological Thriving Scale (PTS)
Author-modified Received Social Support (RSS)
scale

Linley & Joseph (2006)
Exposure to Disaster: $N = 56$
 $r = -.07$, *ns* between Time 2
PTGI and Time 1 CSS-R;
 $r = -.01$, *ns* between Time 2
CIOP and Time 1 CSS-R

Posttraumatic Growth Inventory (PTGI)
Changes in Outlook Questionnaire (CIOP =
Positive subscale)
Crisis Support Scale (CSS-R = support received)

Coping Social Support and Growth: Cross-sectional studies reporting association

Study and Relation	Growth and Social Support Measure
Mohr, Dick, Russo, et al. (1999) Multiple Sclerosis: $N = 94$ $r = .30, p < .01$ between BF and seeking social support	Author-developed benefit-finding measure (BF Ways of Coping Questionnaire (seeking social support subscale)
Morris, Shakespeare-Finch, & Scott (2007) Cancer: $N = 335$ $r = .30, p < .001$ between NP and UES $r = .42, p < .001$ between NP and UIS	Posttraumatic Growth Inventory (and subscales; NP = New Possibilities) COPE: UES = Using Emotional Support UIS = Using Instrumental Support
Mosher, Danoff-Burg, & Brunker (2006) Daughters of Breast Cancer Survivors $N = 30$ (women)	Posttraumatic Growth Inventory COPE: SES = Seeking social support SIS = Seeking instrumental support
Swickert & Hittner (2009) Prostate cancer surgery: $N = 82$ men $pr = .38, p < .01^*$ between PBS and CSI	Perceived Benefits Scale CSI = Coping Strategy Indicator
Tang (2006) Tsunami survivors. $N = 267$ $r = .38, p < .01$ between PTGI and SSS	Posttraumatic Growth Inventory Brief COPE: SSS = Seeking social support

Coping Social Support and Growth: Longitudinal studies reporting association

Park, Cohen, & Murch (1996; Study 3) Adverse life event. Students: $N = 142$ $r = .23, p < .01$ between Time 2 SRGS and Time 2 SES	Stress Related Growth Scale COPE: SES = Seeking social support
Thornton & Perez (2006) Prostate cancer surgery: $N = 82$ men $\beta = .29, p < .05$, between Time 2 PTGI and Time 2 SES	Posttraumatic Growth Inventory Brief COPE: SES = Seeking emotional support

Coping Social Support and Growth: Longitudinal studies reporting no association

Study and Relation	Growth and Social Support Measure
Thornton & Perez (2006) Prostate cancer surgery: $N = 67$ (wives) $\beta = .15$, <i>ns</i> between Time 2 PTGI and Time 2 SES (variables controlled) $\beta = -.11$, <i>ns</i> between Time 2 PTGI and Time 2 SIS (variables controlled)	Posttraumatic Growth Inventory Brief COPE: Seeking Emotional Support (SES); Seeking Informational Support (SIS)

All studies in the review are indicated by * in the Reference section.

4.3.3 Discussion

This review has systematically identified and summarised the empirical studies that have measured social support and growth and reported their association. All were inspected for correlations and, where designs allowed, tests of causality. From this review it is clear that social support is related to growth across a variety of contexts, but these studies do not of themselves provide evidence that social support is causally related to growth as they either fail to control for earlier levels of growth or later levels of social support. One of the exceptions was the year-long study of sexual assault survivors by Frazier et al. (2004) which suggests that growth at an earlier time point is not predictive of increased growth, but that the maintenance of social support over time, or its increase, is related to co-varying changes in growth levels. It would seem that there is a moderately strong association between social support and growth. What is needed now is convincing evidence of the causal relation. Such research is, of course, methodologically complex.

If social support can be shown to be causally related to growth, the next question is “How?” It may be that social support fosters a sense of control. Strong evidence for this comes from Frazier et al. (2004) who showed that the relationship between positive life change and received social support in victims of sexual assault was mediated by control over their own recovery. Similarly, Schulz and Mohamed (2004) showed that the effect of received social support on benefit finding for cancer patients was partially mediated by coping through social comparison. Testing theoretically-related variables in this way promises to bring additional explanatory value to the relationship that exists between social support and growth.

From their review of the growth literature, Linley and Joseph (2004) cautioned that social support may be confounded with changes in interpersonal relationships, as a domain of growth. This point appears relevant to the current review given the findings of studies that used the PTGI which includes items concerned with *relating to others*. In order to minimize the confounding effect, Holland and Holahan (2003) removed the *positive relations* subscale from their growth measure, and Luszczynska et al. (2005) removed the *positive benefit* item from their social support scale. While Holland and Holahan reported an association, Luszczynska et al. reported differential relations of social support with benefit finding, but no relation with personal growth.

Growth, as a possible consequence of traumatic experience, is beginning to shape therapeutic interventions (Park & Helgeson, 2006). However, theoretical development of clinical models that incorporate social support awaits a clearer understanding. While this review has found some evidence for the role of social support in facilitating growth a causal role has not been established. Theoretical models for use in clinical settings are likely to benefit from methodologically rigorous studies using sufficiently large samples. The few studies in this review that have taken concurrent measurements using longitudinal designs and multivariate analyses exemplify some of the means by which the conditions and mechanisms for growth may be identified.

The mixed findings in the review, the methodological limitations and heterogeneity of measures of variables seem to have clouded rather than clarified the relation between social support and growth. To address some of these shortcomings a

series of studies was proposed. Firstly, a heterogeneous population that was exposed to similar levels of trauma and that enjoyed similar types and levels of social support was sought. Secondly, theoretical types of social support were operationalised as *perceived social support* and *received social support*. Thirdly, types of growth were operationalised using two scales that had been developed in different populations in different contexts but that purportedly measure the construct of growth. If social support does facilitate growth it was anticipated that one type of support would find stronger association with growth than the other type.

Chapter 5: Growth following Adversity in Firefighters: The role of social support

5.1 Introduction

In Chapter Four a review of the empirical literature of studies that had included measures of social support and growth found several mixed findings of their association. Early theoretical work has suggested that social support is important in facilitating growth following adversity (Joseph, Williams & Yule, 1993; Park, Cohen, & Murch, 1996; Tedeschi & Calhoun, 1995). Following a 2004 review of studies of growth where only one study involving social support was reported (Linley & Joseph, 2004) several studies have been undertaken. As was seen in the findings of the previous chapter the early assumption that social support had a positive role to play has been met with mixed findings. Overall, there seems to be sufficient evidence to suggest that social support is related to growth. However, the review concluded that methodological shortcomings, such as inadequately-sized samples, the use of non-standardised instruments and concerns over the validity of growth measures may have contributed to some of the inconsistent findings.

5.1.1 Growth and types of social support

Growth is the collective name given to the variety of positive psychological changes perceived to have occurred as a result of a particularly distressing experience. As a construct, however, it has been described as being both illusory and real (Zoellner & Maercker, 2006) and the number and variety of growth measures reported in the review do little to clarify understandings. One reason may be that the development of each scale has been undertaken with a specific population that renders the scale less sensitive to perceptions of change in other populations. For example, the

Posttraumatic Growth Inventory (PTGI) was developed using students referring to stressful life events yet has been used in studies of military veterans where association with social support was found with Gulf War veterans (Maugen, Vogt, King, King, & Litz, 2006) but not with former prisoners of war (Feder et al., 2008). In addition, the theoretical structure of scales can vary. The PTGI comprises five domains of growth yet other scales comprise a single construct of growth (e.g., Joseph, et al., 1993, Park, Cohen, & Murch, 1996) or as many as eight domains (e.g., McMillen & Fisher, 1998). While most studies reported the use of standardised instruments to measure growth some researchers developed study-specific measures of growth, for example in multiple sclerosis (Mohr, Dick, Russo et al., 1999) and sexual assault (Frazier et al., 2004). Despite the publication of standardised scales it appears that in some contexts researchers prefer to tailor growth measures to the study's context. Until convergence between measures has been demonstrated empirically, the validity of growth as a construct will remain in some doubt.

Social support is a well-established area of psychological research that comprises numerous standardised measures that have shown validity and reliability so the doubts relating to growth are of less concern to social support. However, as was seen in the review, it is important for researchers to justify which type of social support is of interest given the theoretical distinctions that exist between perceived and received types (Haber et al., 2007).

Social support, with its established literature and numerous instruments, has been variously described. For example, it has been defined as information that allows an

individual to feel loved, valued and cared for (Cobb, 1976), the belief that others are available to provide comfort and assistance in a time of need (Sarason et al., 1983) and the actual receipt of others' assistance and attention following crisis (Joseph, Williams, & Yule, 1992). The interrelations of types of support are not consistent (Haber, et al., 2007) so their relationships with growth are likely to be obscured where specific types of support are not tested independently alongside growth.

However, despite the prospect that social support is related to growth it is not yet known whether it is perceived or received support which is most beneficial. This would require research to explicitly test both forms of social support. Thus, the aim of the study was to investigate the relative contributions of perceived and received social support to growth following adversity. Tests of association would benefit from a group that is frequently exposed to traumatic events and whose members also benefit from different types of social support.

5.1.2 Testing firefighters

It is evident from the small trauma literature that relates to fire and rescue work (see Chapter 1) that the quality of the interpersonal relationships between firefighters seems a crucial part of coping with distress, developing self-esteem and acting effectively at operational incidents. The watch, the formal collection of firefighters on duty together at the same time, was psychologically bound together by the fabric of these relationships. Conceptually then the way that firefighters interact with each other matches both types of social support.

The belief that commitment to the welfare and safety of a colleague would be reciprocated at any time describes *perceived* social support. Such beliefs may encourage some firefighters to take an extra risk, to try a little harder and extend efforts towards a common goal knowing that success and failure would both meet with acceptance as long as the intention to succeed was evident. Such a commitment could see firefighters put themselves in novel situations that would not be considered without the assumptions of support being available afterwards.

The knowledge that sooner or later something would go wrong suggests rehearsing or anticipating who might be approached for assistance, guidance or mere ventilation; this too is perceived support. On the other hand when something does go wrong the help, advice or emotional opportunities actually provided describes *received* social support. The effectiveness of this support could be measured in the restored enthusiasm to get back on with the job. It could strengthen interpersonal relationships, confidence in colleagues and a sense of resilience that the debilitating effects of the setback had proved to be only temporary.

Firefighters, then, are both sources and generators of perceived and received types of social support. Dangerous incidents that could horrify and injure were faced regularly with total reliance being placed upon colleagues to provide the support that would see them get past the present upset and ready for the next one. If growth can be triggered following involvement at such incidents and both types of social support play a role in that involvement then firefighters represent an ideal group to investigate.

For this study the most commonly used measures of perceived and received social support and growth reported in the review of studies (see Chapter 4) were used.

Thus, perceived social support was measured with the Social Support Questionnaire-Short form (SSQ-6; Sarason, Sarason, & Peirce, 1987) and received social support with the Crisis Support Scale (CSS; Joseph, Williams, & Yule, 1992).

The SSQ-6 is designed for use in clinical settings (Sarason et al., 1987) and the CSS has been validated in several traumatic contexts (Elklit, Pedersen, & Jind, 2001).

The most commonly used measures of growth were the Posttraumatic Growth Inventory (PTGI) and the positive changes subscale (CiOP) of the Changes in Outlook Questionnaire (CiOQ); the CiOP has been used concurrently with the PTGI and the CSS in prior studies. The use of common measures offered the advantage of allowing cross-study and cross-instrument comparisons to be made.

Firefighters are members of an occupational group involved in traumatic work who are known to experience posttraumatic stress reactions (e.g., Brown, Mulhern, Joseph, 2002; Bryant & Harvey, 1995; Corneil, Beaton, Murphy, Johnson, & Pike, 1999; Fullerton, McCarroll, Ursano, & Wright, 1992; McFarlane, 1988; Regel, Woodward, Horsley, & Brunsden, 2001). Distress has been shown to be attenuated in several contexts where social support has been available (Cobb, 1976; Cohen & Wills, 1985) and to be helpful in recovery from stressful reactions to traumatic events (Joseph & Williams, 2005). As social support has already been found to be protective towards stress in firefighters (Regehr, Hill, Knott, & Sault, 2003) its relation to growth was predicted to be a positive one although which type would be most helpful was not clear.

5.1.3 Growth from social support: The buffering hypothesis

Social support has been shown to act against distress in two ways (Cohen & Wills, 1985). Firstly, there are direct, or main, effects which suggest that social support is protective against stress simply by its presence and whether or not a stressful event occurs. Secondly, there are indirect effects where, according to the buffering hypothesis, social support only becomes effective when a stressful event occurs. As growth is posited to emerge only in the wake of a stressful event it is the buffering hypothesis that is of interest to this thesis. According to Cohen & Wills (1985) criteria for meeting buffering conditions include the belief that available support performs certain functions and that the support is useful, for example, in assisting coping. As buffering describes an interaction between social support and distress, an association of growth and social support at higher levels of distress will suggest that growth emerges as a function of this interaction.

It was predicted that, in line with several of the reviewed studies, perceived and received social support would be related to positive changes in outlook and posttraumatic growth, and that received social support would buffer distress. No prediction was made for the differential performance of the growth measures against study variables.

5.2 Study 2

5.2.1 Method

5.2.1.1 Participants

Participants were 176 firefighters in the United Kingdom comprising 172 men (97.7%), 1 woman (0.6%) and three unknown with a mean age of 38.09 ($SD = 8.37$; range 20-56). The sample comprised 115 firefighters who were on-duty at fire stations in Nottinghamshire, U.K. and 61 remainder firefighters drawn from the first phase of a postal longitudinal study of firefighters in Cornwall, U.K. The most frequently reported events involved loss of life (59%) to road-traffic collisions (31%) fires (14%) and bodily injury (14%). Non-fatal events reported involved road-traffic collisions (14%), fires (3%), bodily injury (4%) and other traumatic events (7%), personal concerns (3%) and others including no response (13%).

5.2.1.2 Measures

Changes in Outlook Questionnaire

Crisis Support Scale

Impact of Event Scale

Posttraumatic Growth Inventory

Social Support Questionnaire (Short-form)

(see Appendix 5)

5.2.1.3 Procedure

Questionnaire batteries were handed out to firefighters whilst they were on-duty in fire stations. The purpose of the study was explained, informed consent was obtained and completed questionnaire batteries were collected within 30 minutes. No incentive for participation was given. This data collection method generated 110

completed questionnaires from 112 distributed, a response-rate of 98 %. Sixty-six questionnaires were added to this sample from the first phase of a longitudinal study of firefighters conducted by postal means (see Chapter 8). A total of 176 completed questionnaires were returned for analysis.

As this is the first study to investigate the interrelations of theoretically distinct forms of social support and measures of growth and distress in firefighters, analyses are largely exploratory. Variables of interest are growth (measured using positive changes in outlook and posttraumatic growth), perceived social support and satisfaction, received social support and satisfaction, and event-related distress. To assess the relations of interest two steps were taken. Firstly, overall correlation analyses were conducted to test for association between all theoretically-related variables. Secondly, correlation analyses were conducted after removing those reporting no event-related distress (i.e., those scoring '0' on the IES). Overall correlations are reported below the diagonal in Table 5.2 and correlations for the modified sample (i.e., those reporting at least some distress) are reported above the diagonal. This study's analyses were conducted with the latter sample.

In order to reduce the likelihood of Type I error due to multiple comparisons, statistical significance was modified to $p = .01$.

Table 5.1 Descriptive statistics for study variables

	<i>M</i>	<i>SD</i>	range
Age	38.09	8.37	20-56
IES	13.19	14.89	0-61
SSQ-N	4.65	2.03	0.67-9
SSQ-S	4.74	1.06	1.67-6
CSS-R	31.26	8.23	9-42
CSS-S	5.01	1.91	1-7
CIOP	40.84	9.14	13-58
PTGI	26.08	20.61	0-82

Note: IES = Impact of Event Scale; SSQ6-N = Social Support Questionnaire – Network size

(perceived); SSQ6-S = Social Support Questionnaire – Satisfaction (perceived); CSS-R = Crisis Support

Scale – Received; CSS-S= Crisis Support Scale – Satisfaction; CIOP = Changes in Outlook – Positive;

PTGI = Posttraumatic Growth Inventory

Table 5.2 Correlations between study variables and growth

Those reporting some distress ($IES \geq 1$) are presented above the diagonal ($N = 122$).

	SSQ-N	SSQ-S	CSS-R	CSS-S	CIOP	PTGI
IES	-.13	-.12	-.19*	-.25**	.04	.23*
SSQ-N	-.23*		.40**	.36**	.12	.06
SSQ-S	-.21*	.46**		.31**	.10	-.09
CSS-R	-.31**	.43**	.47**		.83**	.12
CSS-S	-.27**	.29*	.43**	.80**		.11
CIOP	.01	.03	.07	.13	.16	
PTGI	.26**	-.13	-.17	-.06	-.04	.39**

* $p < .05$. ** $p < .01$ (one-tailed significance)

Note: IES = Impact of Event Scale; SSQ6-N = Social Support Questionnaire – Network size (perceived); SSQ6-S = Social Support Questionnaire – Satisfaction (perceived); CSS-R = Crisis Support Scale – Received; CSS-S = Crisis Support Scale – Satisfaction; CIOP = Changes in Outlook – Positive; PTGI = Posttraumatic Growth Inventory

5.2.2 Results

Overall, and contrary to predictions, no significant association was found between scores of social support and scores of either CiOP or PTGI. Scores on the IES were related to PTGI scores ($r = .26, p < .01$) such that those reporting higher levels of distress reported more posttraumatic growth, but not to CiOP scores ($r = .01, ns$). SSQ-N scores were related to CSS-R scores ($r = .43, p < .001$) and CSS-S scores ($r = .29, p < .01$) such that those who received most support following a specific distressing incident, and were most satisfied with that support, also reported a larger support network.

The study hypothesis was that social support would facilitate growth through its buffering effect on distress. Hierarchical multiple regression analyses were conducted with either PTGI scores or CiOP scores as the criterion variable. Social support type was entered in the first step, IES scores entered in the second step and the interaction between social support type and IES scores entered in the third step. Buffering would be evident by additional significant variance being added by the interaction term. No evidence for buffering was found (see Table 5.3).

Hierarchical multiple regression analyses were conducted with IES scores as the criterion variable (see Table 5.4) after removing those scoring 0 on the IES ($N = 122$). CSS-R was entered in the first step and accounted for significant variance. CSS-S was entered in the second step and accounted for additional variance. PTGI scores and its interaction terms with CSS-R and CSS-S scores were entered in the third step but did not account for additional significant variance.

Table 5.3 Multiple regression analyses between social support type and growth ($N = 176$)

Posttraumatic Growth					
Predictors	R^2	ΔR^2	B	SE	β
Step One					
SSQ-N	.00	.00	.35	.82	.03
Step Two					
IES	.06	.06	.33	.11	.24*
Step Three					
SSQ-N x IES	.06	.00	.03	.05	.09
Positive Changes					
Predictors	R^2	ΔR^2	B	SE	β
Step One					
SSQ-N	.02	.02	.56	.36	.12
Step Two					
IES	.02	.00	.04	.04	.07
Step Three					
SSQ-N x IES	.02	.00	.00	.03	.01

* $p < .01$

Table 5.3 (continued)

Predictors	Posttraumatic Growth				
	R^2	ΔR^2	B	SE	β
Step One					
SSQ-S	.01	.01	-2.27	1.57	-.12
Step Two					
IES	.06	.05	.31	.11	.22*
Step Three					
SSQ-S x IES	.06	.00	-.01	.10	-.04

Predictors	Positive Changes				
	R^2	ΔR^2	B	SE	β
Step One					
SSQ-S	.01	.01	.76	.71	.09
Step Two					
IES	.01	.00	.03	.05	.05
Step Three					
SSQ-S x IES	.04	.03	-.07	.05	-.49

* $p < .01$

Table 5.3 (continued)

Predictors	Posttraumatic Growth				
	R^2	ΔR^2	B	SE	β
Step One					
CSS-R	.00	.00	-.01	.20	.00
Step Two					
IES	.06	.06	.33	.10	.24*
Step Three					
CSS-R x IES	.06	.01	.02	.01	.34

Predictors	Positive Changes				
	R^2	ΔR^2	B	SE	β
Step One					
CSS-R	.02	.01	.14	.08	.12
Step Two					
IES	.02	.00	.03	.05	.05
Step Three					
CSS-R x IES	.02	.00	.00	.01	.01

* $p < .01$

Table 5.3 (continued)

Predictors	Posttraumatic Growth				
	R^2	ΔR^2	B	SE	β
Step One					
CSS-S	.00	.00	-.15	.83	-.01
Step Two					
IES	.06	.06	.33	.11	.24*
Step Three					
CSS-S x IES	.06	.01	.06	.05	.21

Predictors	Positive Changes				
	R^2	ΔR^2	B	SE	β
Step One					
CSS-S	.01	.01	.55	.37	.11
Step Two					
IES	.02	.00	.04	.05	.07
Step Three					
CSS-S x IES	.02	.00	.00	.02	.00

* $p < .01$

Note: IES = Impact of Event Scale; SSQ6-N = Social Support Questionnaire – Network size (perceived); SSQ6-S = Social Support Questionnaire – Satisfaction (perceived); CSS-R = Crisis Support Scale – Received; CSS-S = Crisis Support Scale – Satisfaction; CIOP = Changes in Outlook – Positive; PTGI = Posttraumatic Growth Inventory

Table 5.4 Results of hierarchical regression analyses for event-related distress in participants ($N = 122$)

Predictors	R^2	ΔR^2	B	SE	β
Step One					
Received support (CSS-R)	.06	.06	-.41	.16	-.23*
Step Two					
Satisfaction with CSSR (CSS-S)	.09	.03	-2.42	1.23	-.33**
Step Three					
Received support (CSS-R)			-.22	.70	-.13
Satisfaction with CSSR (CSS-S)			.32	5.40	.04
Posttraumatic Growth (PTGI)	.10	.02	-.49	.51	-.70

* $p < .05$; ** $p = .001$

Note: IES = Impact of Event Scale; CSS-R = Crisis Support Scale – Received; CSS-S= Crisis Support Scale – Satisfaction; PTGI = Posttraumatic Growth Inventory

5.2.3 Discussion

This is the first study to investigate the relationships between types of social support and growth following adversity in firefighters. No association between growth and social support was found despite expectations based on theoretical formulations and findings from prior empirical studies (see Chapter 4). These findings challenge the early conceptual assumptions that social support has a role to play in facilitating growth (Joseph, et al., 1993; Park, Cohen, & Murch, 1996; Tedeschi & Calhoun, 1995; 1998). Although no buffering effect was found distress was found to exert main effects on posttraumatic growth, but not positive changes. Social support enacted in the aftermath of the event was found, however, to predict event-related distress, suggesting that support received in the aftermath of a traumatic incident may exert a main effect on distress. In addition, distress was also predicted by satisfaction with the support received suggesting that effects would be dependent upon the positive impact it had upon the recipients. It may be that support that is tailored to firefighters would be the most effective in reducing distress. Received support and satisfaction with that support predicted event-related distress but neither found association with growth. It appears that if social support does have a role to play in facilitating growth it may be in an indirect way that has not been considered.

The lack of reliable association between either type of social support and growth or positive changes in outlook in these firefighters may be due to several factors. The assumption that personal involvement at scenes of death and serious injury is necessarily distressing may not be true for this population. It may be that many are particularly resilient to the effects of incident-related distress and so have less need

of a social support network to buffer its effects or to assist with coping. An incident that is distressing to victims and bystanders may in fact represent a personal challenge to firefighters that they do not find aversive.

People who can resist the negative psychological consequences of events that others might find traumatic may be exemplifying hardiness (Kobasa, Maddi, & Kahn, 1982; Maddi & Kobasa, 1984). If firefighters do not generally become upset by the incidents that they are called to deal with they may not react in ways that make seeking social support a necessary decision to make. While it is possible that firefighters are not affected by scenes of death and injury, it is also possible that they are affected but that they have found ways to deal with their distress but to which these social support measures were insensitive. For example, avoidance coping has been found to predict psychological distress in firefighters (Brown et al., 2002) so if the social support that can act to buffer stress (Cobb, 1976, Cohen & Wills, 1985) is unavailable or unattractive, coping through avoidance may be a pragmatic alternative. The overall finding of a negative relation between support types and distress does not rule out such a hypothesis. Alternatively, if the social support network has proved inadequate in the past and idiosyncratic ways have been developed to manage incident-related distress firefighters may make selective demands on the social support network. If the network is tapped to meet specific personal needs, individual differences may account for the lack of association between social support and growth. If the social network is a resource upon which personal demands can be made (e.g., Hobfoll, 1989) social support responses may

be a function of numerous individual needs rather than the regular pattern of responses that a study of this kind can capture.

5.2.3.1 Interrelation of perceived and received social support

Perceived social support and received social support are theoretically distinct so any intercorrelations that emerge are likely to be of interest. In a meta-analysis of the relationship between perceived and received social support Haber et al. (2007) reported an overall correlation of $r = .32$. In this study we found a correlation of $r = .43$ between the perceived social support network size and support received in the aftermath of a specific distressing event. Haber et al.'s review drew on studies using student ($n = 17$), community ($n = 5$) and clinical samples ($n = 2$). The stronger relation reported in the current sample may reflect the importance of the interplay of types of social support in having to adjust more frequently and more quickly to stressful reactions than members of other groups.

5.2.3.2 The Relation of distress to growth and social support

Those reporting high levels of event-related distress were likely to report the most posttraumatic growth. Although high levels of distress are predictive of posttraumatic stress disorder (PTSD) the relation we found is in accord with the theoretical position of posttraumatic growth. This assumes that distress can be interpreted as evidence of emotional processing necessary for the emergence of growth (Tedeschi & Calhoun, 1995; 1998). The lack of association between distress and positive changes and the moderate relation between scores on growth measures ($r = .39$) presents evidence that each scale is measuring a different aspect of the growth construct.

These findings show a consistent association between event-related distress and types of social support. High levels of perceived social support, received social support and satisfaction with both was associated with least reported distress. However, those reporting high levels of distress reported most posttraumatic growth. When the effects of posttraumatic growth were statistically controlled only received support and satisfaction with that support were significantly related to distress. If more support is associated with less distress and distress is expected to trigger growth, the role of support in promoting growth is unclear. The notion that social support may not facilitate growth runs contrary to prediction and prior theory and so demands further investigation. However, if social support has effectively facilitated growth since the reported event it may no longer find association once growth has been achieved. A longitudinal study that allowed measurement of both variables over time would allow tests to clarify the important relations.

5.2.3.3 Validity of growth measures

Despite the lack of clear evidence of a role for social support in facilitating growth some findings may contribute to theory-development and future research. Importantly, two measures which had been assumed to assess the construct of growth were found to relate differentially to distress, an important theoretical variable. In attempting to account for this discrepancy the development of measurement scales may shed some light on the performance of each scale. Firstly, different national groups and situational conditions pertained in the development of each measure, i.e., the CiOQ was developed from British adult survivors of a fatal ship-sinking and PTGI was developed with American college students reporting

stressful life-events. Secondly, the severity of the event for the British survivor sample is likely to have been greater than the severity of the events reported by the student sample in the USA. Thirdly, the sample used in the development of the CiOQ reported changes since the same event that had occurred three years previously while the sample used in the development of the PTGI reported changes since a variety of events that had occurred ranging from close to the study to up to five years previously.

5.2.3.4 Methodological considerations

Correlations found between social support and growth in this and other studies suggest that social support is likely to play a role but our cross-sectional design has not revealed any evidence in support of this. The sample was a largely British, male group so generalisations should be confined to groups who are demographically similar. Women have been found to report greater levels of posttraumatic growth than men and social support has been found to partially mediate the relation of gender and growth (Swickert & Hittner, 2009). As such, future studies may benefit from using mixed samples to allow cross-gender comparisons of the relation of social support to growth.

It is possible that although measures employed in this study had demonstrated sound psychometric properties in a number of prior studies they may have not been sensitive to changes in this population. Unlike the populations used in the original development of the scales firefighters may be a distinct group who, either through personality or coping style, do not make use of, or recall receipt of social support in the way it is commonly understood in the literature. For example, those

whose personalities might be described as 'resilient' (North, et al., 2002) or 'hardy' (Kobasa, Maddi, & Kahn, 1982; Maddi & Kobasa, 1984) may not utilise support although they may provide it (e.g., Waysman, Schwarzwald, & Solomon, 2001). If those reporting high levels of distress use avoidant coping then unprocessed emotional material may bias recall of the role that others played in support of them at the time. Indeed, as some emergency workers have been shown to experience long-term elevated distress and avoidant coping (Clohessy & Ehlers, 1999) perceiving growth as one way of coping (e.g., Taylor, 1983; Zoellner & Maercker, 2006) cannot be ruled out.

There were some notable strengths to the study especially as the sample comprised firefighters as participants. Being mutual recipients and providers of a range of social supports and being more frequently exposed to traumatic events than most of the general population, a role for social support in facilitating growth, if it exists, is likely to be found in such a group. Studies of students and those who have faced stressful rather than traumatic experiences may prove less informative than those exemplified by this sample. In addition the study benefitted from a good response in a broad age-range with around two-thirds of the sample generating a 98% response-rate, thus allowing some confidence in generalising findings to similar populations. From a clinical perspective there may be some relevance to these findings as 22 participants (11%) scored 35 or higher on the IES, a score found to be predictive of posttraumatic stress disorder (Neal, Busittil, Rollins, et al., 1994).

The two growth instruments used in the current study have been used in two earlier studies and so allow further comparison. Moderate correlations have been

found between the CiOP and PTGI in trauma therapists ($r = .52$; Linley, Joseph, & Loumidis, 2005) and students ($r = .67$; see Chapter 3). Linley et al. (2005) found that sense of coherence in trauma therapists to be related to CiOP but not PTGI. The differential relation found between growth measures and variables in the current study suggests that further refinement may be necessary before a single measure of growth can be used with confidence. The differential performance of growth measures awaits clarification in future studies that employ more than one measure and that are undertaken in a variety of contexts.

5.4 Summary

Given the mixed findings of the earlier review (see Chapter 4) this study was designed to explore the relations between perceived and received social support and growth using firefighters' experience of support in the aftermath of distressing operational incidents. The earlier review had identified the distinction between perceived and received types of social support that many researchers had measured without making explicit their theoretical justification for choosing one type of support over the other. The relation of social support to growth remains unclear despite this study's sample size and response rate from an occupational group that is frequently exposed to traumatic events, at risk for posttraumatic stress and enjoying a variety of social supports. Although expectations of several relations being found between social support and growth were not realised, the finding that posttraumatic growth and positive changes related differentially to distress is of theoretical interest.

The unexpected lack of associations found may be explained by considering these firefighters as people who do not experience distress and so have little need of social support, or as people who do experience distress but deal with it in ways not previously considered. Most measures assess social support at different levels of provision including its absence, but what is missing is the effect of support provision that is perceived to be negative. Thus it may not be the presence of positive forms of social interaction that facilitate growth but reactions to negative forms of social interaction that have a part to play. In order to investigate the potential role of the negative effects of interactions with the social environment a second study was designed again using firefighters. This was carried out as a partial replication of the study in Chapter Five but replacing positive social support measures with measures of unsupportive types of social interaction.

Chapter 6: Growth following Adversity in Firefighters: The role of unsupportive interactions.

6.1 Introduction

As was reported in Chapter Five, no association was found between perceived or received social support, and posttraumatic growth or positive changes in outlook in firefighters following a specific, distressing incident. It was concluded that firefighters may be exemplifying hardiness (Kobasa, 1979) and be resilient enough not to experience distress (Duckworth, 1986; Ersland, Weisaeth, & Sund, 1989; North, et al., 2002). If so, resilient firefighters would have little need of social support to assist them with coping. Alternatively, it may be that they do experience distress but have idiosyncratic ways of dealing with it that may generate effects to which the selected measures were not sensitive. Those measures assessed perceived social support as network size and satisfaction, and received social support as enacted support and satisfaction. Both types of support can be seen to be measuring positive forms where high scores indicate high levels of support and low scores indicate low levels of support or its absence. Whereas positive support provides coping resources that can reduce distress, negative interactions with people may demand coping resources in addition to those allocated to the crisis and so increase demands on resources and generate additional distress.

6.1.1 Negative social interactions

Negative interactions are those that, however well-intended, are experienced as being corrosive and hurtful and that have the capacity to undermine attempts at coping and adjustment (Borja et al., 2006; Ullman, 1996). Thus, it may be that rather than benefitting directly from positive support, it may be that it is in reaction

to negative forms of social interaction that contributions to growth can be found.

Social interactions that are perceived as negative describe a qualitatively different type of interpersonal communication following a stressful experience than those that describe social support (Dakov & Taylor, 1983; Ullman, 1999). In studies of sexually-assaulted women unhelpful others were associated with increased distress (Borja et al., 2006; Burt & Katz, 1987; Davis, Brickman, & Baker, 1991; Frazier et al, 2001, 2004). Studies of parents who have suffered a traumatic loss of children, such as to sudden-infant death syndrome and suicide, revealed that despite positive support received from some, "social ineptitude" was apparent from others (Dyregrov, 2003). The distress that some people can create, even despite their wish to be supportive, may have been overlooked in studies that assume that measured distress is related only to the event, thereby failing to note sources of social distress. Thus, rather than the presence of social support being important, it may be that it is the absence of unsupportive behaviours that is most beneficial. The effect of others' unhelpfulness on the survivors of traumatic experience awaits consideration for its contribution to distress and its potential role in growth.

Theoretical considerations of posttraumatic growth take the view that rebuilding expectations and beliefs that have been "shattered" by traumatic experience are an expression of growth (Tedeschi & Calhoun, 1995; 1998). From this position the effects of unhelpful support may be felt in two ways. Firstly, the additional impact of finding those expected to be supportive as being critical or avoidant may elevate a distressing experience to become an even more distressing one. Secondly, the surprise or shock of finding those expected to be supportive as actually being

critical and avoidant may be experienced as a unique stressor. Betrayal by those assumed to be protective and caring, especially in relationships that are perceived to be life-dependent, carry particularly extreme threats to cognitive functioning (Freyd, 1995). Betrayal was identified as a key theme in a case study of a firefighter whose self-identity as a life-saver was conflicted by those failing to support him and his colleagues in taking strike action (Brunsden & Hill, 2009). In other words, negative social interactions may exert additive, if not sufficient effects, to trigger a traumatic psychological reaction.

6.1.2 Social undermining

Those who are shocked and disappointed by rejection from expectedly supportive others may become isolated and lonely. Loneliness exists in two forms, that of social isolation, where an individual lacks a coherent network of social relations, and that of emotional loneliness where an individual lacks an intimate, confiding relationship (Russell, Cutrona, Rose, & Yurko, 1984). Experiencing either form of loneliness would prevent the potentially beneficial effects of receiving social support from occurring and reduce positive perceptions of those expected to be helpful. As the study's participants are firefighters who work toward a common goal as members of cohesive teams, social isolation appears unlikely. However, where an occasion arises that sees the cohesion lost, such as during periods of interpersonal conflict, not only does emotional loneliness appear likely but familiar sources of support may no longer be available. If support as a coping resource proves necessary during a time of dispute it may have to be found from a different source or else sought and discovered in a novel way.

Although negative interpersonal reactions have been argued to be as important as positive forms of support, negative effects have been neglected in the social support literature (Vinokur & van Ryn, 1993). Social support and social conflict have been shown to be independent constructs (Abbey, Abramis, & Caplan, 1985) so the relative impact that each can have on the psychological outcomes of distressing events awaits studies that consider both aspects. While the contribution of social support to raising self-efficacy, coping and stress resistance is well understood, social conflict is less well understood, especially as social supporters can be manipulative, as well as supportive (Abbey et al., 1985). The importance of the social relationship that harbours dispute and contention may be crucial to emotional outcome as conflict between intimates is likely to have greater consequences than those between strangers (Rook, 1984). It may be that socially negative ties are more influential than positive ties as evolutionary fitness would demand more cognitive and emotional resources to be applied to a threat than a non-threat (Manne, Taylor, Dougherty, & Kemeny, 1997). In a team environment social conflict may, therefore, enforce novel adaptations to perceived threats, particularly as escape may not be practically possible.

6.1.3 Outline of study

A stressor-specific measure was chosen to assess the effects of others' negative social responses made in the wake of a distressing event. In this study firefighters were asked to identify an incident that was distressing at the time and to report their recall of unhelpful interactions with others following that event. In Chapter Five only the positive changes subscale of the Changes in Outlook Questionnaire (CiOQ) was used as negative psychological changes were not of theoretical interest.

In the current study, however, given the detrimental effects that were expected from unhelpful social support, the negative changes subscale was included in analyses as it has been associated with clinically-relevant psychological change (Joseph et al., 1993). Others may become a source of additional stress where their anticipated comfort and relief turns into disinterest or rejection. In such cases the buffering effects of social support may be lost at a time of escalating distress.

6.1.3.2 Growth without distress

It has been argued that reduced distress and growth both occur as an endpoint of successful emotional processing (Joseph & Linley, 2005). Growth, from this perspective, would be expected to relate to low levels, including the absence, of distress. Revisiting the data in Chapter Five revealed about a quarter of the sample reporting no incident-related distress following traumatic exposure. This suggests that there may be a difference in the type or degree of processing of traumatic events between those who do and those who do not report distress. It is theoretically plausible to suggest that those who do not report distress have the most growth to report. Having speculated that the null findings of association between social support and growth in Chapter Five could be accounted for by a proportion of resilient individuals it may be that a lack of distress has rendered support-seeking unnecessary. However, as people unaffected by any distressing consequences of exposure to trauma they may also lack the stimulus to grow (Levine, Laufer, Stein, Hamama-Raz, & Solomon, 2009). From this perspective those who do not report distress may have the least growth to report.

Identifying and removing those who do not report distress appears a pragmatic and rational decision. However, to assume that those who do not report distress have nothing informative to say about growth may be premature. Whilst those reporting no distress may be of limited clinical interest they may nevertheless prove to be of some theoretical interest. Firstly, if growth following adversity is expected to emerge as the endpoint of emotional processing (Joseph & Linley, 2005) and distress is likely to abate as a consequence (Horowitz, 1986; Horowitz et al., 1979) event-related growth can be expected even when distress is absent. This suggests not only that growth precedes distress but predicts that a wide range of growth scores would be found in the no-distress subgroup. Secondly, were a narrow range of relatively low growth scores to be found in the no-distress subgroup it might be assumed that effective coping, hardiness or resilience were evident and that a lack of growth was the consequence of successfully managing distress. Therefore, a wide spread of scores on growth could be argued to be a consequence of processing, and a compression of low scores on growth would be seen as a consequence of distress management. While the main analyses were carried out after removing those reporting no distress, a cursory analysis of the excluded subgroup was carried out to identify if these theoretically informed patterns of growth response were evident.

6.1.3.3 Hypotheses

The first hypothesis was that posttraumatic growth would predict distress.

Conceptual and theoretical development of posttraumatic growth rests on the basis of a highly-distressing experience being of such impact that it disrupts cognitive function to a point of enforced schema rebuilding. Regardless of the source or

nature of the distress, it is its magnitude that evokes growth, so when other variables have been controlled posttraumatic growth is expected to maintain its positive relation with distress.

6.2 Study 3

6.2.1 Method

6.2.1.1 Participants

Participants were 181 firefighters in the United Kingdom comprising 175 men (98.3%), 3 woman (1.7%) and three unknown with a mean age of 38.84 ($SD = 8.45$; range 20-56). Most of the sample was drawn from firefighters on-duty at fire stations (62.55%) in Nottinghamshire, U.K. and the remainder were drawn from the first phase of a longitudinal study reported elsewhere (see Chapter 8). The most frequently reported events involved loss of life (55%) to road-traffic collisions (32%) fires (13%) and bodily injury (10%). Non-fatal events reported involved road-traffic collisions (15%), fires (2%), bodily injury (2%) and other traumatic events (6%), personal concerns (7%) and others including no response (13%).

6.2.1.2 Measures

Changes in Outlook Questionnaire

Impact of Event Scale

Posttraumatic Growth Inventory

Unsupportive Social Interactions Inventory

(see Appendix 6)

6.2.1.3 Procedure

Questionnaire batteries were handed out to firefighters whilst they were on-duty in fire stations. The purpose of the study was explained, informed consent was obtained and completed questionnaire batteries were collected within a 30-minute period.

6.2.2 Results

Descriptive statistics are presented in Table 6.1 with correlations presented both for the entire sample ($N = 178$; in italics below the diagonal) and for the same sample after those scoring '0' on the IES were removed ($N = 130$; above the diagonal). Levels of significance were adjusted using Bonferroni corrections for multiple tests ($p = .003$). With those reporting no distress removed from analyses associations of posttraumatic growth with study variables, including distress, remained significant at the $p = .003$ level (see Table 6.1).

A supplementary analysis was carried out to assess differences in growth scores between the subgroup reporting no event-related distress and the main group that did report some level of event-related distress. This showed little difference in positive change scores between groups but a clear difference in posttraumatic growth scores such that those reporting no distress also reported less posttraumatic growth (see Table 6.2).

Table 6.1 Descriptive statistics and correlations for study variables

Total *N* = 181. Those reporting some distress (*IES* ≥ 1) are presented above the diagonal (*N* = 130).

	<i>M</i>	<i>SD</i>	range	<i>IES</i>	<i>USII</i>	<i>CiON</i>	<i>CiOP</i>	<i>PTGI</i>
Age	38.84	8.45	20-56					
<i>IES</i>	13.75	14.40	0-61	.47**		.51**	-.07	.29**
<i>USII</i>	18.81	17.54	0-75	.47**	.57**		-.16*	.26**
<i>CiON</i>	28.08	12.29	15-75	.50**	.57**		-.06	.28**
<i>CiOP</i>	40.84	9.14	16-61	-.02	-.09	-.02		.40**
<i>PTGI</i>	26.08	20.61	0-82	.35**	.32**	.32**	.37**	

p* < .05; *p* < .003 (one-tailed significance)

Note: *IES* = Impact of Event Scale; *USII* = Unsupportive Social Interactions Inventory; *CiON* = Changes in Outlook – Negative *CiOP* = Changes in Outlook – Positive; *PTGI* = Posttraumatic Growth Inventory

Positive intercorrelations of IES, USII and CiON scores were found. Those reporting the highest levels of distress also reported receiving the most negative support. Those in receipt of the most negative support also reported greater negative changes in outlook. Those who reported higher levels of distress reported greater negative changes. IES, USII and CiON scores were positively related to PTGI scores such that higher posttraumatic growth related to greater distress, negative support and negative changes. To clarify the interrelations between these four correlating measures multiple regression was carried out with distress as the criterion variable. IES scores were selected as, unlike measures of negative support, negative changes and posttraumatic growth, these scores assessed recall of experience in the previous seven days. Recall of distress, therefore, was likely to be the most accurate of the four outcome variables as it was the most recent. Support received in the aftermath of the event would be expected to occur prior to any perceptions of psychological change and so was entered in the first step. Negative changes in outlook and posttraumatic growth were entered simultaneously in the second step.

Table 6.2. Results of hierarchical regression analyses for event-related distress in participants (*N* = 130)

Predictors	<i>B</i>	<i>SE</i>	<i>β</i>
Step One			
Unsupportive interactions (USII)	.38	.06	.49**
Step Two			
Unsupportive interactions (USII)	.37	.30	.48
Negative Changes (CION)	.61	.29	.58*
Posttraumatic Growth (PTGI)	.39	.21	.58

*R*² = .23 for Step 1; ΔR^2 = .12 for Step 2

p* < .05; *p* < .001

Table 6.3. Descriptive statistics for growth scores in those reporting distress and no distress

	IES = 0 (<i>n</i> = 46)		IES > 0 (<i>n</i> = 130)	
	Mean (SD)	Range	Mean (SD)	Range
PTGI	20.22 (17.69)	0-70	31.27 (20.53)	0-81
CiOP	39.59 (9.12)	16-32	40.75 (9.35)	16-45

Table 6.3 shows a simple comparison of the performance of positive changes in outlook and posttraumatic growth scales in the subsample reporting no distress (IES = 0) and the subsample reporting at least some distress (IES > 0). Positive change scores appear not to differ across groups yet posttraumatic growth scores appear to be significantly lower in those reporting no distress.

6.2.3 Discussion

The first hypothesis, that posttraumatic growth would uniquely predict event-related distress did not find support. When other negative, distress-evoking variables were controlled for, posttraumatic growth did not contribute unique variance although unsupportive social interactions did. In the second analysis differential reports of growth were found between growth measures in the subgroup that reported no incident-related distress. It appeared that the measure of posttraumatic growth was more sensitive to distress than was the measure of positive changes in outlook. Additionally, a range of scores of growth were found in the same subgroup. This might be taken as evidence of growth occurring through emotional processing with a consequent abatement of distress.

6.2.3.1 Negative social interactions and growth

As posttraumatic growth was not found to uniquely predict distress, consideration may be given to the contribution of other distress-related variables. Unsupportive interactions are a form, albeit negative, of received social support. As the study reported in Chapter Five did not find any significant relation between positive received support and growth these findings are of particular interest as it may be in reaction to negative support that growth emerges. Evidence of social support's protective effect on distress was found in Chapter Five, although in the current

study negative social interactions were positively related to both distress and growth such that the more negatively that social support was appraised the more distress and growth were reported. If the absence of positive support and its protective effects raise distress and it is further raised when those expected to be helpful turn out to be hostile, a unique threat may be perceived that demands novel coping efforts. If social resources are not available or prove aversive then self-reliance and previously unconsidered perspectives may have to be adopted to find meaning, understanding and comfort in a seemingly catastrophic and worsening situation. The directionality of the relation between growth and the distress that triggers it will only be found in a longitudinal study. The prospect that it is in resisting negative support, rather than finding positive support, that growth is facilitated awaits future investigation.

6.2.3.2 Distress and posttraumatic growth

Theoretically, event-related distress and posttraumatic growth are entwined. The use of cross-sectional correlational data does not allow causal inference but does allow statistical inferences of their likely interplay. As levels of distress and posttraumatic growth relating to the same historical event are interrelated with negative support and negative changes, it was important to control for the contribution of those other variables to determine their contribution. As previously discussed, the directionality of the relation of distress and growth awaits a future study but the source of distress, in this case the influence of negating interactions of those purported to be supportive, may exemplify a specific source of distress for triggering posttraumatic growth rather than distress *per se* triggering growth.

6.2.3.3 Growth without distress

Removing the subgroup of the sample who did not report distress did not alter significant associations between study variables (see Table 6.1). However, there are reasons to consider the subgroup reporting no distress as comprising at least two subsamples. On the one hand those reporting no distress will be a group that contains the resilient, or those who have not become distressed by operational incidents. On the other hand, if those scoring '0' on the IES were once distressed but achieved maximum reductions in distress due to experiencing growth they will also be found in this subgroup. It may be that a balance between those who have not grown at all and those who have grown a great deal largely cancels out some of the effect of removing this subgroup from analyses.

6.2.3.4 Validity of growth measures

The relative performance of the growth scales of positive changes and posttraumatic growth in the subsamples reporting distress and no distress are of interest (see Table 6.3). In line with prior theory this appears to demonstrate that different growth instruments might be measuring different aspects of the growth construct (Joseph et al., 2005). While positive changes appear to be relatively robust regardless of whether or not distress is ongoing, posttraumatic growth appears relatively sensitive to distress. It has been suggested that in an emotional-processing paradigm the endpoint of distress coincides with reports of growth (Joseph & Linley, 2005). However, a positive association of growth and distress suggests that incomplete processing, expressed as elevated IES-scores, is more likely to find association with growth.

These differing views may have been partly reconciled by the supplementary analysis shown in Table 6.3. As association between study variables remained reliable when the no-distress subgroup was removed. It seems, therefore, that posttraumatic growth is likely to be evident in a proportion of those in the no-distress subgroup. As can be seen in Table 6.3, although scores of posttraumatic growth were lower in the no-distress group than in those still reporting event-related distress, the no-distress subgroup still reported a wide range of growth scores. Despite some in the no-distress subgroup reporting high growth overall the mean was relatively low. This suggests that resilient individuals, those that did not become distressed, may have positively skewed this sample's scores.

6.3 Summary

In Chapter Five no relation was found between distress and positive changes in outlook despite a moderate relation between distress and posttraumatic growth being evident. This lack of association for positive changes and distress was replicated in this study. However, negative support predicted event-related distress whereas posttraumatic growth did not. In Chapter Five it was emphasised that while measures of growth were purportedly measuring the same construct differential relations with distress suggested different aspects of the construct were being measured by the different scales.

There appear to be two directions in which this study points. One direction, now that positive social support and negative social interactions have been tested independently for their association with growth, is to combine both forms of support in a single study using participants from the same population. The other

direction to consider moving is toward the theoretical determinants of a lack of distress following trauma. If the endpoint of emotional processing is the alleviation of distress and the emergence of growth, those who successfully reach those endpoints could be expected amongst those reporting no distress for a once-distressing event. If resilience to ostensibly traumatic events accounts for a lack of distress, then its effects would be expected to be found in the same group. However, in the prior study removal of those reporting no distress made little overall difference but removed a large number of participants who reported growth. If growth is evident in those who report no distress it may have occurred in different ways to those who reported concurrent distress. While speculation over the role of distress and growth may lead to clearer understandings, the purpose of the thesis is to investigate the role of social support in growth. For this reason the first of the paths described will be taken. A study where both positive and negative forms of support are assessed concurrently with growth measures is expected to reveal important relationships not identified in the studies reported in Chapter Five and Chapter Six.

Chapter 7: Growth following Adversity in Firefighters: Positive and negative social interactions

7.1 Introduction

In Chapter Five, contrary to expectations, no evidence was found that social support was related to growth following adversity in firefighters. It was concluded that if social support had a role to play in facilitating growth it may be in reaction to the negative consequences of interacting with others rather than in others being able to buffer event-related distress. It was considered that the lack of association may be due to unmeasured variables so consideration was given to the possibility that unhelpful others may have a role to play in growth. In Chapter Six this was tested by measuring the reactions of members of the social network where they were perceived to be critical and belittling of the participant's emotional experience following a distressing incident. As unhelpfulness in place of support was expected to raise levels of subjective distress beyond that relating to the event, distress-related variables were expected to become more prominent and allow more detailed scrutiny.

In Chapter Six posttraumatic growth, negative changes in outlook and unsupportive others were all intercorrelated with distress. However, negative changes in outlook were found to be the only reliable predictor of distress. Evidence for a main effect of positive social support on distress was found in Chapter Five and evidence for negative psychological changes as a predictor of growth was found in Chapter Six. Taken together these findings provide the grounds for further analyses of these interrelated variables but with both positive and negative forms of social interaction being included and tested concurrently.

The social support measures used in Chapter Five and the unsupportive social interactions measure used in Chapter Six were all selected for use in the current study. No relation had been found for social support and growth in Chapter Five but a relatively complex set of relations was found for unsupportive interactions with psychological changes and growth in Chapter Six. Testing the interrelations of positive and negative types of social interaction and their independent contributions to psychological changes may help to explain the findings in previous studies. In order to focus on those likely to report distress-related growth, those who scored '0' on the Impact of Event Scale were identified. As this sub-group were assumed to be demonstrating resilience (Levine et al., 2009) they were therefore removed from subsequent analyses.

7.2. Study 4

7.2.1 Method

7.2.1.1 Participants

Participants were 83 firefighters recuperating at two specialist therapy centres in the United Kingdom. Participants comprised 74 men (89.2%), 7 women (8.6%) and two unknown (2.4%) with a mean age of 43.10 ($SD = 8.94$; range 22-61). The most frequently reported events involved loss of life (57%) to road-traffic collisions (30%) fires (10%) and bodily injury (18%). Non-fatal events reported involved road-traffic collisions (1%), fires (4%), bodily injury (18%) and other traumatic events (26%), personal concerns (1%) and others including no response (1%). After removing those who reported no distress in relation to their specified event a subsample of 58 firefighters that comprised 51 men (87.9%), five women (8.6%) and two unknown (3.4%) were identified and included in regression analyses (see Table 7.2).

7.2.1.2 Measures

Changes in Outlook Questionnaire

Crisis Support Scale

Impact of Event Scale Posttraumatic Growth Inventory

Social Support Questionnaire

Unsupportive Social Interactions Inventory

(see Appendix 7)

7.2.1.3 Procedure

Questionnaire batteries were handed out to firefighters who were resident at one of two specialist therapy centres in the United Kingdom. Participants were recovering from various medical and psychological conditions and were working towards a return to duty. The purpose of the study was explained, informed consent was obtained and completed questionnaire batteries were collected within a 30-minute period.

7.2.2 Results

Descriptive statistics are given in Table 7.1 with correlations presented both for the entire sample ($N = 83$; in italics below the diagonal) and for the same sample after those scoring '0' on the IES were removed ($N = 58$; above the diagonal). In order to reduce the likelihood of Type I error due to multiple comparisons, statistical significance was modified to $p = .005$.

CiON scores were consistently related to all distress and social support scores such that those reporting most negative changes were most likely to report higher levels of distress, less social support (all $r_s = -.32$ to $-.46$, $p < .005$) and greater negative

such that those reporting the most negative social interactions also reported greater negative changes in outlook. USII scores were associated with distress and were inversely related to CSS-R, CSS-S, SSQ-N scores but not SSQ-S scores, such that those reporting the most negative social interactions also reported the most distress and the lowest levels of social support. CSS-R scores were associated with CiOP scores such that those who reported being the most satisfied with their received support also reported the most positive changes in outlook.

Table 7.1 Descriptive statistics of study variables and growth

	Mean	SD	Range
IES	25.26	18.04	1-59
SSQ-N	4.20	2.07	.67-9.00
SSQ-S	4.39	1.30	1.33-6.00
CSS-R	26.76	9.01	8-42
CSS-S	4.17	2.08	1-7
USII	29.86	20.84	2-78
CION	34.10	15.08	15-70
CIOP	43.47	10.99	11-64
PTGI	36.62	25.89	0-85

Note: IES = Impact of Event Scale; SSQ6-N = Social Support Questionnaire – Network size (perceived); SSQ6-S = Social Support Questionnaire – Satisfaction (perceived); CSS-R = Crisis Support Scale – Received; CSS-S= Crisis Support Scale – Satisfaction; USII = Unsupportive Interactions Inventory; CION = Changes in Outlook – Negative; CIOP = Changes in Outlook – Positive; PTGI = Posttraumatic Growth Inventory

Table 7.2 Correlations of study Variables and growth

Total $N = 83$. Those reporting some distress ($IES \geq 1$) are presented above the diagonal ($N = 58$).

	IES	SSQ-N	SSQ-S	CSS-R	CSS-S	USII	CION	CIOP	PTGI
IES		-.23	-.13	-.37*	-.19	.49*	.49*	-.03	.23
SSQ-N	-.14		.44*	.50*	.26	-.35*	-.46*	-.04	-.28
SSQ-S	-.16	.49*		.42*	.46*	-.30	-.43*	.25	-.09
CSS-R	-.23	.45*	.41*		.71*	-.56*	-.36*	.32	-.05
CSS-S	-.14	.31*	.43*	.73*		-.59*	-.32*	.39*	.09
USII	.44*	-.31*	-.30*	-.53*	-.58*		.50*	-.15	.19
CION	.43*	-.45*	-.43*	-.31*	-.33*	.50*		-.07	.32
CIOP	.05	-.04	.17	.17	.15	.05	.03		.35
PTGI	.34*	-.27	-.17	.02	.01	.26	.42*	.35*	

* $p < .005$

Note: IES = Impact of Event Scale; SSQ6-N = Social Support Questionnaire – Network size (perceived); SSQ6-S = Social Support Questionnaire – Satisfaction (perceived); CSS-R = Crisis Support Scale – Received; CSS-S = Crisis Support Scale – Satisfaction; USII = Unsupportive Interactions Inventory; CION = Changes in Outlook – Negative; CIOP = Changes in Outlook – Positive; PTGI = Posttraumatic Growth Inventory

Negative changes in outlook and positive changes in outlook were both found to be related to at least one form of social support (see Table 7.2) and posttraumatic growth had been related to unsupportive interactions in a previous study (Chapter 6). In order to identify the differential contribution of each type of social interaction to each type of psychological change, three multiple regression analyses were carried out. Each type of psychological change was entered as a criterion variable (see Table 7.3) and types of social support were entered as predictor variables.

Types of support differentially predicted growth with USII scores predicting CiON scores, CSS-S scores predicting CiOP scores and both SSQ-N scores and USII scores predicting PTGI scores. Those who experienced the most unsupportive interactions also reported greater negative changes in outlook. Those who were most satisfied with the support they received reported greater positive changes. The highest levels of posttraumatic growth were predicted by those experiencing the most unhelpful support and those with the fewest people available to support them.

Table 7.3 Multiple regression analyses of social support as predictors of psychological changes and growth (N =58)

Predictors	Negative Changes			Positive Change			Posttraumatic Growth		
	B	SE	β	B	SE	β	B	SE	β
Perceived social network size (SSQ-N)	-1.97	1.08	-.27	-.59	.87	-.11	-5.04	2.24	-.39*
Satisfaction with perceived network (SSQ-S)	-2.52	1.67	-.22	.54	1.36	.06	-.52	3.42	-.03
Received support (CSS-R)	.11	.32	.07	.14	.26	.11	1.01	.64	.35
Received support satisfaction (CSS-S)	.04	1.43	.01	2.51	1.16	.47*	1.85	2.89	.15
Unsupportive Interactions (USII)	.29	.11	.39*	.09	.09	.18	.44	.21	.35*

* $p < .05$; ** $p < .01$

7.2.3 Discussion

This was the first analysis of the series of studies to find association between a theoretically-specified type of social support and growth. In these recuperating firefighters those who reported the greatest satisfaction with the social support received following a specific, distressing incident also reported the most positive changes in outlook. Regression analyses found each type of post-event psychological change to be differentially associated with types of social support.

7.2.3.1 Social predictors of growth

Despite generally mixed findings in the literature of a role for social support in facilitating growth, most studies have measured only one type of social support, either perceived or received, and one type of growth, most commonly posttraumatic growth. However, this study measured various types of social support and two types of growth, one of which is supplemented by a subscale of negative psychological change. With sufficient evidence available to suggest a role for social support in the facilitation of growth, and with concerns being raised about the validity of the growth construct, this combination of variables was expected to reveal some important relationships.

Analyses identified that each type of psychological change was discriminated according to type of social support. It was found that negative psychological changes were predicted by negative social interactions with others and that positive psychological changes were predicted by satisfaction with social support received. Also it was found that posttraumatic growth was more likely to be the outcome of more negative social interactions with others and perceptions of a smaller support network. Together these findings show that theoretically distinct

types of social support do appear to contribute to growth following adversity but in different ways.

7.2.3.2 Negative social interactions and negative changes in outlook

The finding that unpleasant social relations after a distressing event were uniquely related to negative psychological changes is not surprising. Where those who were expected to be helpful and understanding act in antagonistic and invalidating ways, there is likely to be an increase in subjective distress. Distress had already been found to be interrelated with unsupportive interactions and negative changes in outlook in Chapter Six. If negative social interactions exert disproportionately greater effects than supportive interactions do then this would likely nullify the benefits of any positive support received, such as buffering. Furthermore, a revision of the expectations of others may follow which reduces the likelihood of seeking support in future.

7.2.3.3 Satisfaction with social support and positive changes in outlook

The finding that positive changes are more closely related to satisfaction, the affective component of receiving support, than with the actual provision and receipt of support itself was not expected. In Chapter Three growth was found to be related to eudaimonic rather than affective aspects of a distressing experience in students. However, the single-item with which satisfaction was measured in this study precludes detailed inspection of its psychological qualities. Satisfaction seems more likely to reflect strictly hedonic aspects of support. However satisfaction may reflect gratitude, a more existential, and therefore, eudaimonic process (Wood, Joseph, & Maltby, 2009).

7.2.3.4 Unsupportive social interactions, negative changes and posttraumatic growth

Negative psychological changes appear to be more closely related to participants being undermined or invalidated through negative social interactions than merely being denied social support. In other words, the absence of support may be a relatively benign experience compared to actions which further exploit or victimise a survivor of a traumatic event. The absence of support in this study would have been recorded as low scores on the assessments of perceived and received support, so the inclusion of a negative form of social relations has allowed another salient aspect of the post-trauma social environment to be measured and considered.

In Chapter Six posttraumatic growth was found to be positively related to negative changes and to negative social interactions, a finding that was replicated in this study. As was posited in the discussion of Chapter Six it may be that growth occurs as a reaction to the negative consequences of a crisis rather than through the assistance and comfort of supportive others. By this account reacting to the undermining actions of others may enforce introspective cognitive processes that seek an understanding of the causes and consequences of the unexpected and unpleasant responses of others. Such an effort may result in a revision of the perceived willingness or ability of those previously assumed to be supportive to meet personal needs. A lack of reliance on the usual support network may lead to seeking support from a novel source, or to making deliberate efforts to achieve independence from those who did not meet expected emotional needs, increasing the likelihood of acting more autonomously in future. Such a decision may modify perceptions of support and its availability and helpfulness.

A revision of beliefs in the dependability of others may result in more realistic perceptions of the social support network than were previously held. These more realistic perceptions may generalise to an individual's personal ability to cope independently of others. Reconstructing the social support network in the light of a disappointing response from previously supportive people may lead to access to more willing and able supporters in future. If so, then confidence in the future availability of others is likely to be reflected in enhanced perceptions of social support. The finding in the current study that the social network size predicted posttraumatic growth lends support to this possibility.

Acknowledging the unhelpfulness of others and reacting by making autonomous decisions, such as deciding to strive for independence or to develop new sources of support, or both, may enhance perceptions of self-efficacy (Bandura, 2001). If personal efforts at coping are successful without support from the prior network an individual may experience an independence that was not evident or necessary when reliance was placed on others to assist with coping. The finding in the current study that negative social interactions with others predicted posttraumatic growth lends support to this view. The domains of posttraumatic growth consist of personal, relational and spiritual aspects of change following trauma, all of which might be explained by these findings collectively. However, confirmation will only be obtained by replication and explained by mechanisms in studies that employ samples large enough to enable more sophisticated analyses than were possible here.

7.2.3.5 Assimilation and accommodation

In the aftermath of a traumatic experience novel information becomes available to the survivor that demands understanding and a quest for meaning (Davis, Nolen-Hoeksema, & Larson, 1998). The way that trauma-related information is dealt with cognitively may be through processes of assimilation or accommodation (Joseph & Linley, 2005). Assimilation is the process of resisting the trauma-related information in favour of maintaining pre-event assumptions. Accommodation is the process of accepting the trauma-related information and revising pre-event assumptions.

Where accommodation is made in a positive direction more flexible ways of thinking, perceptions of wisdom and growth are likely to emerge. In this study it has been shown that unsupportive interactions are related to increased distress. As each participant's nominated incident has already been defined as stressful two sources of distress are evident with the distress of being socially undermined being added to that of the traumatic incident. As assimilation attempts to maintain pre-event assumptions, the additional distress of unsupportive others is likely to make assimilation more difficult than if others were supportive. The sum of incident-related distress and socially-related distress may increase the difficulty of finding resolution through assimilation. As assimilation becomes more difficult the likelihood of finding resolution through accommodation increases. However, accommodation is no easy matter, it being "...suffered rather than sought..." (Piaget 1950, p.114). If accommodation leads to growth and social distress makes accommodation more likely the positive relation of unsupportive interactions to posttraumatic growth (see Table 7.3) might be explained.

7.2.3.6. Differential findings in sample

The finding of an association of positive changes in outlook with social support satisfaction and the lack of association between posttraumatic growth and distress stands in contrast to the findings in Chapter Five where no form of support correlated with positive changes and a reliable association was found between posttraumatic growth and distress. Although the smaller sample size in this study and the more stringent probability level adopted might account for these differential findings, it may be of some benefit to consider other explanations. It is possible that this sample of rehabilitating firefighters differs in important ways to those of the operational firefighters previously tested. Although these participants reported incidents other than the one from which they were recovering, they were away from their natural support networks, including family and friends, at the time of testing. Therapeutic progress whilst in residence may have affected perceptions of growth and of social support given the context of a positive professional environment where specialised treatment, personal attention and an optimistic attitude were evident. Testing of firefighters prior to treatment would have allowed measurement of the influence of these contextual, but currently unmeasured, variables.

7.3 Summary

To determine the interplay of different types of social support and the psychological changes that might facilitate them would require a larger sample than was obtained for this study. There may be effects, including interactive effects, between social support variables that were not measured or detectable in these analyses. However, the differential sensitivity of growth measures to types of social

support emphasises the likelihood that different growth scales measure different aspects of the growth construct. Whilst the validity of the construct remains a source of debate theoretical development may have been constrained by reliance on the use of a single measure of growth in studies to date. The consistent moderate correlation between growth scales and their differential relations with other measures suggests that neither adequately represents the construct.

However, given the limited sample size in this study and the concerns over the validity of growth measures, finding that one form of received support predicted positive changes, and one form of perceived support predicted posttraumatic growth is an empirical distinction that has not been made in the growth literature to date.

Importantly, an explanation for the unexpected positive relation of unsupportive interactions to posttraumatic growth has been found that supports and challenges some of the early thinking on posttraumatic growth. According to theory posttraumatic growth occurs only after a threshold of distress has been reached that disrupts habitual and assumptive ways of thinking (Tedeschi & Calhoun, 1995). Growth is associated with increased distress but social support is associated with reduced distress. If social support reduces incident-related distress assimilation seems more likely than accommodation yet it is accommodation that is associated with growth (Joseph & Linley, 2005). The source of distress was assumed to be the traumatic event but this study may have found another source of distress, that of unsupportive others. Whether it is the additive effect of distress, or the source of

the distress that is important remains unclear but points to this as a focus for future research.

Collectively this series of cross-sectional studies has brought some clarity to the role that social support might play in facilitating growth following adversity. However, despite the use of firefighters as participants with their frequent exposure to trauma and variety of social supports the tests of relationships necessary to establish a causal role were not possible. As was noted in the literature review (see Chapter 4) causality cannot be established in cross-sectional studies. To infer causality measures of social support and growth have to be employed both concurrently and over time. In Chapter Eight the measures employed in this study will be used again in another sample of firefighters, this time reporting at two timepoints, several months apart.

Chapter 8: Social Support and Growth following Adversity in Firefighters: A longitudinal study

8.1 Introduction

In Chapter Four a review of empirical studies concluded that there was sufficient empirical evidence to support the early conceptual role attributed to social support in facilitating growth. However, causality cannot be established from cross-sectional studies and the longitudinal studies in the empirical review did not test the relations that would have allowed causality to be inferred.

The main aim of the thesis is to find the role that social support plays in facilitating growth following adversity. This implies that social support may have a causal role to play in growth but one that has not yet been empirically determined. That social support has a potentially causal role in growth has been suggested by authors and researchers over several years, most notably by those who first brought the concept of posttraumatic growth to the attention of psychologists (Tedeschi & Calhoun, 1995). Since that time, however, social support has failed to find any causal relationship with growth despite numerous studies that were sufficiently well-designed to enable tests of such relationships (see Chapter 4). Given the results of the longitudinal studies that have collectively reported mixed findings the current study was designed to address some of their methodological shortcomings.

8.1.1 Causality

Causality is the mechanism by which one event is assumed to bring about another event, and that can be expressed in the form of 'A' leads to 'B'. In seeking a causal role for social support, if one exists, it is assumed by the same logic that 'social support' leads to 'growth'. Claims of causality are likely to be strongest where

variables are measured in a 'panel design' where the same group of participants are measured with the same scales at more than one timepoint. From the multiple possible pathways between growth as an outcome and all the other variables at different timepoints what is not sought is a single, strong association that 'proves' a link; rather it is about ruling out all other possibilities. A panel design allows tests of spuriousness where variables' contributions can be measured and accounted for. The weakness of cross-sectional studies is that the effect of variables at different times is not recorded and so cannot then be tested for their contribution to the outcome. What cross-sectional studies do allow, however, is an efficient test of candidate variables for inclusion in a panel design.

8.1.2 Selecting variables

Following the review of studies (Chapter 4) two types of social support and two types of growth were determined to be theoretically-sound representatives of the constructs. These were tested in a cross-sectional study (Chapter 5) but no meaningful association was found. A new candidate of social influence, negative interactions, was then tested in a cross-sectional study (Chapter 6) and positive association was found for it with posttraumatic growth. Given the evidence of the review that social support was a likely facilitator of growth and the finding that negative social interactions found association with growth, both types of social support and negative interactions were tested in a follow-up study (Chapter 7). This study showed differential contributions of social interaction to different types of growth; perceived support and negative interactions related to posttraumatic growth, and satisfaction with received support related to positive changes in outlook. The collective evidence from the cross-sectional studies justified the

inclusion of both types of social support, negative social interactions and both types of growth in a longitudinal study. By measuring all variables at two timepoints using a panel design the prospect of testing relations between social variables and growth across time was in place. One variable that has been overlooked, however, and that is central to theoretical formulations of growth is that of distress, especially with how it is conceived, measured and what it represents.

8.1.3 The role and measurement of distress

Distress has been shown to be interpreted according to different philosophical and professional understandings. As was discussed in Chapter 1 psychiatry and clinical psychology are likely to see distress as symptoms that express an underlying mental illness. For example, in the case of posttraumatic stress disorder (PTSD) symptoms of socially-disruptive intrusions, avoidance and arousal are seen as evidence of the disorder and justifies treatment that seeks their alleviation. By contrast, in an emotional-processing paradigm distress is likely to be regarded as trauma-related material that has yet to be processed. In this regard, what are seen as symptoms of PTSD in the clinical view, are likely to be seen as evidence of the ruminative work of ongoing processing. Similarly, from the viewpoint of crisis theory distress is a signal to a committed helper of the need to confront the individual to find understanding and resolution of the information that they find upsetting and unpleasant. In the clinical setting then, distress signals harm that demands treatment but in other settings distress signals work that demands assistance. While treating distress to improve affect is a hedonic pursuit, accepting distress as part of finding meaning is a eudaimonic pursuit. In Chapter Three it was found that growth was a eudaimonic rather than a hedonic phenomenon so clinical approaches that seek mere symptom

reduction to improve emotions, seem unlikely to foster growth. If growth is facilitated by specific types of social interaction then, it is likely to be those types of support that can entertain and tolerate, rather than alleviate, distress. The social relationships that find association between distress and growth then, are those likely to be of most theoretical interest.

8.1.4 Distress and growth

In Chapter Six multiple regression analyses found that unsupportive interactions predicted event-related distress over posttraumatic growth, suggesting that the commonly reported relation of distress to growth may be mediated by previously unmeasured psychosocial variables. When those reporting no event-related distress were compared on growth scores to those reporting at least some event-related distress a difference was evident. Those reporting no distress had a mean IES score of 20.22 while those reporting some distress had a mean IES score of 31.27 although no difference appeared between the groups on the growth scale of positive changes in outlook (see Table 6.3). Posttraumatic growth would appear, therefore, to be measuring changes that are sensitive to ongoing distress, whereas positive changes in outlook is not.

However, the terms *posttraumatic stress* and *posttraumatic growth* both imply that the source of distress that triggers them is a traumatic event. Although research instruments typically invite respondents to report psychological changes attributable to a specific event there may be several factors that intervene between the event and study participation. Intervening factors that influence psychological changes since the event will be overlooked where they are not measured. Such

influential but overlooked variables are said to be “spurious” by disguising causal paths to measured variables (Kenny, 1975). In both the trauma and growth literatures the theoretical link between the event and any emergent psychological change will suffer where influencing factors are overlooked.

8.1.5 Interpreting distress

Fortunately, from an empirical and theoretical viewpoint, distress is commonly measured in both fields with the same instrument, the Impact of Event Scale (IES; Horowitz, et al., 1979). The IES meets the needs of the differing theoretical perspectives where scores are seen as evidence of clinical distress by trauma theorists and as evidence of emotional-processing by growth theorists. Although it predates current posttraumatic growth theories the original development of the IES was to meet the latter demand, that of emotional-processing. However, the IES is a widely-used instrument in the trauma literature where high scores have been found to be predictive of PTSD (Neal et al., 1994). As was noted earlier, social support has been shown to exert both a buffering and mediating effect on distress so the interplay of distress with growth and social support is likely to prove important in developing a comprehensive understanding of the role of social support in the facilitation of growth.

8.1.6 Implications

The appreciation of the theoretical distinctions, findings of cross-sectional studies in previous chapters and the validity concerns over growth have two important implications for this study. Firstly, the variables of the earlier cross-sectional studies can be assessed for change across time. Secondly, many of their methodological

shortcomings identified in the literature review (Chapter 4) can be overcome using a panel design.

Importantly the measures of social support are of two theoretically-grounded types that are distinct, yet related. The two measures of growth have been empirically-derived from different populations in different contexts and are also distinct, yet related. The inclusion, based on the empirical work in Chapters Six and Seven, of a measure of unsupportive social interactions that seem likely to increase distress can also be measured. Measuring distress with the Impact of Event Scale not only allows the two aspects of intrusion and avoidance to be considered but introduces a measure that is relevant to growth and also to the medical paradigm that currently dominates trauma-related research. For example, the consistent finding of a positive association of posttraumatic growth scores with IES scores finds two viewpoints that are plausible depending upon the theoretical perspective taken. From the clinical perspective higher IES scores reflect an increasing prospect of disorder. From the processing perspective higher IES scores reflect ongoing yet incomplete resolution of traumatic information. The clinical perspective would see high scores triggering a call for diagnosis and treatment whereas the processing perspective would more likely trigger a call for assistance and support. From the clinical perspective high IES scores may be interpreted as harmful, whereas the processing perspective would not. How harm is interpreted is a philosophical question given the use of metaphorical medical terms in psychological matters (see Chapter 1). If harm is a realistic prospect it should generalise to the processing model and be identified there, however, it does not appear to do so. Firefighters

reporting high IES scores could be regarded, depending on perspective, as expressing disorder or demonstrating emotional processing toward growth.

8.1.7 Validity of growth

The construct of growth is proving to be a complex and controversial one. Some have argued that growth following a serious setback in life may be a positive illusion (Taylor, 1983) while others argue that it is a veridical and verifiable positive psychological change (Tedeschi & Calhoun, 1995; 1996; 1998). While the view of growth as illusory may at first appear to undermine the veridical view it has been presented as a stage toward ultimate change (Calhoun & Tedeschi, 2006) and may, therefore, foster rather than inhibit or mimic positive outcomes. The emphasis on growth as being necessarily positive is evident from the response scales on the posttraumatic growth inventory (PTGI; Tedeschi & Calhoun, 1996) which are worded in an entirely positive fashion. However, those who report positive psychological consequences from a traumatic experience do report negative changes. These seemingly opposing reactions are evident in the structure of the Changes in Outlook Questionnaire (CIOQ; Joseph et al., 1993) which comprises a subscale of positive responses and a subscale of negative responses. The Perceived Benefits Scale (PBS; McMillen & Fisher, 1998) also acknowledges both positive and negative types of reaction by the development of separate subscales.

8.1.8 Growth measure and distress

The decision to retain the two measures of growth in this longitudinal study allows their interrelations to be compared over time. As each have been developed with different populations of different nationalities and in different traumatic contexts their moderate cross-sectional correlation (Chapters 5, 6 and 7) may differ across

time. Specifically, posttraumatic growth was found to be interrelated with distress and negative psychological changes so measurement across time may show sequential differences. Differences in sensitivity to distress was observed between growth scales (see Table 6.3) so differences in distress across time would be expected to affect scores on at least one of the growth measures.

8.1.9 Psychometric and methodological issues

Scales used throughout these studies require direct estimation using Likert-type responses that generate scores at sufficiently close intervals as to justify analysis with parametric statistics. While debate about the strengths and weaknesses of the use of these types of scales in research continues (Streiner & Norman, 1995) many of the biases that threaten the reliability of measures used in this thesis appear unlikely in a population of firefighters. An honest response is often assumed by researchers and while examples exist of biases due to social desirability and the halo effect where positive self-presentation is attempted, this appears unlikely in this population for a number of reasons.

Firstly, the researcher presented himself as someone interested in the experiences of firefighters both as one who was familiar with the work and in wishing to inform an academic audience of the reality of their experience. Any conscious tendency to exaggerate or underplay responses seems likely to be minimised where the researcher is assumed to be knowledgeable enough not to be fooled by unrealistic claims. In such a case the prospect of an honest response may well be heightened. Secondly, the attitude of firefighters towards helping those in need and who seek their help is likely to be generalised when a plea is made by a researcher with

legitimate claims to membership of the 'brotherhood' (see Chapter 10). In such a case it seems unlikely that such a plea would be ignored, as is evident from some high-response rates. Firefighters as participants are likely to be quite unfamiliar with the scales and would show no practice effects or other biases of familiarity. Students, who are commonly obliged to participate in research for course credit, may be less motivated and concerned for the use of their self-generated data than these firefighters. There are reasons, therefore, to assume that firefighters may participate in an almost ideal way to requests for completion of questionnaires. Finally, the measures used throughout this thesis have been standardised and validated in several published studies, a process that implies that peer-review will have enforced revision where psychometric weaknesses in the scales have been identified.

8.1.10 Longitudinal considerations

The longitudinal design of the current study is one that allows a different and important level of analysis over those reported in cross-sectional studies in previous chapters. By measuring growth and social support at two timepoints after an event that was recalled as being distressing at the time, perceptions of change, and temporal changes in those perceptions can be statistically assessed. In a panel design the measures are made with the same group of participants. This enables differences in psychological phenomena over time to be observed and allows attribution of changes over time to those same individuals and not to other external factors.

The primary aim of the study was to carry out tests of the relations between social support and growth across time. It was hypothesised that social support would facilitate growth. For example, in a test of social support received in the aftermath of a distressing incident leading to growth, not only would a positive correlation between Time 1 support and Time 2 growth be expected, but the contributions of Time 2 support and Time 1 growth to this relation would be tested and found not to reduce the initial association to a non-significant level. The repeated testing of social support and growth levels in this way, and finding of persistent Time 1 support and Time 2 growth associations when the other relations are tested and controlled, would strengthen the notion that social support facilitates growth.

8.1.11 Measurement of growth

Of additional interest was the performance of growth scales given that the construct of growth still stirs debate around its validity and that both scales used in this study appear to be differentially related to distress, a variable that was expected to fall across time. The relation of either growth scale to a change in distress across time would be of interest.

8.2 Study 5

8.2.1 Method

8.2.1.1 Procedure

Two data collection methods were employed with questionnaire batteries being distributed between two fire and rescue services in the UK.

Method One: Questionnaire batteries with information, instructions and a consent form included, were sent by mail to one fire and rescue service and posted to all of

its 652 operational members. No incentive for participation was given. Follow-up questionnaires were sent by mail to those who had completed questionnaires at Time 1, approximately nine months later.

Method Two: Questionnaire batteries were handed out to firefighters whilst they were on-duty in fire stations. The purpose of the study was explained, informed consent was obtained and completed questionnaire batteries were collected within 30 minutes. No incentive for participation was given. Follow-up questionnaires were handed out at fire stations where firefighters had completed questionnaires at Time 1, approximately nine months later.

Using Method One, eighty-one questionnaires (12.4%) were returned at the first timepoint and 26 (4%) at the second timepoint. Using Method Two, seventy questionnaires were handed out and 61 completed (87.1%) at the first timepoint and 53 (75.7%) at the second timepoint. In total at Time 1 there were 142 participants and at Time 2 there were 79 participants.

8.2.2 Measures

Changes in Outlook Questionnaire

Crisis Support Scale

Impact of Event Scale

Provision of Social Relations

Psychological Well-Being Scales (3-item)

Posttraumatic Growth Inventory

Social Support Questionnaire (Short-form)

Unsupportive Social Interactions Inventory

8.2.3 Results

8.2.3.1 Traumatic events

Of the 79 questionnaires that were completed at both time-points, 46 (58%) reported a fatal event, including cases of multiple deaths and the deaths of children. The most commonly reported deaths were due to road traffic collisions (27/46, 59%), fire (11/46, 24%) and other incidents (8/46, 17%). The most common non-fatal events reported were personal threats to life and health (10/26, 39%), organisational stressors (10/26, 39%) and cases of serious injury (6/26, 23%). Scoring at the highest point on a 0-7 scale of the defining emotional conditions for a traumatic event (American Psychiatric Association, 2000) 3 (3.9%) reported intense fear, 26 (32.9%) reported intense helplessness and 16 (23.3%) reported intense horror at the time of the event. At the lowest point on the scale 38 (48%) reported no fear, 13 (16.5%) reported no helplessness and 9 (11.4 %) reported no horror. Seven of the 79 completed questionnaires (9%) did not specify an incident.

8.2.3.2 Descriptive statistics

Descriptive statistics for study variables at Time 1 ($N = 142$) are presented in Table 8.1. Cross-sectional correlations between study variables at Time 1 ($N = 79$) are presented below the diagonal in italics and Time 2 ($N = 79$) above the diagonal in Table 8.2. Correlations of study variables at Time 1 and Time 2 are presented in Table 8.3. Correlations between study variables at Time 1 with growth at Time 2 are presented in Table 8.4 alongside change scores of PWB and its subscales. Change scores for study variables between Time 1 and Time 2 are presented in Table 8.5 with specific changes in IES and its subscale scores presented in Table 8.6. No differences were found on age or study variables between those completing

questionnaires at Time 1 and those completing questionnaires at both timepoints, except on CSS-R scores. Those who only completed at Time 1 also reported less received support, $t(136) = 3.23, p < .01$ (two-tailed).

8.2.3.3 Cross-sectional results

Cross-sectionally Time 1 and Time 2 PTGI scores were positively associated with IES and USII scores (see Table 8.2). Time 2 but not Time 1 PTGI scores were negatively associated with SSQ-N scores, such that at the later time-point those who reported the most growth perceived fewer supporters than at Time 1. IES scores were negatively related to SSQ-S scores at Time 1 but not at Time 2, such that those who reported lower levels of distress were more satisfied with their perceived supporters. PSR-family and PSR-friends scores that were unrelated to IES scores at Time 1 were significantly related at Time 2 such that those who reported lower levels of distress at the later time-point perceived more support from family and friends (see Table 8.2).

PSR-family scores were not associated at Time 1 with CSS-R scores but did find association at Time 2. PSR-friends scores that was inversely related to USII scores at Time 1 were no longer significant at Time 2 (see Table 8.2).

At both time-points IES scores, USII scores and PTGI scores were positively interrelated. Apart from the expected moderate association with PTGI scores, no study variable score was associated with CiOP scores at either timepoint.

8.2.3.4 Longitudinal results

Longitudinal associations between Time 2 PTGI scores and Time 1 PSR-family scores and Time 1 USII scores were found. Those who reported higher levels of

posttraumatic growth at the second timepoint perceived the least support from their families and more unsupportive interactions at the first timepoint (see Table 8.3). Partial correlations were carried out testing associations of Time 2 PTGI scores and Time 1 PSR-family by controlling for the same variables at the other timepoint. Testing the significant relation between Time 2 PTGI and Time 1 PSR-family scores found no association when controlling for Time 1 PTGI ($pr = -.17$, ns) and Time 2 PSR-family ($pr = -.19$, ns). Testing the significant relation between Time 2 PTGI and Time 1 USII scores found no association when controlling for Time 1 PTGI ($pr = .12$, ns) and Time 2 USII scores ($pr = .21$, ns).

Table 8.4 includes PWBS and subscale change scores across time and their association with Time 1 study variables and growth as outcome. Change scores were calculated by subtracting Time 1 scores of study variables from Time 2 scores. Association was found between Time 1 CSS-R scores and change in PWB-environmental mastery scores such that those receiving more early support reported larger increases in environmental mastery across time. Controlling for Time 2 CSS-R scores found the association between early received support and changes in environmental mastery scores over time to persist ($pr = .23$, $< .05$). No other change scores in PWB or its subscales found association with study variables or growth scales.

Changes amongst study variables across time showed a significant decrease in IES scores, a significant increase in SSQ-S scores and a significant increase in CSS-R scores (see Table 8.4). The unexpected and significant decrease in IES scores across time drew attention to the aspects of change in distress. Table 8.5 shows the

change in average and range scores for intrusions and avoidance. The narrowing of the scores across time (0-61 to 0-48) shows that the IES scores fell across the range between the first and second time-points.

Table 8.1. Descriptive statistics for study variables at Time 1 (N = 142)

Variable	α	(M)	(SD)	Observed	
				range	
SSQ6-N Perceived support network	.87	4.48	2.02	0-9	
SSQ6-S Satisfaction with perceived network	.93	4.72	1.11	1-6	
PSR family – Perceived support from family	.87	26.01	4.85	6-30	
PSR friends – Perceived support from friends	.79	35.75	5.30	19-45	
CSS-R – Received social support	.80	29.24	8.70	6-42	
CSS-S – Satisfaction with received support (1-item)		4.96	1.92	1-7	
USII - Unsupportive social interactions – Total	.94	17.33	15.81	0-62	
USII – Bumbling	.81	4.77	4.51	0-18	
USII – Distancing	.84	3.97	4.39	0-21	
USII – Minimizing	.85	5.53	5.34	0-21	
USII – Blaming	.77	3.10	3.70	0-18	

IES – Total	.92	13.02	13.81	0-61
IES Intrusions	.84	7.23	7.72	0-35
IES Avoidance	.84	6.00	7.22	0-30
CiOQ – Positive changes in outlook	.84	39.02	8.47	14-56
CiOQ – Negative changes in outlook	.90	27.14	1.37	15-75
PTGI – Posttraumatic growth	.94	27.07	20.83	0-94
PTGI – Relating to Others	.86	9.60	7.60	0-30
PTGI – New Possibilities	.84	5.10	5.33	0-24
PTGI – Appreciation of Life	.86	5.00	4.21	0-15
PTGI – Personal Strength	.82	6.75	5.13	0-20
PTGI – Spiritual Change	.78	.75	1.85	0-9
PWBS – Psychological Well-being Scales	.75	87.65	9.07	62-108

**p* < .001

Note. SSQ6 = Social Support Questionnaire (short form) – SSQ-N = Perceived Network size; SSQ-S = Satisfaction with Network; IES = Impact of Event Scale; PSR = Provision of Social Relations; CSS = Crisis Support Scale; USII = Unsupportive Social Interactions Inventory; IES = Impact of Event Scale; CiOQ = Changes in Outlook Questionnaire; PTGI = Posttraumatic Growth Inventory; PWBS = Psychological Well-Being Scales (3-item form).

Note: *N* = 79 at retest.

Table 8.2. Correlations of study variables at Time 1 and Time 2 (*N* =79; Time 1 below the diagonal in *italics*)

	IES	SSQ-N	SSQ-S	PSR-fa	PSR-fr	CSS-R	CSS-S	USII	CIOP	PTGI
IES		-.21	-.20	-.30*	-.29*	-.18	-.10	.40**	.00	.30*
SSQ-N	-.17		.50**	.41**	.49**	.36*	.20	-.38**	-.28	-.29*
SSQ-S	-.38**	.50**		.49**	.57**	.51**	.39**	-.23	-.20	-.07
PSR-fa	-.25	.44**	.49**		.57**	.43**	.26	-.46**	-.24	-.27
PSR-fr	-.20	.58**	.50**	.39**		.55**	.42**	-.25	-.09	-.19
CSS-R	.01	.28*	.37*	.15	.33*		.78**	-.45*	.00	-.10
CSS-S	-.22	.25	.39**	.18	.33*	.81**		-.45*	.11	-.04
USII	.42**	-.40*	-.24	-.41**	-.35*	-.29*	-.41**		.15	.44**
CIOP	.01	-.10	-.10	.06	.15	-.05	-.01	.05		.35*
PTGI	.35*	-.15	-.18	-.23	-.05	-.06	-.16	.44**	.36*	

p* < .01; *p* < .001

Note. SSQ6 = Social Support Questionnaire (short form); SSQ-N = Perceived Network size, SSQ-S = Satisfaction with Network; IES = Impact of Event Scale; PSR = Provision of Social Relations - PSRfa = family subscale; PSRfr = friends subscale; CSS = Crisis Support Scale; USII = Unsupportive Social Interactions Inventory; IES = Impact of Event Scale; CIOP = Changes in Outlook Questionnaire – Positive subscale; PTGI = Posttraumatic Growth Inventory.

Table 8.3. Correlations of study variables at Time 1 with study variables at Time 2 (N =79)

	IES t2	SSQ-N t2	SSQ-S t2	PSR-fa t2	PSR-fr t2	CSS-R t2	CSS-S t2	USII t2	CiOP t2	PTGI t2
IES t1	.48**	-.07	-.25	-.35*	-.17	-.26	-.25	.44**	-.01	.20
SSQ-N t1	-.23	.65**	.39**	.40**	.49**	.39**	.29*	-.41**	-.23	-.23
SSQ-S t1	-.13	.38**	.71**	.43**	.47**	.35*	.40**	-.19	-.16	-.13
PSR-fa t1	-.16	.28*	.26	.54**	.35*	.16	.12	-.27	.01	-.30*
PSR-fr t1	-.18	.32*	.37**	.30*	.67**	.37**	.39**	-.27	.05	.19
CSS-R t1	.04	.13	.24	.20	.28*	.52**	.61**	-.30*	.03	.02
CSS-S t1	-.11	.08	.25	.24	.30*	.54**	.64**	-.40**	.03	-.09
USII t1	.30*	-.29*	-.25	-.48**	-.34*	-.45**	-.43**	.83**	.07	.45**
CiOP t1	.00	-.16	.04	.11	.06	.01	-.01	.10	.55**	.32*
PTGI t1	.16	-.20	-.06	.25	-.12	-.09	-.14	.47**	.20	.72**

*p < .01; **p < .001 (1-tailed significance)

Note. SSQ6 = Social Support Questionnaire (short form); SSQ-N = Perceived Network size, SSQ-S = Satisfaction with Network; IES = Impact of Event Scale; PSR = Provision of Social Relations; CSS = Crisis Support Scale; PSR = Provision of Social Relations - PSRfa = family subscale; PSRfr = friends subscale; USII = Unsupportive Social Interactions Inventory; IES = Impact of Event Scale; CiOP = Changes in Outlook Questionnaire – Positive subscale; PTGI = Posttraumatic Growth Inventory.

Table 8.4. Correlations of study variables at Time 1 with growth at Time 2 and PWB and subscale change scores (N =79)

	CIOP t2	PTGI t2	Actual changes (t2-t1)	PWB (total)	Autonomy	Environ- mental Mastery	Personal Growth	Positive Relations with Others	Purpose in Life	Self- Acceptance
IES t1	-.01	.20		.09	.24	.02	.20	-.19	.06	.00
SSQ-N t1	-.23	-.23		.14	.13	.23	-.18	-.14	.21	.18
SSQ-S t1	-.16	-.13		-.04	.07	.03	-.03	-.01	-.06	-.16
PSR-fa t1	.01	-.30*		-.04	.00	-.01	-.14	-.12	.17	-.02
PSR-fr t1	.05	.19		-.12	-.02	-.03	-.06	-.09	.07	.07
CSS-R t1	.03	.02		.15	-.07	.31*	-.02	.01	.04	.03
CSS-S t1	.03	-.09		.04	.09	.14	-.08	.04	-.02	-.07
USII t1	.07	.45**		-.03	.10	-.08	.14	-.08	-.17	.03
CIOP t1	.55**	.32*		-.15	.02	-.30	-.06	-.13	-.06	.10
PTGI t1	.20	.72**		-.25	.08	-.25	.04	-.24	-.26	-.14

*p < .01; **p < .001 (1-tailed significance)

Note. SSQ6 = Social Support Questionnaire (short form); SSQ-N = Perceived Network size, SSQ-S = Satisfaction with Network; IES = Impact of Event Scale; PSR = Provision of Social Relations; CSS = Crisis Support Scale; PSR = Provision of Social Relations - PSRfa = family subscale; PSRfr = friends subscale; USII = Unsupportive Social Interactions Inventory; IES = Impact of Event Scale; CIOP = Changes in Outlook Questionnaire – Positive subscale; PTGI = Posttraumatic Growth Inventory.

Table 8.5. Change statistics for study variables ($N = 79$)

Variable	Mean (t1)	Mean (t2)	Change Score	t (p)	η^2
IES	13.30	8.58	4.72	2.91 (.005)	.10
SSQ-N	4.17	4.40	-.23	-1.09 (ns)	.02
SSQ-S	4.72	5.07	-.35	-3.67 (< .001)	.02
PSR-fa	26.06	25.78	.28	.59 (ns)	.01
PSR-fr	35.17	35.49	-.33	-.70 (ns)	.01
CSS-R	27.18	31.09	3.91	-4.42 (< .001)	.20
CSS-S	4.80	5.23	-.43	-2.44 (ns)	.07
USII	16.83	13.94	2.89	2.60 (ns)	.08
CIOP	38.00	37.50	.50	.50 (ns)	.00
PTGI	24.28	23.71	2.37	1.42 (ns)	.03
PWBS	87.67	87.58	.09	.12 (ns)	.00

Note. SSQ6 = Social Support Questionnaire (short form); SSQ-N = Perceived Network size, SSQ-S = Satisfaction with Network; IES = Impact of Event Scale; PSR = Provision of Social Relations; CSS = Crisis Support Scale; USII = Unsupportive Social Interactions Inventory; IES = Impact of Event Scale; CIOP = Changes in Outlook Questionnaire – Positive subscale; PTGI = Posttraumatic Growth Inventory; PWBS = Psychological Well-Being Scales (3-item form).

Table 8.6. Changes in Impact of Event Scores across time (N =79)

	Time 1			Time 2		
	Mean (SD)	Median	Range	Mean (SD)	Median	Range
IES	13.65 (14.54)	10.00	0-61	8.96 (10.93)	5.50	0-48
Intrusions	7.30 (7.87)	5.00	0-31	4.81 (5.85)	3.00	0-25
Avoidance	6.36 (7.25)	4.00	0-30	4.35 (5.61)	1.50	0-23

8.2.4 Discussion

The longitudinal findings of the study did not support the main hypotheses. The only form of social support to find association with growth was the perceived support of family soon after the incident and posttraumatic growth at outcome. Controlling for the contributions of family support and posttraumatic growth at the other timepoints, however, saw the correlation become no longer significant. Similarly, the unsupportive interactions with others soon after the incident found association with posttraumatic growth across time. Controlling for the contributions of unsupportive interactions and posttraumatic growth at the other timepoints saw the correlation become no longer significant.

Although posttraumatic growth as an outcome was positively related to distress and unsupportive interactions cross-sectionally and across time, positive changes in outlook were unrelated to either variable at either time-point. Also, those reporting higher levels of posttraumatic growth at Time 2 perceived fewer supportive others at Time 2 than at Time 1. If the therapeutic benefit of the Time 1 testing procedure was to initiate disclosure of distressing material, discussion may have been confined to one or very few confidants. The increased satisfaction with confidants and support received at the second time-point is consistent with the testing phase prompting emotional disclosure and processing.

Significant reductions in reported levels of distress, both as intrusion and avoidance, were found to have occurred across time. Such reductions are not likely due to memory decay over time as most other variables did not change and recall at both timepoints was for the previous seven days rather than for a period close to

the event. However, traumatic memories have been shown to be qualitatively different to non-traumatic memories (Brewin, 2007; Brewin, Dalgleish, & Joseph, 1996). Given that most of those in the sample did not reach clinical levels of distress, the minority that reported the highest levels are likely to be those harbouring traumatic, rather than non-traumatic memories. For the mean distress score of the sample to fall significantly over time suggests that the relatively few high scorers at the first timepoint account for the significant drop by the second timepoint. This is consistent with emotional processing and the likely transformation of traumatic memories into non-traumatic memories.

In support of processing being the likely reason for significant drops in distress, it will be recalled that scores on the IES are viewed differently depending on whether a posttraumatic stress or growth (through emotional processing) perspective is taken. From the posttraumatic stress perspective, treatment would likely be advised for those scoring highest on the IES, especially given that some exceeded the cut-off for PTSD. In keeping with a medical view of distress, treatment would seek reductions in symptoms, measured by IES scores. However, reductions in IES scores were achieved over time without treatment being provided. From the growth perspective reductions in scores are taken as evidence of successful processing that leads to completion and growth (Joseph & Linley, 2005). It was the author's observation that completion of questionnaires at fire stations stirred numerous discussions amongst firefighters that might, with hindsight, have been a trigger for emotional-processing to begin. This may have persisted until these changes were recorded at the second timepoint. If so their social environment may

be a context that is appropriate for processing, as the author's phenomenological account (see Chapter 10) would suggest. However that social context may be sufficiently complex for the types of social support that facilitates growth to be confounded with other unmeasured variables, such as coping and personality variables. Furthermore, where interpersonal relationships do not run smoothly following a traumatic experience periods of oscillation between pleasant and unpleasant interactions may occur that end positively. In other words, even if the social environment is causal in growth it may be of such complexity as to not be captured, even in such a well-structured design.

It has been suggested that growth may represent an illusory phenomenon that enhances coping (Taylor, 1983; Zoellner & Maercker, 2006). In the current study growth did not change significantly over time even though distress did. As distress is what coping is intended to address, growth as a coping effort would be expected to change with distress. That it did not change weakens the notion that growth, as reported by these firefighters, was used for coping assistance. Most of the reported incidents in the study had occurred years, even decades, beforehand so by remaining on duty these firefighters are demonstrating that, if they had needed to, they had already found ways to cope that were not related to growth.

Change scores were calculated for psychological well-being and used as a measure of actual, rather than perceived growth (c.f., Frazier, Tennen, Gavian et al., 2009). Analysing changes of subscales of psychological well being over time, and testing those changes against types of support found association of support received in the aftermath of the incident with enhanced environmental mastery (see Table 8.4).

Mastery, in this case, more closely resembles actual growth in this domain than the retrospective perceptions of growth measured by the study's growth scales.

Although well-established growth scales were used in this study doubts about the validity of such scales justifies the use of change scores in psychological well-being.

Change scores in psychological well-being may present a more valid indicator of psychological growth than those of the study's growth measures.

A greater number of actual growth relations might have been observed, as PWB change scores, had a large enough sample been assembled to provide sufficient statistical power to detect changes. Not only would change scores allow comparison with study variables of social support and unsupportive interactions but could also provide a validity test of growth instruments.

Chapter 9: Social Support and Growth following Adversity: Current understandings

9.1 Review of the thesis

As will become clear in the final chapter of the thesis, the author is familiar with fire and rescue work having spent 17 years of employment as a firefighter. Behind the empirical work in this thesis, therefore, lies the author's appreciation of the psychological challenge of the work, the role of colleagues as a source of social support, and the personal maturity that develops as experience in fire and rescue activities accumulates. It is from such experience that the thesis can be appraised alongside clinical understandings of the possible consequences of exposure to traumatic incidents.

The thesis began with a review of the small but important trauma literature as it relates to fire and rescue work. Firefighters have been reported to be negatively affected by single and multiple traumatic events where lives are threatened or lost. Firefighters may become both primary and secondary victims to posttraumatic stress and to use several means of coping, some maladaptive, to manage the emotional consequences. Amongst the numerous incidents attended would be many that psychologists and psychiatrists would likely describe as traumatic given the match to the situational and subjective criteria that qualify for PTSD (American Psychiatric Association, 2000). Psychiatry and clinical psychology, as current authorities on trauma, explain psychological distress in medical terms referring to diagnosis, etiology, and treatment. However, firefighters trying to resist the psychological impact of purportedly traumatic events depend almost entirely on their own individual coping abilities and the interpersonal support of colleagues.

Most firefighters face traumatic threats with no formal understanding of trauma other than as something that other people suffer from. Whether trauma becomes evident in firefighters or not, one phenomenon that does seem to be evident, is resilience.

9.1.1 Resilience

Years of exposure to traumatic incidents would predict that firefighters would become serially-traumatised, yet this does not appear to be the case. In fact, the superior confidence and attitude to life's difficulties of older firefighters compared to younger ones was evident to the author both historically and in anecdotes exchanged during data collection. Most firefighters approaching retirement are notable for their relaxed and rounded attitude to life, to the point of seeming "bomb-proof". How much the colleagues, or "the watch" they had worked with had contributed to this personal confidence, and how much this was a stage of maturity that would have been reached in any case is difficult to quantify. However, if the main psychosocial resource for adjustment to repeated exposure to trauma over years is the watch, and it appears self-evident that a good watch makes everyone feel better, social interactions represent natural candidates for investigating how social support assists resilience. If exposure to potentially traumatising events leads to growth a similar question could be asked of how social support, given its widespread availability for firefighters, facilitates growth. Indeed this question shares a thread with early writers on posttraumatic growth where social support was seen as its natural facilitator (Tedeschi & Calhoun, 1995). The findings of this thesis however, in common with the mixed findings of the literature review

(Chapter 4) suggest a more complex relationship for social support in facilitating growth.

Chapter One took a critical view of how psychological trauma has come to be conceptualised in medical ways and how the subsequent changes are taken as evidence of disorder rather than adjustment. Strictly speaking, the positive changes following so-called trauma in this view are through the alleviation of what are seen as symptoms. However, growth, the achievement of perceived enhancements that exceed the losses incurred by the trauma, are also discussed in medical terms where “posttraumatic growth” is discussed, as the term “traumatic” derives from a medical philosophical view.

There are several psychological theories of change and development that explain positive outcomes without resort to the notion of trauma to initiate them. The chapter examined the effect of medical ways of thinking about trauma that have largely confined its understanding to the professions of psychiatry and clinical psychology to whom many turn for an explanation and a remedy. Most recently clinical attention has fallen on *positive psychology* an approach that sees a focus on strengths and resilience as a novel and natural counterbalance to negative clinical thinking. However, other schools of psychological thought have theoretical contributions to make to the understanding of trauma that do not see mental disorder or illness either as realistic constructs or realistic outcomes. For example, evolutionary psychologists anticipate growth to emerge as a product of inherited tendencies that, by design, maximised fitness and continue to ensure that setbacks in life become the opportunities to grow as individuals and to aid future adaptation.

Developmental psychology considers the contribution of life events to the personality, and personality psychology considers the contribution of the personality to life-events. Humanistic psychologists expect an innate tendency to grow wherever optimal social conditions exist. Emotional-processing, well-being and social support disciplines share the feature of some kind of “working through” distressing periods to find resolution and growth. Collectively these disciplines describe innate and emergent abilities to resist and accommodate challenges to desired states of emotional balance regardless of the event, in keeping with the evolutionary perspective. Unlike psychiatry and clinical psychology, these non-clinical disciplines have not seen a need to define a specific event as the unique source of change. Rather, events throughout the lifespan are seen to hold the potential to upset the psychological and emotional balances that then trigger processes towards adjustment and a new equilibrium. Only the clinical disciplines categorise events as extraordinary and offer a particular technique or drug to address its emotional consequences.

Although the medical view of trauma appears most clearly in psychiatry a pragmatic alternative has emerged in the form of crisis intervention. This takes a social perspective that demonstrates psychological change and growth emerging from a confrontational interpersonal encounter rather than through clinical treatment. Collectively, the non-clinical disciplines, including crisis intervention, speak in ways that predict unfolding growth rather than enduring distress.

Reports of growth are described as positive changes in character and outlook more than as descriptions of merely feeling better. To confirm this distinction an

empirical test was proposed of the type of change to which growth should be related as an important test of its validity. Philosophically, well-being has been expressed as eudaimonism, the personal changes attributed to engagement in life's challenges, and hedonism, the emotional regulation attributed to being happy. It was expected that growth would be associated with positive characteriological change rather than positive emotional change and was tested in Chapter Three.

Chapter Two reported on the methodology chosen for the thesis as a means to extend the growing literature on growth following adversity. It listed and described the measures used to operationalise the constructs of interest in the empirical chapters. Ethical considerations and subsequent approval to proceed with the studies were also reported.

Chapter Three was the first empirical chapter of the thesis and took the availability of measures of psychological well-being (PWB) and subjective well-being (SWB) to test the notion that growth is a eudaimonic, rather than hedonic, phenomenon. Using university students as participants and asking about growth attributed to a distressing life-event with concurrent levels of SWB and PWB, statistical tests were conducted. The expected relation of growth with PWB over SWB was found which allowed some confidence in the validity of the construct of growth. This gave some justification for the entitlement to hold doubts over clinical interventions that focus primarily on SWB, rather than PWB. If SWB is enhanced by making patients feel better a positive change exemplifies happiness taking priority over growth. If PWB is enhanced by assisting patients to confront their difficulties a positive change exemplifies growth taking priority over happiness. A further benefit to establishing

this relation between PWB and growth was the opportunity that measuring PWB at two time-points in a longitudinal design (see Chapter 8) where change in PWB over time would represent actual, rather than perceived, growth.

Chapter Four was a comprehensive and exhaustive review of the empirical literature of studies that had measured both social support and growth to date. The review comprised both cross-sectional and longitudinal designs. A large and heterogeneous range of social support measures was found and so were categorised into “perceived”, “received” and “coping” social support types. Overall mixed associations were found and although no longitudinal study carried out a test of causality, some evidence for a facilitative role for social support in growth was found. It was decided to take the review’s most commonly-used measures of perceived support, received support and growth to begin a series of studies to test associations between them using firefighters as participants.

Chapter Five is the first of four empirical chapters that employed firefighters as participants. Firefighters were recruited because their exposure to incidents that could be described as traumatic is relatively frequent compared to the general population. The author’s familiarity with fire and rescue work assured him that several types and sources of social support would be available to assist with adjustment to traumatic experience and the review offered instruments to measure that adjustment. Contrary to prediction no association was found between either type of social support and growth in these firefighters. Hierarchical multiple regression found evidence of a main effect of received social support on distress. Thus, social support was seen to play a protective role in the reduction of distress,

but not in promoting growth. The lack of association with growth led to consideration of reactions to negative forms of social interaction and the role they might have to play.

Chapter Six tested a separate sample of firefighters for association between negative social interactions and growth following a specific distressing incident. In this study a positive association of negative social interactions with posttraumatic growth was found, but no relation with positive changes. As distress, negative changes in outlook, negative social interactions and posttraumatic growth were positively interrelated hierarchical multiple regressions were conducted. These found that while negative social interactions and negative changes in outlook accounted for significant variance in distress, posttraumatic growth did not.

These findings raised a number of issues of theoretical interest. Firstly, the two growth measures of PTGI and CiOP were moderately related but found differential association with negative forms of social interaction. Secondly, posttraumatic growth was positively related to distress but positive changes were unrelated to distress. Partialling out the effects of PTGI scores on distress found other study variables to predict distress more strongly. The aspect of growth that the PTGI measures therefore invites closer scrutiny. The type of psychological changes that the PTGI measured was not captured by the CiOP in the context of a negative social environment. It appears that if a causal relation does exist between social support and posttraumatic growth it is likely to be a more complex one than first anticipated, at least in firefighters.

Chapter Seven took the measures reported in the previous two chapters and combined them in a questionnaire battery for use with another sample of firefighters. Apart from using both positive (social support) and negative types of social interaction together this study differed mainly by the type of firefighter tested. This sample comprised firefighters who were resident at rehabilitation centres while they were recovering from illness or injury before returning to duty. It was assumed that these firefighters would be experiencing a higher level of distress than those in previous samples and would be more aware and critical of the social support available to them. If these firefighters reported growth, as additional distress would predict, then the role of both supportive and unhelpful others may be detected more readily than in previous studies.

Multiple regression analyses of the psychological change scales of positive changes in outlook, negative changes in outlook and posttraumatic growth found differential predictors among study variables. Unsupportive interactions predicted negative changes in outlook and satisfaction with support received predicted positive changes in outlook. Posttraumatic growth was predicted by social network size (negatively) and unsupportive interactions such that those who reported most posttraumatic growth were likely to report fewer supportive others and more unsupportive interactions.

This, the final cross-sectional study of the thesis, combined the measures used in the previous studies with firefighters who were enduring a period of incapacity and most likely additional personal, domestic and financial concerns. The differential findings of predictors to psychological change indicators suggests a degree of

complexity to the role of psychosocial factors that was not evident from testing positive and negative social interactions separately. That neither type of growth was predicted by the same social variable is evidence that their scales measure different aspects of the growth construct.

Chapter Eight was the culmination of the previous empirical chapters and benefited from a longitudinal design. Firefighters were tested with a similar battery of questionnaires as had been used in Chapter Seven but at two time-points nine months apart. The main addition to the battery was the inclusion of a measure of *sources* of perceived social support given that the structural and affective types of perceived support measured with the SSQ6 had been used in the previous studies had not found association with growth. Although the design allowed temporal changes to be identified there was insufficient statistical power available to perform tests necessary to identify likely causal relations. Nevertheless, the design allowed several unique tests to be carried out that extended beyond those performed in the longitudinal studies of the literature review in Chapter Four.

Cross-sectionally results confirmed the findings in previous chapters where association between social support and growth was not found. As in Chapters Six and Seven a positive association of distress, negative changes and unsupportive social interactions with posttraumatic growth was found.

Longitudinally, changes were found for distress, received support and satisfaction with perceived support. At the second time-point levels of distress were significantly lower than at the first time-point while satisfaction with supportive others had increased at the second time-point as had the level of support received.

The reduction in distress levels raises the interesting possibility that, while assuming that no unmeasured variable had intervened, the Time 1 testing procedure itself had had a therapeutic effect as distress levels had dropped significantly by Time 2.

Posttraumatic growth at Time 2 was positively related to distress and unsupportive interactions cross-sectionally and across time, while positive changes in outlook were unrelated to either variable at either time-point. Also those reporting higher levels of posttraumatic growth at Time 2 reported fewer perceived supportive others at Time 2 than at Time 1. If the therapeutic benefit of the Time 1 testing procedure was to initiate disclosure of distressing material, discussion may have been confined to one or very few confidants. The increased satisfaction with confidants and support received at the second time-point is consistent with the first testing phase prompting disclosure and emotional processing.

Posttraumatic growth at the second time-point was negatively related to perceived support from the family and positively related to unsupportive interactions at the earlier time-point (see Table 8.4) but did not reach significance when Time 1 growth and Time 2 variables were partialled out.

Overall the collective outcome of this series of studies is that growth, as a eudaimonic phenomenon, is likely to be facilitated by post-event emotional processing. This is in keeping with numerous psychological theories that do not rely upon clinical ways of thinking as with the medical model. As the likely target of clinical treatment is emotional enhancement the finding that growth is not strictly a hedonic pursuit weakens any assumptions that clinical treatment will assist growth.

Finding growth to be a eudaimonic pursuit suggests that it will be those social interactions that enable individuals to tolerate and endure the discomfort of emotional processing that will assist growth.

9.2 Methodological considerations

9.2.1 Data collection

Various data collection methods were used in the thesis and saw response rates of between 5% and 98% achieved. Researchers using emergency services personnel often report difficulty in securing high response rates. For example, Clohessy and Ehlers (1999) obtained a response-rate of 56% in their study of ambulance workers and considered it to be relatively high for a study in the field with an emergency service population. A response rate of over 90% in three of the data collection efforts appears to be exceptionally high.

Success in this was most likely due to the presence of the author as investigator attending stations in person. With a direct appeal made to firefighters on duty to complete questionnaire batteries a large majority agreed. This rate is also commensurate with the 85% response-rate in a study of firefighters in Australia that was also achieved by visiting stations where firefighters were on-duty (Regehr, 2009).

By contrast, around half of the data collected for the longitudinal study relied upon a postal method which yielded a response-rate of around 5%. Researchers undertaking quantitative data collection with this population in future may benefit from gaining access to firefighters directly in order to maximise the generation of self-report questionnaire data.

9.2.2 Questionnaire battery

The questionnaire battery was not exhaustive. As was noted earlier the variety of social support scales that could have been employed was impracticably large, with 28 measures found in the review (see Appendix 4.1). Using the most commonly reported scales in the review that reflected perceived and received social support may have turned out to have been too restrictive. For example, crisis theory demands the persistent attention of a confident other in confronting an individual in distress. According to theory, when the crisis is taken to resolution personal growth is expected to ensue. It might now be seen that such a confrontative style, where successful, offers an individual more social data than a single form of support describes. For example, it might inform an individual in crisis that they were not alone (companionship), were loved, valued and cared for (perceived, informational) whilst in receipt of attention (emotional, esteem) and support (received). It may also be that a confrontative style is contradictory and unsupportive such as when invalid beliefs and attributions are challenged and disputed. A “cruel to be kind” attitude on the part of the supporter may involve a number of ironic processes that are not captured in the types tested in these studies. A single, extended social-transactional set foreseeable in crisis intervention may even see both types of support and unsupportive interactions playing a role. In addition it seems likely that transactions that represented each type would arise serially, even recursively, on the way to resolution. If so these variables may prove difficult to separate statistically.

9.2.3 Design

The design of the longitudinal study was sufficiently well constructed as to allow tests of spuriousness to be carried out. This would have brought an important conclusion to the thesis as the different types of support had been tested cross-sectionally in the prior studies could be tested across time. However, the low response rate from a potential sample of over 600 firefighters for the longitudinal study is disappointing. Although an efficient means of data collection had been made using the local fire brigade, the more distant brigade that had agreed to participate requested data collection by post. As was apparent from analysing sample sizes in the literature review, significant findings were much more likely to be found in those studies that secured the largest samples. Future studies using firefighters or other emergency workers would benefit from making direct personal requests at stations where a high response rate would secure the necessary sample size for satisfactory statistical analyses.

9.2.4 Firefighters as participants

The use of firefighters in most of the empirical chapters in the thesis now appears double-edged. On the one hand data has accrued to show that assumptions of social support facilitating growth may not hold for people frequently exposed to traumatic situations. On the other hand people frequently exposed to such situations may have developed coping strategies that interfere with the emotional processing (e.g., Clohessy & Ehlers, 1999). It has not been possible to determine which of these possibilities is the more likely.

Evidence that emotional processing was incomplete for a previously distressing incident emerged from finding a significant reduction in distress in the nine months

that elapsed between data collection times in the longitudinal study. If emotional processing is initiated some years after the event, as it may have been in this study, unusual group findings might be expected to emerge. For example, there are likely to be those who are resilient and who show no signs of distress and, therefore, no stress-related growth. Others will not be so resilient and will have been distressed but then processed the traumatic material, experienced growth and subsequent reduction in distress. Yet others may have been distressed and suppressed processing. If so the significant drop in distress over time reported in the longitudinal study is likely to be largely attributable to those who had previously suppressed processing and were now allowing processing to occur. If so, the amount of reduced distress for the sample as a whole may be a conservative one because only a subset would account for the overall change. Future studies may benefit from an assessment of coping efforts relating to the incident in order to identify those who have yet to accommodate the traumatic material that will likely see positive changes emerge.

The use of firefighters was regarded as a strength in these studies but it may also have been a limitation. At the scene of fatal incidents ambulance and fire crews are likely to operate together and share similar stressors, so some generalisability from Clohessy & Ehlers (1999) appears justified. Clohessy and Ehlers point to the tendency for ambulance workers to use maladaptive coping strategies that prevent emotional processing. Potentially then this failure to process may represent an obstacle to theory-development as it may be present in firefighters, but not controlled for in these studies. Although the use of students would have meant

testing a less trauma-exposed sample than firefighters, they may have been better able to report natural processing of life's setbacks and subsequent growth. At the very least they would be less likely to employ spurious coping variables to manage over-exposure to trauma that ambulance and fire service personnel might. If maladaptive coping thwarts processing and growth, testing those who do not need to cope in extraordinary ways may prove informative, if only for comparative reasons.

9.2.5 Validity of growth

The consistent and positive interrelations between posttraumatic growth, distress, negative changes and unsupportive others is further evidence of incomplete processing of distressing material. The sensitivity of the posttraumatic growth measure to these negative variables is of interest given that the measure of positive changes, which was consistently related to posttraumatic growth, did not find association with the same negatively-valenced variables.

While the overall aim of the thesis was to find which types of social support facilitated growth it has succeeded in doing so only to a small degree. However, what has emerged does appear to have theoretical merit. Firstly, the validity of growth measures remains in some doubt and these findings lend weight to calls to better establish the validity of the growth construct. The two growth measures used in this thesis were shown to be moderately related yet differentially sensitive to several study variables. A scientific endeavour is no better than the scales used to operationalise the constructs of interest so at least one of these scales may lack validity in this population. Secondly, neither growth measure found a positive

relation with psychological well-being changes over time in the longitudinal study of firefighters (see Table 8.4). It will be recalled that psychological well-being change scores represent actual growth. This may serve to emphasise the point that amongst those at high risk for posttraumatic stress some are likely to report growth but that some may be struggling to cope, emotionally process and grow as a consequence. If social support facilitates growth it seems that it will those types that enable emotional processing to begin and to persist to completion. If the struggle to cope is not turned towards processing then unusual and unexpected relationships may arise. Finding social supporters to be comforting rather than confronting may reinforce, rather than revise, maladaptive coping styles. This reflects the subjective (hedonic) versus psychological (eudaimonic) well-being distinction that found growth to be a eudaimonic phenomenon (see Chapter 3).

9.2.6 Strengths

There are notable strengths to the studies in this thesis to which attention will be turned. The comprehensive literature review reported several instruments that could serve the empirical chapters and showed several methodological shortcomings in those studies that this thesis could address. Taking the most commonly reported measures of social support and growth from the review allowed measures of two types of social support and two types of growth for which empirical evidence for change had been reported. The main methodological shortcomings in the review were those of design and decisions relating to the failure to test potentially causal relationships. The main thrust of this thesis was to build out of the evidence of the review towards a longitudinal study where some of the methodological shortcomings of the review could be addressed.

As a test of multiple relationships between types of social support and growth across time the study in Chapter Eight appears well-designed. Although the sample size was probably insufficient to provide the statistical power necessary to detect changes it was structurally capable of testing concurrent and temporal differences that would have allowed important inferences to be made. Although some studies in the literature review (Chapter 4) did use an adequate structural design they did not carry out the tests that may have answered questions around the prospect of causal relations. Those that did test for growth and earlier social support and found association did not carry out tests that controlled for other variables in the associations reported.

The participants were firefighters, adults who are exposed to relatively frequent exposure to events that would meet the definition of “traumatic”. This is one reason why they represent an important group for empirical attention, if growth is a likely outcome. Another reason is that firefighters appear to have access to all the usual sources of social support identified in the literature plus novel forms that can occur as a result of the interpersonal dynamics of the watch. As an occupational group with a strong sense of group identity it appears likely that its members are more reliant on the support of colleagues than on the expertise of clinical treatment, should a stress-reaction occur. If so, socially supportive actions are likely to be more frequent and practised in such a context and would be expected to be more easily identified in this group than elsewhere.

Additional benefits, at least from a theoretical point of view, include being a largely homogenous group, almost entirely male and exposed to similar incidents at a

similar frequency. In supporting each other they are likely to act as both provider and recipient and given the relatively high-levels of job retention in an occupation that is purportedly traumatic, support would appear to be effective. If consistent patterns of associations are detected findings are likely to be generalisable to similar groups. The reliability for the 3-item PWBS was surprisingly high ($\alpha = .75$) given previous studies and a warning from the scale's author that good reliability was not to be expected in the 3-item version (Ryff & Singer, 2006; van Dierendonck, 2005). However, firefighters may share personality traits and vary less than the general population thereby giving more consistent responses across the sample than would otherwise be expected. This finding awaits replication with other homogeneous samples to determine the suitability of this 3-item scale in future research.

The author's experience offers a phenomenological context in which the empirical studies were likely to prove most informative. It may be seen from where the interest in this thesis emerged and how an intimate knowledge of the work and the social structure within which firefighters operate could lead to misunderstandings in a naive research project. Although this knowledge acted as a safeguard against missing any ironic processes that were culturally embedded, such as the difference between a "good" job and a "bad" job (see Chapter 10), it may also act to alert future researchers of such a possibility.

9.2.7 Limitations

Limitations have been noted in the research. This was an almost entirely positivist empirical project. One criticism made of positivist methodology in social science is

the problem of reductionist thinking. In scientific terms reductionism allows a finer grained analysis of variables and their interaction than a focus on broad categorical variables allows. If a variable comprises several smaller variables, they may become conflated and if each acts differently it may be unclear which of the overall variable's components is active and when. However, unlike in the natural sciences, where particles and energy can be quantified in their elemental states, psychological phenomena are not so easy to isolate meaningfully. In the complexity of social interactions the tendency towards reductionism may result in a loss of meaningful data where the whole is lost to its individual parts.

The literature review found several relationships that gave confidence in the hypothesis that social support would be found to facilitate growth. It was noted in the findings that those studies which recruited the largest samples were those that were most likely to find significant associations. Despite the preparations for the empirical work in this thesis appearing to predict large enough samples to undertake sophisticated multivariate statistical analyses, the sample sizes necessary were not achieved. Compared to visiting fire stations and making personal requests for participation the postal recruitment effort was disappointingly low.

Firefighters may represent a unique group of participants and could, therefore, be a group to whom these instruments were not sensitive. The differential performance of growth measures has already been raised with the potential for differences being attributed to the populations that were used in their development, for example the PTGI with American students and the CIOQ with British adults. Similarly, the populations that were used in the development of other study measures may also

account, at least in part, to the lack of association with these distinct samples of British firefighters. If measures have been developed in different populations in less than traumatic circumstances, they may be relatively insensitive to these firefighters' responses. Population-specific measures may need to be developed to tap the psychometric changes that may have been missed in these studies with these measures. Some authors cited in the literature review did develop study-specific measures (e.g., Frazier et al., 2004) to capture the psychological changes in particular contexts. It may be that firefighters represent a special case for scale development of growth and social support measures.

As previously noted high-risk occupational groups, including firefighters, may have developed unique coping strategies for dealing with the stress of the work. It does not follow that unique and effective coping that alleviates distress is necessarily beneficial, however. Distancing, wishful-thinking and dissociation were all implicated in the maintenance of distress and a failure of emotional processing in ambulance workers (Clohessy & Ehlers, 1999). These factors were not measured in this thesis but may offer reasons why some expected associations were not found.

9.2.8 Future directions

Future research may be guided by the findings in this thesis. Prospective, longitudinal studies may be better placed to find the relationships of interest in isolating the form of social support that best facilitates growth. Large samples would be necessary to obtain sufficient power for the sophisticated multivariate analyses to detect significant relationships.

Importantly, the measures of growth and psychological well-being (PWB) may best be used in combination or even combined through factor analyses to generate new scales. Finding the threads that are common to growth and PWB would allow increased validity in measuring what changes in growth following adversity. When growth is measured without knowing the level of PWB at the time of the event means it is not possible to determine how PWB has changed. A convergence of scales that measured growth and PWB consecutively would allow such changes to be recorded.

9.2.9 A bridge

The social support that firefighters enjoyed on a “good” watch was often triggered by difficult challenges and painful reactions. Effective support from colleagues may have had a pleasant effect, but generating pleasure would not be its sole aim; learning, accepting and understanding would most likely take priority. In terms of well-being then, there would be a eudaimonic aspect to effective support that would more likely see positive psychological change following adversity than negative change. The support that makes one watch thrive while another watch falls apart after the death of a colleague suggests that effectiveness lies in the ability to foster eudaimonic progress over merely providing comfort. However, those who seek recovery from traumatic experience from the clinical authorities of psychology and psychiatry are likely to be offered comfort over challenge. The medical model of trauma remains dominant in interpreting survivor’s reactions despite the evidence of most people being exposed to trauma finding benefits and appreciation from their experience.

Even “positive” psychology, an apparent contradiction to medical thinking, prioritises comfort over challenge, through a preference for hedonic change over eudaimonic change. For comfort to follow challenge suggests that hedonic changes alone are insufficient to foster growth. For comfort to precede challenge would beg the question “Why bother?” if the sufferer feels better without having to confront the source of distress. Growth, therefore, may be usurped by some treatments for trauma that target mere reduction of symptoms.

As fire and rescue work is invariably challenging, and social support is virtually ever-present in that occupation, the context appeared ripe for empirical exploitation of the psychosocial factors underlying growth. That they were not found may be more likely due to methodological shortcomings than theoretical ones. Growth was evident in these firefighters, as was social support of different types. Uniquely, PWB change across time was measured as a way to detect and confirm growth following adversity. This and the differential relations of growth scales with other variables suggests that work remains in establishing the construct validity of growth.

The main aim of the thesis was to determine which type of social support might facilitate growth following adversity using firefighters. This has not been achieved with a great deal of clarity but the thesis has revealed a number of theoretical and methodological issues that may guide future research that seeks to pursue the same end. Although a positivist methodology was chosen to undertake this project there are concerns that such a methodology may be limited by its oversight of phenomenological factors as they would threaten the objectivity of the research enterprise. However, the additional data that a phenomenological project could

provide could also be of interest to future researchers, and it is to the subjective and interpretative aspects of the author's experience that the final chapter turns.

Chapter 10: The Personal Journey

"I feel so stupid, that if nobody has seen me do this, and if it doesn't hurt when I land, I'm not going to tell anyone." These are the only conscious thoughts I recall as I fell from the attic of a dark, fire-damaged building towards a staircase 20 feet below. I was a firefighter following an order to search for 'hotspots' in the roof-space of a shop on fire. For once I was alone. I was hungry and keen to get away from a difficult job that had already seen a friend injured. For some reason I miscalculated my exit down from the attic. The ladder that I climbed onto beneath me was braced against the balustrade of a staircase, beyond which lay a vertical drop to the bottom of the stairs. I had noticed the drop as I shone my torch through the blackness and contemplated the safest way to descend. I remember thinking that if anyone was to fall from here they would be in some trouble. I thought I was safely on the ladder when the sensations of being weightless swamped me along with the realisation that what I had guarded against was in fact happening. I was falling from the top to the bottom of the building. This was both serious and ridiculous. I could die. I hit the stairs, hard. I heard a bang and yelled, sensed a flash, felt a searing pain in my back and realised that I was now accelerating forwards, in pitch darkness, through the air. I braced myself to be impaled on the tool displays I had walked past minutes before but splashed face down in warm, filthy water. I heard "Man down!" yelled several times before I was surrounded by fireboots and the disembodied and concerned voices of my crew. My spine was damaged, I knew that. I wriggled my fingers and toes and they worked. I had survived. I assured the voices I was fine and waited to be lifted clear.

Throughout that night in hospital I mentally replayed what had just happened and tried to anticipate the consequences of a cracked vertebra on my future. What had happened had been dangerous, sickening and uncontrollable. Years later, this combination of factors was to form the basis of a diagnosis of posttraumatic stress disorder (PTSD). According to the diagnostic manual used by psychiatrists to reach such a decision, I had fulfilled Criterion A (i) and (ii) where a life-threatening event was identified, and the reaction to it one of horror (American Psychiatric Association, 1994). The remaining criteria were to be met over the months and years that followed. They led to a medical discharge and the end of my career. And so started the quest for an understanding of what had happened. Firstly the task was attempted through seeking expert advice. It was then through an academic pursuit of psychology. Now it finds its culmination in this thesis.

10.1.1 Initiation

Applying to train as a firefighter was a momentous personal decision. Rather than pursue a degree and then a career in one of the professions I had instead decided to take work in order to generate an income for the family while my father was unwell. I imagined that if I dropped my plans for attending university I could consider them again later in life, should I feel so inclined. It was 1977, a time when there was no shortage of jobs and the mass unemployment that would soon follow was hardly imaginable. It was common at that time to be spoiled for choice in deciding how to earn a wage. At 19 years of age I was offered my training place with the fire service on the same day as I was offered a trainee manager's job at a bank. At that age the attractions of fire and rescue work went far beyond those of office work, however well-paid working for a bank might turn out to be. The

attractions of fire service work were derived largely from news items on television, in newspapers and the heroic Hollywood film *Towering Inferno*. With no experience of the work I was to embark on I had only my imagination upon which to base my decision, although I did have one other source of information. My Uncle Derek had been a firefighter and had been killed five years previously. For some reason his death did not deter me from the job, rather it attracted me. There was an unusual social context for me in deciding whether to follow in his footsteps, a context that only on reflection takes on its personal and academic significance. I recall others' reactions to my uncle's death and of people inside and outside the job who spoke incredibly highly of him. The descriptions I heard impressed me so much that I wondered, and imagined, how it would feel to be associated with people of such standing. There was an attractive modesty about people who did such heroic, dangerous and essential work without complaint and with full knowledge of the risks.

The IRA pub bombings in Birmingham in 1974 had seen firefighters entering the carnage of the blasts to remove not only the injured, but also burned and dismembered bodies. To do that for a living, to my mind, took a particular level of courage and self-discipline that almost matched the boyhood visions of comic-book superheroes; it was a level of courage and self-discipline that I was not sure I possessed. But to remain committed to such a job and be able to cope with whatever came along were personal qualities that I might be able to develop. To be rewarded in life by personal experiences and abilities that reflected so positively on you gave some incentive for applying to do this rather than any other job. Apart

from self-enhancement it was likely that social status would be conferred, given the readiness to do work that others found beyond them. From amongst my friends at the time no-one seemed willing or able to face the challenge I was prepared for. I felt a certain superiority by demonstrating that I was somehow transcending them and their fears. And it was certainly not the money that made firefighting attractive. Indeed, the wages were so poor that after 12 weeks of intensive training and six weeks of operational duty, I was to spend nine weeks on a picket line in the first national pay-strike of the British Fire Service.

10.1.2 The first challenge

Even prior to joining the job it was anticipated that situations would arise that could evoke a level of fear that exceeded anything that had been encountered in life up to that point. As firefighters-in-training discussions would arise amongst us about the accounts that had filtered down from those who already knew people in the job. The indelible smell of burnt flesh, the compulsion to vomit and having to “hold it together” for the team were all imagined and anticipated during the training period. Instructors confirmed the importance of managing those difficulties and passing the early test of encountering your first dead body at a fire or road accident. It was guaranteed that “you always remember your first stiff”.

The importance attached to coping with the first fatality went far beyond any subjective reactions to the actual encounter. What seemed to be of greater importance was how colleagues assessed the individual’s reactions, especially their ability to suppress or ignore their emotions in order to concentrate on the job at hand. The test for the individual was also a test of entitlement to respect from the

team. This was emphasised during my first call to “House fire: Persons reported”. On arrival I charged into a house on fire and pulled the occupant’s body out before anyone else got in. Outside in the daylight the body had obviously deceased but I was not upset by it. I had at least proved my willingness and ability to colleagues who had been doing this for years. However, a different perspective emerged when one of the firefighters sniped at my apparent good fortune at having this happen just a few weeks into my career. He had already served for two years and had not yet encountered a fatality and he made his resentment known. Despite the grimness of an elderly man dying in a fire there was the anticipation, privately, that there was something positive in the challenge that could only be tapped when confronted by something this unpleasant and potentially overwhelming. The resentment of this colleague for someone who had been exposed to a test that he had yet to pass was an indication of the significance attached to such an encounter. Even though someone had died, I realised that there was something collectively positive for us having to do what we did and continuing to do it as often as we were called upon to do so. This was not what I had anticipated.

The early rehearsals for such an encounter seemed ludicrously exaggerated as the incident that was held in such dread turned out to be a rather mundane one. The benefits to being involved in this kind of work were difficult to describe or quantify but there was a sense of achievement, competence and self-appreciation that may not otherwise have arisen. Within only a few months of becoming a firefighter I preferred the company of people I worked with rather than those I had grown up with. Although friends who had gone to university were still friends, there were

aspects of their personalities that I felt I had rapidly outgrown. Firefighters of a similar age were developing self-confidence and interpersonal trust beyond that of any of my student friends. This was the most positive atmosphere for personal development that I had experienced. As long as we stuck together I was convinced we could handle anything.

The first encounter with the deceased did not diminish the impact of later encounters with the dead. There were aspects to some incidents that were difficult to pin down as to why they evoked the strong emotional reactions that they did. Often the reactions did not have words to adequately describe them so it was common to remain silent and ruminative and try to work out what was going on and why. Without any logical understanding of these uniquely disturbing reactions it felt important to find ways to ignore them or suppress them. The job could not wait for a resolution before it demanded more of you. What did become apparent were the occasions when others were ruminating. An unusual silence from usually loud and gregarious individuals would inevitably find them become the target of banter and humour at meal times and tea breaks. The social informality of these gatherings could catalyse a conversation that brought an incident back-to-life. No judgement would be made as to whether it was wise to talk about a difficult event or not, this was simply the way it was. There appeared to be a ritual of sitting down at 11am for tea-and-toast in the fire service. This was the forum for the seemingly spontaneous outbreak of reflection and acknowledgement of the impact of a recent incident. It was remarkable, regardless of the heaviness of the mood at the start, how such encounters could end on a positive, sometimes hilarious, note. Resort to

“fire brigade humour” as the mechanism underlying a perspective change on the most serious and troubling events was commonplace. In the absence of the collective and sometimes irreverent scrutiny of interested others only personal coping was available to find a solution. If we later heard of “problems at home” it was wondered whether problems generated by the job were going home with the firefighter. If it took someone who did the job to be aware of the threats to their own well-being it seemed reasonable to assume that you had to rely on your mates; the people most likely to understand would be colleagues. Occasionally it seemed that those who succeeded in defending the privacy of their emotional state would soon become estranged from the watch. It was usual then to hear that they had been “pensioned-off” with a bad back or a bad knee.

10.1.3 The watch

The ‘watch’ is the group of individual firefighters who have been assigned to work together at the same station, on duty at the same time. The difference between a “good watch” and a “bad watch” is intuitively obvious to a firefighter. The reliance placed upon supportive colleagues when working in dangerous environments encourages more chances to be taken, extra efforts to be made and comfort to be had if it should go wrong; this was the social and behavioural context of a good watch. To work in the company of unsupportive others predicted caution, measured effort and no expectation of comfort if it should go wrong. It was not only the actions at an incident that were modified by the type of watch but in being mentally prepared for future incidents also. The personal resources that can be built up in anticipation of the next emergency were not simple. It seemed, in large part, to be a product of the social interactions with colleagues of differing

experience and competence as preparation for a team effort cannot be undertaken alone. Where colleagues are supportive, an open and interactive learning environment exists; strengths are built, weaknesses addressed and novel ideas considered and tested. Where colleagues are unsupportive, a poor learning environment exists; strengths are assumed, weaknesses ignored and novel ideas discouraged. The sense of “good” or “bad” was a rough summation of the positive and negative dyad-interactions between self and others on the watch. A positive sum would relate to emotionally expressive styles of interpersonal interactions, and a negative sum would relate to suppressive styles.

Finding a place on a good watch meant support, comfort and validation, leaving most concerns about stress to the consequences of operational incidents. Finding a place on a bad watch meant greater stress from the consequences of operational incidents as support could not be counted on. In addition, interpersonal conflict was a source of stress in itself, which added to increased stress from lack of support following operational incidents. In such a case it was personal, rather than social resources, that had to be developed and bolstered to cope with potentially traumatic incidents.

During an emergency, the well-practiced routines of training schedules form the foundation of the team-working effort employed upon arrival. As each fire and rescue scene appears unique the rehearsed routines rarely run smoothly. Chaotic scenes, changing priorities and maintaining discipline in the face of shifting circumstances all contributed to the emotional and cognitive load where the emphasis was on saving life, eliminating danger and restoring order. Interpersonal

communication was usually abrupt, urgent and unpleasant as leaders struggled to control and overcome the many threats to success. They had to do the job by manipulating the people in their charge and to coordinate efforts in as collectively effective a way as possible.

After the emergency, personal and group reflection on the success, or otherwise, of the operation was inevitable. The “cup of tea around the mess-table” was the time-honoured forum for discussion, appraisal and early support. The discussion was rarely orchestrated but interpretations of how well the team and each member performed were overtly expressed. The final judgement on success was often decreed by the officer as others’ opinions were not always sought or welcomed. A permissive officer might encourage feedback and reinterpretation while an authoritarian officer would most likely not. The summary judgement of an authoritarian was rarely challenged although unease and disquiet over critical interpretations were often reappraised in private afterwards. The actual support of colleagues would sooth the wounds of criticism and bolster self-confidence even if the boss had belittled someone. The acknowledgement and validation of colleagues felt invaluable as the emotional benefit of colleagues’ support would often exceed the emotional cost of the leader’s scorn. The complement of interpersonal trust and self-confidence that could be generated between those in need of support, and those providing it, was greatly valued.

Colleagues who were validating and supportive seemed to contribute to the emotional regulation of firefighters preparing, working and reflecting on their exposure to hazardous environments. Prior to incidents organisational and peer

support would encourage skill acquisition and effective teamwork so that predictable actions and working sequences could be employed at the majority of emergencies. During an incident, where uncertainty and ambiguity could sabotage well-practised routines, support in finding an improvised solution was invaluable. In the aftermath of an incident a review of what had transpired would be used to judge the team members' effectiveness in dealing with that challenge.

Social support in the aftermath was most welcome where it could repair the emotional upset of personal disappointment, felt criticism and regretted actions. Furthermore, these private discussions between colleagues, that allowed several different views of reality, rather than the officer's summary judgement of it, presented an arena that offered more than a way of feeling better. Once a story had been retold, and the associated emotional reactions expressed and acknowledged, novel viewpoints sometimes emerged. Hearing a more experienced colleague reporting feeling similar often persuaded an individual that he was not uniquely weak and so might feel better as a result. Sometimes it would be the distressed individual themselves, in the midst of their emotional ruminations, who would find a perspective that satisfied them. It followed then that they were likely to return to face the next incident with renewed purpose. It was self-evident that more experienced firefighters were more resourceful and confident than less experienced ones, yet the personal development that brought that confidence to fruition was imperceptible. It was a source of wonder when and how those incremental changes occurred; for an inexperienced firefighter the sooner they came the better. If every incident was different it wasn't the repetition of well-

practised routines that enhanced confidence, it had to be something more covert than actual performance and habit. Whether a positive developmental change was a step towards maturity that comes with age, or whether it was a product of the insights gained in the supportive company of an interested listener was unclear, as both were evident. What was clear was that the job enforced a confrontation with human mortality, suffering and injustice. The means by which those realities could be accommodated seemed to be the most important contributors to the well-being of those engaged in fire and rescue work.

10.1.4 Death on duty

The role of supportive others in the psychological changes following tragedy had its most serious test when two firefighters were killed in my brigade, in separate incidents. The first death occurred when a fire engine went out of control en-route to a fire call at a hospital. The second death occurred when a flashover occurred in a fire that had been deliberately set in a high-rise block of flats. The first firefighter died from head injury, the second from burns. Given the reciprocal responsibilities that firefighters assume they have for each other's safety the loss of one of the team represents a personal and collective failure. Thus, regardless of any other attributions of fault, self-blame seems assured. The striking difference between the two watches from an observer's perspective was the difference in cohesiveness and the interpersonal interest the members took in each other.

The firefighter killed in the crash worked on "White Watch", the firefighter killed in the fire worked on "Green Watch". On White Watch there was a sense of "sticking together" while on Green Watch they appeared to be "falling apart". Reflecting on

other differences, members of White Watch would readily retell their version of what happened, and on night shifts especially, the stories were routinely retold and relived. Despite the gravity of the event the stories were often told in ironic, humorous ways with numerous “if-then” permutations of how they survived and their friend did not.

On Green Watch there was a notable lack of story-telling and instead what looked like alternating stoicism and resignation. Humour was absent and blame, although not discussed, was palpable. The atmosphere confirmed the rumours that had reached other stations, those of disharmony and ill-feeling. One memorable and confusing discussion I had with one of the members of Green Watch occurred out of earshot of anybody else. I listened to him trying to convince me that the death of his friend in the flashover was somehow his fault. He claimed that if he hadn't been on leave at the time he would have saved his friend. His conviction that he would have saved him was mantra-like in its persistence even though I knew that being caught in a flashover was likely not to be survivable; firefighting uniforms were not made to resist flame of such intensity. The victim had 90% of his body severely burned. Those nearby were either burned themselves or had to wait for the fireball to die down to pull their friends out. There was nothing that this man would have been able to do. I drew no conclusion about the confusing nature of this discussion until I heard, months later, that he was in hospital. He had poured flammable spirit on himself and set it alight. He, like his friend, died from burns.

10.1.5 Brotherhood

Many years later following the 9/11 attacks, in which 343 firefighters lives were lost, I made visits to the Counseling Services Unit (CSU) at Fire Department of New York (FDNY). This revealed similar types of group reaction as had been identified some years before on White and Green Watch; some groups of firefighters appeared to have been overwhelmed by the events while others remained resilient. Of particular interest was to hear of the brief involvement of psychiatrists invited to address the needs of firefighters in their firehouses. Anecdotal accounts spoke of reactions to visiting psychiatrists that ranged from hostility to amusement. A suspicion that firefighters' sanity was being assessed led to resentment, non-cooperation and within a short time, abandonment of the programme (Corrigan, 2005, personal communication). The clinical system that evolved to be adopted was one that combined serving and retired firefighters and culturally-sensitive counsellors interacting with firefighters under the guidance of clinicians from various disciplines (Greene, Kane, Christ, Lynch, & Corrigan, 2006). So while psychiatry dominates Western ways of thinking about trauma it did not make an effective contribution to the assessment, treatment or restoration of mental-health at FDNY following the 9/11 attacks. If psychiatry is indeed the dominant authority in psychological trauma, the abandonment of a psychiatric path in managing the 9/11 aftermath amongst firefighters appears a curious decision.

Furthermore, the peer-support programme that successfully addressed an alcohol-abuse problem amongst New York's police officers in the 1990s was extended to provide psychological support to officers at this time. In common with firefighters, police officers also had to deal with the deaths of colleagues in the 9/11 attacks.

The peer-support teams were made up of police officers trained in crisis-intervention and overseen by culturally-sensitive mental health professionals. Although psychiatrists were employed in the police department, the main provision of psychological support was made by peers, one of whom was proud to tell me that nobody has told the psychiatrists in the department where they were operating from; they occupied a suite of donated offices in a bank building in downtown Manhattan. It seemed that, for those who sought someone to talk to, the company of colleagues familiar with the actual risks of the job was preferable to the clinical knowledge of a psychiatrist. The attractions of a social approach became, therefore, even more intriguing.

10.1.6 Dynamics

In the two incidents reported above that cost firefighters their lives one watch appeared cohesive, good-humoured and well-adjusted while the other did not. The cohesive watch, White Watch, saw long-term friendships, social events and positive outlooks on life. The other watch, Green Watch, saw interpersonal disputes, alcohol-abuse and suicide. Having the company of peers alone, therefore, did not appear sufficient to address the psychological threats of a colleague's death, at least on Green Watch. Socio-demographically both watches appeared similar. Education-level, income and social network size outside the job did not differ. Both watches were of similar size too – about 15 in number – so each member of both watches would have a similar number of supports in their social network.

The contrasts between the cohesive and uncohesive watches that were familiar in my brigade also appeared amongst some of New York's firefighting crews several

weeks after the 9/11 attacks. Some were coping with the consequences of the attacks and losses of colleagues, while others were not. Several New York firefighters concurred on the point that the only place they felt “sane” was in the firehouse; families and loved-ones did not appear to understand them. These were clearly anxious times for the firefighters, particularly with regard to the change and loss of relationships they had come to rely on. The loss of life amongst firefighters in New York following the attacks was probably beyond imagination. As such there was no prospect of being able to rehearse and prepare for such an outcome. Not only were they estranged from “brothers” killed in the attacks, but admitted to becoming estranged from their formal relationships at home. The media’s lionisation of their perseverance at digging to recover bodies added another unwelcome dimension to their survival and isolation. Although informal support from peers in other fire departments was available, formal support from the department took some months to organise. What the crisis spawned was a peer-support and counselling programme that has established a variety of social supports that have assisted survivors and their families without resort to the medical way of describing threats to mental health (see Greene, et al., 2006).

There were notable similarities to the British and American firefighters discussed above. Some were clearly upset and made vulnerable by the events that saw lives of colleagues lost. Others, however, seemed strong and accepting of what had happened. Some universal attitudes seem to be common to both sets of firefighters. Firstly there seemed to be a willingness to do this kind of work that most would refuse to do and was something that made them proud. Secondly the

extreme circumstances they would find themselves in are those that they would expect their colleagues to share in. Thirdly if anything should go wrong their colleagues would find ways to “patch them up”, psychologically at least, to see them return to the team.

10.2 Selfish altruism

The rewards that many firefighters gain from their involvement in fire and rescue work may appear to be altruistic. On reflection, however, there appears to be what may be seen as selfish gain. For example, in terms of social comparison firefighters are meeting a challenge that many others in their extended social network would not or could not meet. Being observed at the scene of an emergency would allow a demonstration of the ability to bring order and control to situations that were panic-stricken, chaotic and sometimes lethal. They were also able to self-appraise and compare their performance during operational challenges to previous performance during operational challenges. It was possible then to monitor the accumulation of experiences, abilities and skill-development both physically and psychologically.

One quality that was evidently important to a firefighter was “time in” as a rough guide to the likely number of incidents that the individual had been exposed to and presumably coped with. For example, a 33-year old firefighter with three years experience was perceived to be inferior to a 33-year old firefighter with 15 years experience. What this suggested in terms of the respect in which the firefighter was held by other firefighters was a function of operational experience rather than life experience; there was greater value attached to surviving in this job than any other.

In summary, the social rank of an individual firefighter was a perception of the number, notoriety and severity of operational incidents attended to date. Further, to be valued as a colleague of such standing was likely to present upward-comparisons with a status to which less experienced firefighters could aspire, in turn allowing the experienced firefighter the benefit of downward-comparisons. With each incident attended and survived there was more to learn. Personal and collective strengths and weaknesses would become familiar and the social comparisons could become dynamic, alternating several times during a crew's time together. Apart from the support that each individual was able to provide, the striving for status within the watch appeared to create a benign upward personal development fuelled and measured by the interplay of upward and downward comparisons. This may be one reason why incidents that may have been traumatic for victims and onlookers allowed firefighters, as actors, to thrive at a psychological level.

Striving for social status was evident at almost every incident attended. The combination of the support of colleagues, the challenge and reward of social comparisons within the team, and the perceptions of the severity of each incident appeared to create a virtuous cycle of personal development that closely matches descriptions of growth following adversity. Despite the prospect of individual ambitions for promotion and leadership the collective effort was valued most highly and the social context was an ever-present backdrop to all personal strivings. It is to the author's amazement that he reflects on how far the demands of the job and the expectations of colleagues stretched him in dealing with some gruesome and

dangerous tasks. However, it was evident that being stretched left a sense of satisfaction in proportion to the difficulty of the task, one that would not be possible in meeting lesser challenges. So surviving catastrophic situations could bring an accumulation of positive appraisals of self and others in a world that repeatedly demonstrated the randomness of tragedy and good fortune. So while the physical limits of possibility could explain why a life could not have been saved, the psychological limits were not so evident. If there was a way to make some sense of what was clearly a catastrophic end to one person's life might make the firefighter's life appear more worthwhile.

Such a positive upward spiral is, however, somewhat idealistic. With the number of incidents attended, not only did the opportunity for positive character traits to develop increase, but so too did the likelihood of one incident that could seemingly undercut everything. Firefighters, in those private moments where reminiscence on memorable incidents occurred, would sometimes confess to being haunted by a particular job. Usually it involved a child, and usually the firefighter was a father of young children at the time it happened. Sometimes it was of a time when, although no firefighters' lives were lost, a decision had put them at risk of injury or death. Getting away in one piece physically did not always allow the firefighter to get away in one piece psychologically. Recognising that a colleague had been struck by confusion and a loss of confidence signalled a call for support. On a good watch this call was likely to be heeded. On a bad watch it was not. On a good watch you could rely on your mates. On a bad watch you relied on yourself.

A common declaration that was invoked to defuse a tense period of rumination for a distressed firefighter was to be told “If you can’t take a joke, you shouldn’t have joined.” This invocation to stop taking the job so seriously had a surprisingly benign effect. Its use usually triggered a flow of stories of ironic failures, injustices and random setbacks that contextualised the personal discrepancy as being unremarkable, at least in this job. This was a result of the job we chose and nobody had made us join. Reappraising the sense of personal inadequacy by adding your story to the countless others that could get told was oddly comforting. While exposure to catastrophic incidents could generate additions in character development, failure somehow felt as if it took something away. Whether that made a space for something else to grow seemed to depend on perceptions of change and whether they were anticipated or resisted.

10.2.1 Personal change

The author’s recall of his own and of others’ determination to join the job in the first place was actually motivated by a desire for personal change. Perhaps there was something of the pre-fire service life and personality that was unpleasant and problematic and that doing fire and rescue work could help to change it. If unpleasant and problematic situations are what firefighters thrive on, then firefighters may be representative of what personality psychologists refer to as ‘hardy’ individuals. Hardy individuals see challenge rather than threat in difficult situations (Kobasa, 1979). While in the clinical view unpleasant change seems to signal disorder, in the hardy view unpleasant change seems to signal opportunity. For the hardy individual there is little of life’s encounters with difficulty that appears aversive.

10.2.2 Social comparison

The demands of fire and rescue work could all but guarantee that an individual would not remain in their pre-employment characters for long, and as change was probably sought and anticipated, change *per se* does not appear worthy of clinical attention. Firefighters probably did not join the job in order to remain the same. They appear more likely to have joined the job for the opposite reason, in order to *not* be the same. Generally they did not seem to want to be doing in life what they had been doing until then. They did not seem to admire their peers outside the job for sticking with the mundane and predictable, even though it was likely to be better paid. More likely, joining a job that was clearly challenging and admired by most people, there was a kind of social-climbing that, in this line of work, conferred an advantage.

From this perspective a kind of downward-comparison may have acted to bolster self-esteem and create a self-perception of superiority, not only in relation to another, but in relation to a former self. If staying the same was a worthy target in life, those who retired after 30 years of service would have to find some explanation for what that had all been about if they achieved no increase in wisdom, knowledge or maturity over that period. An individual exposed to the unanaesthetised suffering of others over decades was unlikely to remain unchanged, even if they wished to. To those who were attracted to the job, as in my case, an upward-comparison with the kind of individual we could become was a target to which the individual could aspire. And reaching that perceived target would not allow an individual to remain unchallenged and unchanged thereafter however, as in reality it seems that nobody did stay the same. Anyone who has

reached the age of 50 is likely to attest to the personal changes that life itself has enforced since they were 20 regardless of whether anyone else would adjudge events during that lifetime to be traumatic. Whether those 30 years of life were spent inside or outside the fire service asks whether the repeated exposure to traumatic events changes the personality or whether the personality would have taken on its mature complexion in any case.

The literature on life-span development takes the variety of life's experiences and judges adjustments to difficulties in life as contributors to life's uphill struggle and the eventual developmental outcome (Caspi & Roberts, 2001). The literature on trauma, however, takes the exceptional events from amongst life's experiences and judges the effect of adjustment to a single one of them such as cancer surgery or combat. The literature on growth takes a similar perspective to trauma in that general challenges in life are of less interest than the consequences of a single prominent event. So while the life-span developmental literature is not incident-specific, the trauma and growth literatures tend to be so.

10.3 Reflection on the thesis

Reflecting on being a young firefighter with few ambitions for academic excellence I now anticipate finding my name printed in work published in the psychological literature. The prospect of a PhD being conferred stands as confirmation of my personal and professional development. The journey from firefighting to doctorate appears at once to be both incredible and inevitable. Incredible because of the ongoing costs in time, money and relationships that this journey demands; inevitable because how else was someone of my curiosity and ambition for

humanity likely to turn out? The extent to which I was likely to turn out like this anyway is discussed by psychologists in the developmental and personality literatures. The extent to which I was likely to turn out like this only as a result of a traumatic experience is discussed in the growth literature.

The opening chapter reported a small but important literature on trauma in fire and rescue work and some of the debilitating effects of occupational exposure to traumatic events. What has been overlooked in this literature, however, are the positive psychological effects of exposure to the same events. In the thesis theories of crisis, personality development, social support and well-being were explored as alternative ways of considering the changes described as growth, in order to justify growth as a construct worthy of empirical research. In line with early thinking on posttraumatic growth, it was considered that some types of social support may facilitate growth.

Firefighters work in teams and enjoy several sources of social support. A group that is frequently exposed to traumatic events, with a variety of social supports available to them and a willingness to participate presented an opportunity to extend understandings in the field. The significant events from working in the fire and rescue service that shaped my current thinking included the deaths of colleagues and a personal injury. That injury led to a series of difficulties that saw my fire service career end with a diagnosis of posttraumatic stress disorder (PTSD).

Traditionally the authorities on trauma have used a medical model to explain and treat psychological changes following trauma. However, alternative psychological literatures offer insights into psychological changes that do not rely upon a medical

way of thinking. In addition to the perspectives of the medical model, which seems to hold no place for growth, some alternative perspectives do imply, if not express, a place for growth following adversity. The relevance of these alternative literatures to this thesis was considered in Chapter One. Establishing growth as a valid construct requires a test of its association with well established constructs of positive psychological change, a test carried out in Chapter Two. To determine what is already known of the relation between social support and growth a comprehensive literature review was reported in Chapter Four. The next four chapters contain most of the empirical work in the thesis with each study asking firefighters to recall a specific incident that caused them emotional upset and to relate their questionnaire responses to that incident and its aftermath. Chapter Five is a study testing the relations of social support and growth in firefighters. Chapter Six is a study testing the relations of unsupportive social interactions with growth in firefighters. Chapter Seven is a study testing the relations of both social support and unsupportive interactions with firefighters recuperating at specialist therapy centres in the UK. Chapter Eight takes the measures used in previous studies and employs them in a longitudinal study covering nine months. Chapter Nine concluded with the findings of the empirical studies and the additional information they can bring to future research. It is hoped that they will offer ways forward for that should further inform the field.

10.4 Perspectives

The underlying psychological processes at work following traumatic experience are already of interest to the clinical worlds of psychiatry and psychology but only, it

seems, because negative and debilitating changes occur that demand an expert's remedy. The academic literatures of religion, history and philosophy appear much more likely than clinical literatures to identify positive and inspiring changes. Such accounts raise the question of the role of the social environment in fostering such changes. Whether positive or negative outcomes occur and the context within which they take place can only be speculative without empirical evidence of change in particular situations. The ability to measure psychological change using valid and reliable questionnaires and refined qualitative methods in context-specific worlds of experience, such as combat, have yielded large amounts of data on posttraumatic stress. Thus, predictors of posttraumatic stress have been reported in numerous studies of trauma. However, predictors of growth have rarely been sought in the same studies. Whether growth is of clinical interest seems to depend upon whether or not a medical view of the problem is taken. The medical metaphors of *trauma*, *illness* and *disorder* show how psychological changes are understood even without evidence of a physical cause. The cause, in a medical framework, is an event. How an event causes psychological changes is central to thinking in anxiety disorders, especially posttraumatic stress disorder (PTSD; American Psychiatric Association, 2000).

From the medical, or so-called psychopathological, perspective it seems that what labels a dramatic event as a traumatic event is a simple summative procedure that can be performed by a psychiatrist. If a highly-distressed reaction occurs after a threatening experience, diagnosis can be made by counting fewer than 10 enduring changes from the diagnostic list (American Psychiatric Association, 2000) and on

this basis an unhappy individual may become a case worthy of clinical attention. If a simple summative threshold of distress exists for trauma, does the same threshold of distress exist for growth? If so then growth may be seen as the opposite outcome to PTSD for those surviving trauma. If not, then the dichotomisation of changes may be no more than an artefact of thinking about psychological change in medical ways with no “shades of grey” between the two extremes. Despite the dominance of this way of thinking about trauma several literatures outside the clinical realm may have a contribution to make. These alternative literatures attempt to explain psychological changes following life events, including those that would likely qualify as being traumatic, without any resort to a threshold. These literatures tend to report continuous rather than dichotomous changes and may help to determine the wisdom of considering growth in the same way as considering trauma.

10.4.1 Prospects for growth

If growth is best described in continuous terms it might be asked whether its development is marked by an event or a maturational phase. Or is an event during a particular life-stage or in a certain social context the trigger for positive change? Assistance in answering those questions, and many others in psychology, often relies upon students and positive incentives to encourage their participation. While pragmatic decisions have to be made in order to secure data collection, growth is often depicted as emerging from extreme threats. Extreme threats may be less likely to be found in student groups than in adult groups, especially compared to those at high-risk for traumatic exposure. More may be gained from the participation of those who frequently and willingly confront traumatic events and who are socially organised to allow investigation of emotional reactions alongside

interpersonal relationships. This describes the people and the occupational environment I worked in as a firefighter. As such these contexts were visited in four of the five empirical chapters in this thesis.

10.4.2 Culture

The culture of “brotherhood” has developed to demonstrate that some attitudes and practices observed between firefighters do not exist outside the station, fireground or rescue scene. Some of the features of the culture may influence responses to an empirical test of psychological variables, so familiarity with the culture may prove helpful. Firefighters are often surprisingly uncomfortable when their spouses and partners mix with colleagues as nicknames, war-stories and black-humour would often cause embarrassment and apology at social functions. The language that was part of the culture of fire and rescue work was often ironic and exaggerated, such as in the linguistic juxtaposition of “good” and “bad” in fire and rescue terminology. For example, a “good” job is a likely descriptor for an incident of the most demanding and horrific kind, while a “bad” job is a likely descriptor for an incident of the most mundane and pointless kind. A “nasty” job points to an extreme form of a “good” job where even the technical skills, bravery and success did not compensate for the horror of what was witnessed. Dead children always seemed to find the weak spot in a firefighter’s psychological armour, and so would likely meet the criterion of “nasty”. Lay and academic interpretations of “good” and “bad” may not map accurately onto firefighters’ understandings of “good” and “bad”. The use of the terms “positive” and “negative”, both commonly employed in the growth literature, may prove equally inaccurate and misleading amongst firefighters. In a contribution to a British Psychological Society Working Party

document attention was called to the use by emergency service personnel of “..specific coping and adjustment strategies to modulate reactions to traumatic incidents...” and a call for learning from such high-risk groups (Ørner, Avery, & King, 1999, cited in British Psychological Society, 2002). The development and use of an ironic lexicon in high-stress environments may be one such strategy, and one that has escaped empirical scrutiny in formal research. It has been shown that humorous imagery generated from short word lists was better recalled several months later if it was bizarre, rather than common (Worthen & Deschamps, 2008) and humour has been shown to facilitate coping and adjustment to stressful situations (Bizi, Keinan, & Beit-Hallahmi, 1988; Kuiper & Martin, 1993, Palmer, 1983); this would come as no surprise to most firefighters.

Firefighters referred with pride to their use of “fire-brigade humour” to transform distressing situations into comedic ones. A harrowing account from a distressed firefighter whose story concludes in hilarious fashion may benefit the individual in many ways. Firstly, the positive affect seems to outlive the negative affect associated with the distressing event. Secondly, it gives a test for the effectiveness of others in the team to convey their interest and concern. Thirdly, the account may benefit from the recency-effect of memory; if the end-point of the narrative is laughter its later recall should evoke the positive conclusion rather than its negative unfolding. In keeping with the call of Ørner and his colleagues firefighters were invited to participate in this research. It was hoped that their contribution to this study of social support and growth would, in light of the author’s experience, point to what might have been overlooked in an entirely objective empirical project.

Firefighters are not just exposed to one event that qualifies for the definition of traumatic, but to several – possibly hundreds – in the course of their careers. If there is a single outstanding event to which growth is to be attributed it is likely, according to theory, to be the most distressing, as it would be the one that generated the greatest stimulus for schema revision (Tedeschi & Calhoun, 1995). Asking firefighters to specify their most upsetting incident should indicate the one to which growth can most likely be attributed.

10.5 Growth and trauma

Growth following adversity has been discussed as a psychological construct worthy of academic and research interest. By definition posttraumatic growth requires the experience of an event that is so overwhelming as to cause a “shattering” of assumptions that had previously allowed an individual to believe they could act as if their world was generally predictable and safe. Such shattering of assumptive schema has been proposed to trigger posttraumatic stress and, in its extreme and enduring form, posttraumatic stress disorder (PTSD). As growth and PTSD are now both recognised as possible outcomes of traumatic experience a philosophical tension has been created between them that may be considered from a critical realist perspective where partial and different views may potentially converge to generate more complete understandings of the whole. In this it will be seen that the symmetry that appears between posttraumatic stress and posttraumatic growth, as the negative and positive outcome of trauma, may not be well-founded. There are established literatures that can account for growth following setbacks in life that place no reliance on meeting clinical criteria. The validity of growth and its

apparent co-existence with posttraumatic stress raises questions around the psychosocial candidates that may see growth occur rather than distress.

Specifically, the role of social support in fostering growth, given its buffering role in distress and recovery role in PTSD, has been considered in different forms as a contributor to a positive outcome. It is hoped that what can be identified in the relationships that have emerged can assist in the development of effective clinical techniques for facilitating growth where otherwise trauma threatens long and unpleasant consequences.

If the relationship between social support and growth turns out to be more complex than a cursory reading of the theoretical literature on growth suggests, interacting and previously unmeasured variables will demand consideration. The evolutionary perspective strongly advocates for growth as the likely outcome for life-threatening experience suggesting that what is already known of human development, but missing from discourses on growth, could offer insights into understandings of growth. To assist with that prospect, related fields of psychology were investigated to look for perspectives that may illuminate the growth field where important questions remain unanswered. For example, the cognitive mechanisms first described by Piaget, of assimilation and accommodation, may be helpful (Piaget, 1964/1997). Assimilation explains a resistant cognitive reaction to threat where no growth is likely and accommodation explains the acceptance and expansion of thinking as a reaction to threat, that closely matches descriptions of growth.

In whatever way that growth is described and however common the term becomes, it should not be assumed that self-reported improvements in life out of a tragic situation are in fact true. The veridicality of growth is an issue that remains contentious amongst researchers as evidence has accrued that describes growth in more than one guise. As has been seen, different authors present different views of growth, describing it variously as a momentous turning-point in life's direction, a coping strategy following a specific threat or even a spontaneous leap in development with no apparent trigger.

10.5.1 Social support

Social support is a multi-faceted construct with a large literature that reports and discusses a variety of different models and processes (Pierce, Sarason, & Sarason, 1991; 1996). The number and heterogeneity of scales representing different constructs suggests that the simple question of whether social support facilitates growth may not be straightforward. Choosing the most appropriate instruments from the number that have been published demanded a selectivity that recognises the diversity and complexity of the field. Which type of social support is of interest in growth was theoretically-guided as the role of some types of social support has been observed to exert both direct and indirect effects in reducing subjective distress (Cohen & Wills, 1985). Distress is a theoretical precursor to growth, so distress and its manipulation was of interest to understanding the psychological aftermath of trauma. If certain types of social support reduce distress, and distress triggers growth, social support may be more likely to suppress than facilitate growth. Conversely, if certain types of social support do not reduce distress, or even provoke it, they may be more likely to facilitate growth. Theoretically-led decisions

and findings from a literature review guided the selection of measures in order to determine the starting point for the empirical tests of the relations between social support and growth.

10.5.2 Emotional regulation

Emotional regulation is a key feature of clinical approaches to managing the aftermath of trauma. As the expression of negative emotions is regarded, clinically, as symptomatic of an underlying disorder, attempting to raise affect during treatment is a valid therapeutic aim. However, growth appears more as a consequence of engagement with psychological discrepancies and processes than merely seeking the means to feeling better. As with types of social support and their different effects on distress, some types of emotional regulation may have suppressive rather than facilitative effects on growth. The clearest example would be that of administering medication to a depressed individual and noting an elevation in mood. If the increase in affect is a result of serotonergic stimulation there seems to be little or no psychological engagement of note.

Alternatively, the end-point of effortful rumination on the causes and consequences of being depressed may ultimately lead to a rise in affect, but as a result of successful emotional-processing. In the first case perceived emotional improvements result from neurochemical manipulation while in the second case they result from cognitive schema construction arising from engagement and learning. While engagement with psychological distress seems to be predictive of a positive outcome, avoiding all efforts to raise levels of affect may not be warranted. While distancing or distraction may raise affect it may not be wise to dismiss all

forms of affect promotion as non-growthful. Positive emotional experiences have been shown to facilitate cognitive abilities that suggest there may be a role to play in achieving growth through coping (Tugade, Fredrickson, Felman-Barrett, 2004).

10.5.3 Coping

In the author's experience firefighters did not discuss growth explicitly, possibly because they had little perception of it occurring. However, they did discuss dealing with the horrors of the job as "getting used to it", "hardening" and attending the ritual post-incident "cup of tea around the table" as conscious ways of coping after distressing incidents. If growth did occur, therefore, it did so either subconsciously or privately. Firefighters did, however, discuss trauma as unlike growth there was some awareness and familiarity with it. However, it was a topic that was generally discussed in disparaging terms. A firefighter becoming traumatised, or "losing it" was regarded as a sign of personal weakness or, given the legal implications of being declared to have been injured, financial opportunism, and in some cases both. A diagnosis of PTSD was, therefore, likely to be both dreaded and welcomed by those who became so labelled. It appeared that a single horrific experience could lead to the end of a career, but it also promised receipt of financial benefits in the form of an injury-related pension, and even an opportunity for litigation. Retirement also removed the prospect of further fire- and rescue-related experiences that might trigger symptoms and worsen current PTSD. The effects on the watch of having a colleague medically-discharged with PTSD were numerous. Apart from losing a competent and supportive colleague, a firefighter might wonder what, if someone who was strong and reliable had "got PTSD", were the chances of it happening to anyone else, especially "me"? Another issue would be wondering if

there was any way that members of the watch could have prevented it happening to one of their own or indeed if it was avoidable at all. This begged the question of how best firefighters could protect themselves from the hazards of psychological injury. The diagnosis of PTSD was a mystery, like a virus, with no way to anticipate its visitation and which depended upon experts to identify, explain and advise on ways to treat it. Further, offers to arrange treatment were accompanied by warnings of PTSD's enduring, lifetime quality and the likelihood of "never being the same". PTSD, it seemed, left an emotional scar that did not entirely heal. The expressions of PTSD include distress and unhappiness. Advice to live life in the most comfortable way suggests that some of life's challenges may have to be bypassed. The assumption that challenges in life would somehow become intolerable because of the distress they might cause seems to dictate that distress should be avoided.

10.5.4 Distress

Distress is central to academic and clinical understandings of both posttraumatic stress and posttraumatic growth. However, the interpretation of its presence is seen in the field of stress as evidence of harmful psychopathology (American Psychiatric Association, 2000) and in the field of growth as evidence of benign processing (Tedeschi & Calhoun, 1995; 1998; 2004). Clarifying the role of distress might begin to erode this theoretical anomaly and determine whether the notion of a summative threshold of symptoms is necessary to define an event as "traumatic". If not, then the assumption that "posttraumatic" defines the impact of an experience as having extraordinary consequences that demand clinical expertise may be questioned.

The role of social support in the posttraumatic stress literature is well-established and has been shown to make a unique contribution to the prospect of diagnosis of PTSD (Ozer, Best, Lipsey, & Weiss, 2003). Social support has been shown to exert both direct and indirect effects on stress in a literature that predates PTSD as a mental disorder. Historically, its protective effects on health had been noted by the sociologist Durkheim (1897/1954) and numerous medical authorities who came to appreciate the functional role of the military unit in and following combat (Elder & Clipp, 1988; Miller, 1940).

The field of growth following adversity is a developing one but is not isolated from other psychological disciplines. It follows that other disciplines could already inform current understandings of growth. Growth, as has been discussed, is a contentious term that has not convincingly established itself as an area that is naturally-bounded. Growth, in its various descriptions, relies upon reports of positive psychological changes. Such changes do not occur in a social vacuum, however, and the effects of those we interact with in crisis are likely to make a difference as to how we change. How growth differs from the developmental processes that mark aging, experience and maturity in life also require an explanation.

A common term that permeates the literature on growth is the word *positive* and the implications of *good* that that suggests. If *positive* is a term to reconsider then maybe too is the term *negative* with its implications of *bad*. The introduction of the movement of *positive* psychology implies that there is a *negative* psychology to which it runs counter. The implied negative psychology is reflected in medical ways of thinking of trauma that run through discourses on psychiatry and clinical

psychology and that express illness, disorder and vulnerability. However, positive-negative and good-bad dichotomies may oversimplify what are likely to prove complex psychological processes that can transform harrowing experience into appreciative outlook. Complex processes of change have been demonstrated in personality, developmental and well-being literatures that demand attention (see Chapter 1).

10.5.5 Controlling emotions

Handling distress is a key ability for firefighters working at the scenes of horrific incidents, and this would be important for a number of reasons. Firstly, firefighters have to control their emotions to prevent the hijacking of cognitive resources that are necessary in carrying out rescue attempts. Secondly, demonstrating emotional control engenders confidence in self and others to function despite the aversions and distractions of the situation. Thirdly, a repertoire of emotional responses that includes admitting fear and finding humour shows a benign acceptance of prior incidents that may comfort others who are less experienced, more upset or both.

As was discussed in the opening chapter, personality variables are likely to play an important role, both in reactions to traumatic experience and to the support that is available or enacted afterwards. As a largely homogenous group of individuals with a general propensity towards personal development through helping unfortunate people, and rewarded by the job's self-esteem and social benefits it seems that large personality variations are unlikely. For this reason, and because the burgeoning literature on personality could encumber the main theme of the thesis, personality theory was acknowledged but not explored.

10.6 Integrating fields

A call has been made for an integrative approach to investigating the way that individuals adapt to growth following adversity so as to make best use of what is already known in both fields (Joseph & Linley, 2008). The similarity of the terms “posttraumatic stress” and “posttraumatic growth” may have led to the belief that the aftermath of a traumatic experience is an extraordinary one, rather than a normative developmental step afforded by an unforeseen setback. An extraordinary stress reaction might draw calls for novel research efforts, but an ordinary developmental reaction might draw calls to look at what is already known. What is already known in posttraumatic stress is that resisting and alleviating distress is facilitated by social support. What is assumed, but not known, in the posttraumatic growth literature is that positive transformation out of distress is also facilitated by social support. The prospect of identifying the types of social support that might have a role to play in such transformation was the main drive behind the research in this thesis. As social support is a potent influence in the experience of distress and in the consequences for health and well-being it represents a potential bridge between the stress and growth disciplines that could yet assist movement towards an integrative approach to adaptation.

10.6.1 Social support and harm

The watch, for the firefighter, embodies many of the aspects of what psychologists have described as social support. As the resource, provider and recipient of social support the watch may generate more useful data than is detectable in standardised questionnaires alone. For example, perceptions of social support include assumptions of the ability and willingness of colleagues to help in times of

need. If failure is expected to be compensated by support, support could encourage behaviour that actually sees the actor put themselves, and others, in harm's way. Anticipating support, rather than blame, for being in danger encourages risks to be taken, or at least removes some of the aversion to getting hurt. As the prospect of being harmed is likely to generate distress expectations of social support may, indirectly, raise distress by inflating confidence. Effective social support thereafter may act directly to reduce distress. In such a situation social support can contribute to an increase as well as a decrease, in distress.

However, safety and survival usually prevail so confidence to work in precarious situations probably exposes firefighters to both greater risks and greater support than most. Random events that trigger the psychological shifts associated with trauma and growth are more likely in those who encounter a high number.

10.6.2 Attributing change

As has already been discussed (see Chapter 1) personality and its development has a likely role in how threatening events are perceived and interpreted and whether stress or growth prevails in their aftermath. This chapter also laid out the conceptual and theoretical rationale for the thesis by discussing important philosophical, medical and psychological understandings of trauma as the metaphor by which the cognitive and emotional upheavals of distressing experiences are often described. Trauma has become a robust theme in clinical psychology and psychiatry where both disciplines appear as authorities in managing its negative psychological consequences. The emergence of negative changes relies upon a medical explanation of cause and effect. As symptoms emerge only when a

distressing event occurs the event is assumed to be the cause. The onset and persistence of intrusive, avoidant and distressing changes thereafter are, according to medical logic, the effect. Having psychologists turn their attention to positive psychological changes following trauma has the potential to advance understandings of human functioning that may have applications in many fields of human health and endeavour.

The clinical field, despite its expertise in managing negative psychological consequences, stands to gain much from understanding growth and its facilitating conditions given the limitations of prescriptive therapeutic efforts, especially drugs, to treat psychological trauma. If social conditions can be identified that promote growth then their creation may be sufficient for individuals to develop resources within themselves to not only recover, but to thrive (Abraído-Lanza, Guier, & Colón, 1998). Success may find collective individuals' growth to then be at the disposal of groups and communities that generate, rather than demand, social and economic resources to overcome setbacks in life. They may demonstrate to the authorities in trauma what the potential is for survival where relational, rather than technical, innovation is allowed to flourish.

10.6.3 Coping complexities

Folkman and Lazarus (1986) describe primary and secondary appraisals as those of an individual's cognitive processes that occur throughout the changing environmental and social demands of a stressful situation. Primary appraisals reflect what is at stake in the encounter and secondary appraisals reflect the choice of options on how to respond in order to cope. Each year a firefighter would expect

to attend a number of fatalities, a greater number of serious injuries and a majority of trivial incidents and false-alarms. Most incidents demanded more patience than urgency and dealing with boredom seems a common problem. Suddenly being thrust into a building fire or road crash that demanded more resources than were available at the scene meant rapid assessments and priorities had to be made that could determine who lived and who died. In the minutes it would take for assistance to arrive the first crew had to cope as best they could.

10.6.4 Social complexities

The status that a firefighter perceived that they had on the watch has already been discussed in terms of upward- and downward-comparisons. In a time of boredom those who were able to lift the mood, encourage laughter or sporting activity might attain some status through popularity especially where they motivated others to join in and enjoy themselves. However, at a time of excessive demand a more complex set of challenges was likely. Urgent instructions could be misheard and misunderstood, firefighters could disagree, police and ambulance crews could interfere and onlookers get involved. At best the first crew to arrive would stop the situation from getting worse. Thereafter, what went well and what did not was assessed in a self-focussed and largely subjective manner. More objective judgements came from the members of the crew, those who were there shouting, manipulating, observing and remaining determined to keep on until hope was gone. How each incident, and the accumulation, was accommodated psychologically seemed to depend on the answers to two private questions. Firstly, there was the subjective assessment of "Could I have done any better?" Secondly, were the reactions of the more experienced members and the answer to the question "Do

they think I could have done any better?" These were private appraisals that were inferred by others' reactions to them rather than by direct questioning. In terms of secondary appraisals, such as deciding on the coping options available, that was much more of a group, or social, decision.

With increasing experience, and coping success, the emphasis moved from seeking others' opinions to having others seek yours. In this way experience honed the evolution of practices that maintained "saving life" as the firefighter's priority. In the way that performance was assessed, firstly as a seeker, and then later as a provider, so too was the emotional support of colleagues. The difficult situations encountered in the early operational days meant that support was likely to be sought by the individual, not provided. With experience many difficult situations had been dealt with so support was likely to be provided by the individual, not sought. Over time, therefore, the watch would become a resource of reciprocating social support provision and utilisation. The perceptions of support availability and the experience of its receipt closely approximated the perception of whether you were on a good watch, or a bad one. To capture, empirically, the social interactions that facilitate positive psychological outcomes for those frequently exposed to highly distressing situations, could allow a step forward in theory development.

10.6.5 Social support in action

Despite the social complexities of employment in fire and rescue work, addressing the emotional aftermath of an incident seemed to be accomplished in one of two ways. Either it was talked about or it wasn't. Talking in the group was usually detailed and inclusive and would end on a relatively positive emotional note with

explanations, justifications and clearer understandings of what had occurred.

Finding appreciation from experienced peers could allay self-doubt and confirm the trust the team had in an individual and their ability to act effectively in the team.

Throughout such discussion upward and downward social comparisons could be made, privately calculated and logged to allow an assessment of social status on the watch. The seriousness of the incident just attended did not preclude discussion but could change the emphasis from one of confirming status to finding relief. The social support necessary after a “bread and butter” incident was evident in habitual ways of meeting over a cup of tea, speculating on cause and finding something amusing to say about the job. However, the social support enacted after a novel incident, such as after witnessing a colleague being injured, would probably be improvised as the familiar cues for initiating the usual social response may be absent. In turn, the possibility of mistiming or misdirecting assistance may increase and place greater reliance upon personal coping abilities and other sources of support. The death of a colleague, for example, may present a particularly difficult social encounter amongst the survivors, all of whom are likely to feel some degree of self-blame for failing to protect their friend. For those who were present at the fatal incident, the situation is likely, in current psychiatric, clinical and medico-legal understandings, to be described as traumatic.

As can be seen by the author’s examples the events that appear to trigger significant psychological changes are numerous, varied and only apparent with hindsight. So it is with the author’s hindsight that the salient variables and processes were sought from within the theoretical literature. It was hoped that

identification would prove successful, and once complete, present a well-designed test of those variables expected to confirm the theoretical strength of earlier researchers' thinking about the role of social support in facilitating growth.

While it is to that end that this thesis was drawn there appears an additional complexity to coping, one that lies outside the social bounds of the watch. There are areas of expertise that have become authoritative about the kinds of experiences that people find traumatic and seemingly generalised them with little to indicate that traumatic events are what firefighters thrive on. One example of such imposing authority is that demonstrated by the disciplines of psychiatry and clinical psychology. Despite their claims for expertise and understanding they are not alone in offering authoritative explanations of psychological reactions to traumatic events. They are alone, however, in describing distress as evidence of harm and injury.

10.7 Summary

This chapter began with the author's own recollections and interpretations of some psychological reactions to incidents encountered in the field of fire and rescue work. These accounts described how firefighters might gain psychological benefits from events that others, especially experts in mental-health, may interpret as traumatic. These benefits are both personal and social. At the personal level the desire for, rather than resistance to, personal change has been discussed. The uncertain and challenging environments encountered during fire and rescue operations often saw individuals involved in situations that demanded determination and flexibility whilst striving to save a life and then finding

acceptance of its loss. Socially then, it was important to find ways to comfort and nurture those whose failures undermined their confidence in themselves, their equipment or their colleagues.

The value of having supportive others available to assist with some of the extreme cognitive and emotional demands of fire and rescue work was emphasised by the impact of losing one of the team. Deaths of firefighters appear to be events that are most likely to be interpreted as traumatic, but even that, as was evident on White Watch, does not predict emotional collapse. It seems likely then that resistance to collapse may be largely social, and that membership of a trusted network that inspires effort, optimism and a collectively moral work ethic may contribute to well-being.

10.8 Methodological enquiry

Phenomenologically, the author's firefighting experience was unique and so like no other. It may be argued, somewhat convincingly, that only a qualitative account that drew on subjective understandings of that experience could meet the needs of a project that sought to find the social facilitators of growth. However, aspects of the experience were observable, measurable and generalisable and so could lend themselves to an empirical endeavour through a positivist methodology. This is the dominant methodology in the growth literature so findings in this thesis should be relevant to the wider field and so contribute to the advance of knowledge that may assist in finding clinical applications. Importantly, however, the fall and subsequent injury is acknowledged to be only one experience of several during years of

involvement at scenes of death and injury that could all meet the situational criterion for PTSD (American Psychiatric Association, 2000). Using firefighters as participants in the scientific investigation of the psychological phenomena of surviving horrific experiences, therefore, allows an ostensibly objective endeavour that is shaped by the author's own lived experience. Some participants may have suppressed their emotional reactions in order to cope and some will have more than one incident to suppress. Encouraging such people to participate in this research was probably easier through an appeal to the common history and "brotherhood" that other researchers could not make. Also, there are novel uses of language that might lead to confusion. The semantic juxtaposition of "good" and "bad" discussed above may deceive the culturally-naïve researcher into acceptance of emotional valence without seeking clarification. It is hoped, therefore, that generalisations from studies can be best understood by a phenomenological interpretation that guards against technical, linguistic and statistical expressions being uncritically accepted.

In the positivist framework that the studies in this thesis were undertaken variables require theoretical justification for their selection. This is more than a pragmatic decision, however, as the methodology emerges from the philosophical viewpoint that there is a reality that is being caused in the hypothesised sequence that event 'A' leads to event 'B', or in this thesis, that social support leads to growth. However, the complexity of personal and environmental factors, relative to laboratory-based science, has been used as an objection to a positive methodology in social scientific research (Bolton, 2008). The phenomenological experiences of the author may also

suggest too great a complexity for finding an explanation in a solely positivist framework. However, rather than ignore potentially complicating factors they may be sought out and considered from a critical realist perspective to find alternative interpretations for claims of validity and change.

10.8.1 Critical realism

Critical realism describes a philosophical appreciation of the partial truths and insights that various disciplines and schools-of-thought speak of with regard to views of reality (Bhaskar, 1978). In the way that the Sufi parable of blind men presenting their impressions of the parts of an elephant to one another with little appreciation of the whole, critical realism accepts that while all tell a truth there may be no single or ultimate truth to depict the object of attention. Critical realism invites an acknowledgement of the reality of objects, people, structures and events as a starting point for analysis. Then, relying on prior theory, it seeks to identify the causal influences of generative mechanisms (Connelly, 2001). Generative mechanisms are those that continue to produce current descriptions of reality but that operate without challenge or critique. In a claim that “things get done this way because that’s the way they’ve always been done” the critical realist would likely see a generative mechanism for a particular reality. For example, if the statement maintained a hierarchical *status quo* then the critical realist may be drawn to seek the cause of its perpetuation. For example, it may find in favour of professional self-interest, difficulty coping with change or of continuing exploitation.

Importantly then, critical realism is not an objective approach that would claim, as a positivist approach would, to be a disinterested and, as far as it can be, an unbiased

one. What critical realism does is to uphold the ethical principle that motivates political action in favour of enlightenment, equality and social justice (Connelly, 2001). This is attempted by seeking to unearth and expose the generative mechanisms that may, in the absence of outside attention and enquiry, continue to work in favour of, for example, an exploitative or authoritarian elite.

Pertinent to this perspective and this thesis are the alternative discourses of trauma that exist in addition to those explained by the medical model of psychiatry and clinical psychology. Despite alternatives clinical wisdom currently demands only those treatment approaches that have met the seemingly scientific criterion of the randomised control trial (National Collaborating Centre for Mental Health, 2005). The failure to submit alternatives to the same criterion denies those alternatives the possibility of being conferred with the label of “evidence-based”. However, while traumatic experience is assumed to trigger clinical reactions it is clear that positive outcomes are at least as likely, if not more likely, than negative outcomes. The term “evidence-based” might find the attention of the critical realist who may be concerned that a professional elite was being served by the term whilst others, and the people who might benefit, were undermined by it.

Seeking alternative approaches to compare with the medical model may broaden enquiry. While it might be asked not only what truths the alternatives could bring, a complementary question might be to ask what truths the medical model could deny. The assumption that distress is a symptom of harm that demands treatment overlooks the possibility that distress has a positive role to play in psychological adjustment to trauma. If non-medical approaches to trauma can show a positive

role for distress an important oversight in the medical perspective may be exposed. While distress is a hallmark of psychopathology from the medical perspective, its appearance as a springboard or turning-point for positive change is almost oppositional, in theory. Satisfying this disparity demands attention, especially if the emergence of “trauma” is indeed a generative mechanism that is dictating reality without challenge.

10.9 Conclusion

The thesis took root in the naive musings of the author as a young firefighter attempting to cope with the stressors of fire and rescue work. The job was often unpleasant but was nevertheless attractive for its variety, societal value and personal development. Some fatal incidents had a numbing, confusing effect that would find resolution in the company of the more experienced members of the watch. Death and serious injury were unlikely to leave the firefighter unchanged even when it was clear that resolution had occurred. Resolution, therefore, was more than reduced stress and a return to normal. It seemed to register an increase in those areas of psychological experience that would currently be described as growth. The social context for growth, therefore, became of primary interest. If emotional upset could initiate personal growth simply through others' concern, wisdom and outrageous humour it was bound to be considerable theoretical and personal interest. With established theoretical foundations, several reliable measurement scales of social support and growth, and the agreement of two fire brigades to participate, the decision taken to pursue an empirical thesis was made.

The decision to pursue an empirical thesis did not occur without consideration of

alternative methodologies, however. Those who call for an interpretivist methodology would doubt the wisdom of applying the logic of the natural sciences, as this thesis does, to the complexities of the social world. Critical realism was adopted to review the philosophical aspects of the field by seeking to identify the limits and distortions of any truth that is assumed or revealed in a research project. For example, the use of the adjective "posttraumatic" relies upon the medical term "trauma" which implies that what follows the triggering event has a medical explanation. The employment of psychiatrists to diagnose and label the nervous survivor with "posttraumatic" stress disorder supports that view. That lawyers can succeed in claiming financial damages from those held responsible for the event adds more professional weight to the idea that a real injury has occurred. Having the subsequent negative emotions relieved through therapy and medication can confirm the impression that indeed something subjectively harmful happened that was treated and cured. That a medical metaphor can become a physical reality seems likely to be described as a generative mechanism by the critical realist.

Deciding whether treatment for disorder has been successful seems to rely on the observation that the victim feels better. Feeling better, it will be recalled, is a matter of raising subjective well-being (SWB). Although raised SWB may be a consequence of growth, growth is more closely related to psychological well-being (PWB) (see Chapter 3). That PWB is a eudaimonic phenomenon suggests that feeling better is largely irrelevant to the personal changes that describe growth. And if the growth that the author perceived in himself as a firefighter, and in most of his colleagues, was fostered in the social environment of the watch, growth

depended on the negative emotions that saw the support of others enacted. The same negative emotions that triggered support in the fire station would be those that the clinician would seek to relieve in order to make the individual feel better. Clinical treatment then, may bypass the psychosocial mechanisms and processes that would see growth emerge, again demonstrating a bias favouring SWB over PWB. If this exposes a professional advantage to treating distress in a particular way, this would be another point of interest to the critical realist.

Overarching theories of human development are to be found in evolutionary psychology where generally they discuss the overall progress of humanity in the face of threats to the species over the course of history. Of particular interest to this thesis is the evolutionary success that has been attributed to belonging to a social group (e.g., Baumeister & Leary, 1995) and the expectation that traumatic experience is likely to see growth emerge in its aftermath (e.g., Christopher, 2004).

Despite the limitations of a positivist project in a social investigation these theoretically grounded themes of social support and growth offered clear direction to the thesis. The availability of published, reliable instruments to measure social support and growth kept the focus on established constructs, processes and psychological theory. In this way the methodology was justified despite the concerns that complexity in social relationships defies such an endeavour.

It is hoped that in continuing to refine the methodological approaches to studying the psychosocial factors that facilitate growth this thesis may become a bridge for others to cross. It seems that academic and research psychologists have much to gain from psychosocial research with groups routinely exposed to trauma and those

groups may gain from psychology through hearing realistic explanations that reflect and validate their experience. Until that happens medically-minded warnings of disorder and indefinite treatment are all that are available to inform those who work, sometimes at great physical and mental risk, in the service of others. If, as an integrated theoretical perspective suggests, growth is a likely outcome from adversity the social context that promotes it should be understood and described to those who stand to benefit. If adversity represents a weight that has to be lifted to allow growth to emerge, how we best do it is likely to depend upon those around us and how they assist. Finding “how best” is the challenge for the work that follows this thesis.

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Appendices

- Appendix 1 Questionnaire pack for Chapter 3**
- Appendix 2 Growth measures reported in Chapter 4**
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Appendix 1

Questionnaire pack for Chapter 3

This questionnaire pack is presented in the way it would have been received by participants.

The ordering of the questionnaires is as follows:

Positive and Negative Affect Scale

Satisfaction with Life Scale

Psychological Well-Being Scales

Stressful Experience information

Impact of Event Scale

Changes in Outlook Questionnaire

Posttraumatic Growth Inventory

Demographic Information

PANAS

*This scale consists of a number of words that describe different feelings and emotions. Please read each word and then write the appropriate number in the space next to that word. Please indicate to what extent you have felt this way **during the past week**. Please use the following scale to record your answers.*

1 <i>very slightly or not at all</i>	2 <i>a little</i>	3 <i>moderately</i>	4 <i>quite a bit</i>	5 <i>extremely</i>
1. ____ Interested			2. ____ Irritable	
3. ____ Distressed			4. ____ Alert	
5. ____ Excited			6. ____ Ashamed	
7. ____ Upset			8. ____ Inspired	
9. ____ Strong			10. ____ Nervous	
11. ____ Guilty			12. ____ Determined	
13. ____ Scared			14. ____ Attentive	
15. ____ Hostile			16. ____ Jittery	
17. ____ Enthusiastic			18. ____ Active	
19. ____ Proud			20. ____ Afraid	

SWLS

Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding. The 7-point scale is:

- 1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = neither agree nor disagree
5 = slightly agree
6 = agree
7 = strongly agree

1.	In most ways my life is close to ideal	1	2	3	4	5	6	7
2.	The conditions of my life are excellent	1	2	3	4	5	6	7
3.	I am satisfied with my life	1	2	3	4	5	6	7
4.	So far I have gotten the important things I want in life	1	2	3	4	5	6	7
5.	If I could live my life over, I would change almost nothing	1	2	3	4	5	6	7

PWB

The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.

Circle the number that best describes your present agreement or disagreement with each statement.	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1. Most people see me as loving and affectionate.	1	2	3	4	5	6
2. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.	1	2	3	4	5	6
3. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
4. I am not interested in activities that will expand my horizons.	1	2	3	4	5	6
5. I live one day at a time and don't really think about in the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
8. My decision are not usually influenced by what everyone else is doing.	1	2	3	4	5	6
9. The demands of everyday life often get me down.	1	2	3	4	5	6
10. I don't want to try new ways of doing things – my life is fine the way it is.	1	2	3	4	5	6
11. I tend to focus on the present, because the future nearly always brings me problems.	1	2	3	4	5	6
12. In general, I feel confident and positive about myself.	1	2	3	4	5	6
13. I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6
14. I tend to worry about what other people think of me.	1	2	3	4	5	6

Circle the number that best describes your present agreement or disagreement with each statement.	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
15. I do not fit very well with the people and community around me.	1	2	3	4	5	6
16. I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
17. My daily activities often seem trivial and unimportant to me.	1	2	3	4	5	6
18. I feel like many of the people I know have gotten more out of life than I have.	1	2	3	4	5	6
19. I enjoy personal and mutual conversations with family members or friends	1	2	3	4	5	6
20. Being happy with myself is more important to me than having others approve of me.	1	2	3	4	5	6
21. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
22. When I think about it, I haven't really improved much as a person over the years.	1	2	3	4	5	6
23. I don't have a good sense of what it is I'm trying to accomplish in life.	1	2	3	4	5	6
24. I like most aspects of my personality.	1	2	3	4	5	6
25. I don't have many people who want to listen when I talk.	1	2	3	4	5	6
26. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
27. I often feel overwhelmed by my responsibilities.	1	2	3	4	5	6
28. I have the sense that I have developed a lot as a person over time.	1	2	3	4	5	6
29. I used to set goals for myself, but that now seems like a waste of time.	1	2	3	4	5	6

Circle the number that best describes your present agreement or disagreement with each statement.	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
30. I made some mistakes in the past, but I feel that all in all everything has worked out for the best.	1	2	3	4	5	6
31. It seems to me that most other people have more friends than I do.	1	2	3	4	5	6
32. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
33. I generally do a good job of taking care of my personal finances and affairs.	1	2	3	4	5	6
34. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5	6
35. I enjoy making plans for the future and working to make them a reality.	1	2	3	4	5	6
36. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6
37. People would describe me as a giving person, willing to share my time with others	1	2	3	4	5	6
38. It's difficult for me to voice my own opinions on controversial matters.	1	2	3	4	5	6
39. I am good at juggling my time so that I can fit everything in that needs to be done.	1	2	3	4	5	6
40. For me, life has been a continuous process of learning, changing and growing.	1	2	3	4	5	6
41. I am an active person in carrying out the plans I set for myself.	1	2	3	4	5	6
42. My attitude about myself is probably not as positive as most people feel about themselves.	1	2	3	4	5	6
43. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
44. I often change my mind about decisions if my friends or family disagree.	1	2	3	4	5	6

Circle the number that best describes your present agreement or disagreement with each statement.	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
45. I have difficulty arranging my life in a way that is satisfying to me.	1	2	3	4	5	6
46. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
47. Some people wander aimlessly through life, but I am one of them.	1	2	3	4	5	6
48. The past had its ups and downs, but in general, I wouldn't want to change it.	1	2	3	4	5	6
49. I know that I can trust my friends, and they know they can trust me.	1	2	3	4	5	6
50. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
51. I have been able to build a home and a lifestyle for myself that is much to my liking.	1	2	3	4	5	6
52. There is truth to the saying that you can't teach an old dog new tricks.	1	2	3	4	5	6
53. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
54. When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5	6

STRESSFUL INCIDENT

Recall an upsetting incident that has happened to you, or that you witnessed, and that made you question the way you look at life. Consider something that has happened in the last year, or if earlier, the most stressful thing that has happened to you.

When did this happen? _____

What happened? (no detailed description is necessary)

IES

Below is a list of comments made by people after stressful events. Please think about your stressful event. Then please check each item, indicating how frequently these comments were true for you during the past seven days. If they did not occur during that time, please circle "not at all".

	0	1	2	3
	not at all	rarely	sometimes	often
1. I thought about it when I didn't mean to	0	1	2	3
2. I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3
3. I tried to remove it from memory	0	1	2	3
4. I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my head	0	1	2	3
5. I had waves of strong feelings about it	0	1	2	3
6. I had dreams about it	0	1	2	3
7. I stayed away from reminders of it	0	1	2	3
8. I felt as if it hadn't happened or it wasn't real	0	1	2	3
9. I tried not to talk about it	0	1	2	3
10. Pictures about it popped into my mind	0	1	2	3
11. Other things kept making me think about it	0	1	2	3
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3
13. I tried not to think about it	0	1	2	3
14. Any reminder brought back feelings about it	0	1	2	3
15. My feelings about it were kind of numb	0	1	2	3

CIOQ

Below are printed some statements about your current thoughts and feelings following your stressful event. Please read each one and indicate, by circling one of the numbers beside each statement, how much you agree or disagree with it at the present time, using the following scale.

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
1 I don't look forward to the future anymore	1	2	3	4	5	6
2 My life has no meaning anymore	1	2	3	4	5	6
3 I no longer feel able to cope with things	1	2	3	4	5	6
4 I don't take life for granted anymore	1	2	3	4	5	6
5 I value my relationships much more now	1	2	3	4	5	6
6 I feel more experienced about life now	1	2	3	4	5	6
7 I do not worry about death at all anymore	1	2	3	4	5	6
8 I live every day to the full now	1	2	3	4	5	6
9 I fear death very much now	1	2	3	4	5	6
10 I look upon each day as a bonus	1	2	3	4	5	6
11 I feel as if something bad is just waiting around the corner to happen	1	2	3	4	5	6
12 I am a more understanding and tolerant person now	1	2	3	4	5	6
13 I have a greater faith in human nature now	1	2	3	4	5	6
14 I no longer take people or things for granted	1	2	3	4	5	6
15 I desperately wish I could turn the clock back to before it happened	1	2	3	4	5	6
16 I sometimes think it's not worth being a good person	1	2	3	4	5	6
17 I have very little trust in other people now	1	2	3	4	5	6

	1	2	3	4	5	6			
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree			
18 I feel very much as if I'm in limbo				1	2	3	4	5	6
19 I have very little trust in myself now				1	2	3	4	5	6
20 I feel harder towards people				1	2	3	4	5	6
21 I am less tolerant of others now				1	2	3	4	5	6
22. I am much less able to communicate with other people				1	2	3	4	5	6
23 I am less tolerant of others now				1	2	3	4	5	6
24 I am more determined to succeed in life now				1	2	3	4	5	6
25 Nothing makes me happy anymore				1	2	3	4	5	6
26 I feel as if I'm dead from the neck downwards				1	2	3	4	5	6

PTGI

We are interested in how you think you have changed after the event you described. Below are a number of statements that may or may not be representative of how you think you have changed. Please read each statement carefully and circle the number that best describes how you feel. People react to events in many different ways.

0 = I did not change as a result of the event I described

1 = I changed to a **very small degree as a result of the event I described**

2 = I changed to a **small degree as a result of the event I described**

3 = I changed to a **moderate degree as a result of the event I described**

4 = I changed to a **great degree as a result of the event I described**

5 = I changed to a **very great degree as a result of the event I described**

1. My priorities about what is important in life	0	1	2	3	4	5
2. An appreciation for the value of my own life	0	1	2	3	4	5
3. I developed new interests	0	1	2	3	4	5
4. A feeling of self reliance	0	1	2	3	4	5
5. A better understanding of spiritual matters	0	1	2	3	4	5
6. Knowing that I can count on people in times of trouble	0	1	2	3	4	5
7. I established a new path for my life	0	1	2	3	4	5
8. A sense of closeness with others	0	1	2	3	4	5
9. A willingness to express my emotions	0	1	2	3	4	5
10. Knowing I can handle difficulties	0	1	2	3	4	5
11. I'm able to do better things with my life	0	1	2	3	4	5
12. Being able to accept the way things work out	0	1	2	3	4	5
13. Appreciating each day	0	1	2	3	4	5
14. New opportunities are available which wouldn't have been otherwise	0	1	2	3	4	5
15. Having compassion for others	0	1	2	3	4	5
16. Putting effort into my relationships	0	1	2	3	4	5

17. I'm more likely to change things which need changing	0	1	2	3	4	5
18. I have a stronger religious faith	0	1	2	3	4	5
19. I discovered that I'm stronger than I thought I was	0	1	2	3	4	5
20. I learned a great deal about how wonderful people are	0	1	2	3	4	5
21. I accept needing others	0	1	2	3	4	5

Demographic Information

Please provide some personal details below. This information will be treated in the strictest confidence and used solely for the purposes of the research.

Personal

Name: _____ Date of Birth: _____

Sex: Male ___ Female ___ Age: ___ years

Current Relationship Status

Single / Never Married ___ Married / living as married ___ Separated ___
Divorced ___ Widowed ___ Other ___

Ethnic Origin

White British	__	White Irish	__	White Other	__
Black African Caribbean	__	Black African	__	Black Other	__
Asian Indian	__	Asian Pakistani	__	Asian Bangladeshi	__
Asian Other	__	Chinese	__		
Other Ethnic Group (please specify) _____					

Educational Level (please indicate highest qualification)

O-level / GCSE	__	High school / A-level	__	Bachelor's Degree	__
Master's degree	__	Doctoral degree	__	Professional / Vocational	__
Other __ (please describe): _____					

Appendix 2

Growth measures reported in Chapter 4

Summary of Growth Measures Used in Review Studies

Scale	Author	Construct	Example items	Response Format	Reliability	Population
Benefit-Finding	Mohr, Dick, Russo, Pinn, Boudewyn, Likosky & Goodkin (1999)	Benefit-finding	"MS has made me appreciate life more"	19 items. 5-point -scale: 1 = <i>strongly disagree</i> ; 5 = <i>strongly agree</i>	$\alpha = .84-.90$	Adults with multiple sclerosis
Benefit-Finding Scale (BFS)	Antoni, Lehman, Kilbourn et al. (2001)	Aspects of positive change due to experience of serious illness	"Having had breast cancer has..." followed by a perceived benefit of having cancer.	5-point -scale: 1 = <i>not at all</i> ; 5 = <i>extremely</i>	$\alpha = .95$	Women with breast cancer
BFS (modified)	Luszczynska, Sarkar & Knoll	Perceived benefits of diagnosis and	"Having had HIV has led me to be more	17 items: 5-point scale: 1 = <i>not at</i>		HIV patients

(2007)	treatment	accepting of things"	all; 5 = extremely	$\alpha = .83$	
Luszczynska, Mohamed & Schwarzer (2005)	Perceived benefits of diagnosis and treatment:	"Having had cancer..."	17 items: 5- point scale: 1 = not at all; 5 = extremely		Cancer patients
	Acceptance of Life Imperfection (ALI);	ALL: ".has led me to be more accepting of things"		BFS subscales: ALL: $\alpha = .84$	
	Personal Growth (PG);	PG: ".has contributed to my overall emotional and spiritual growth"		PG: $\alpha = .75$	
	Positive Changes in Family Relationships (CFR);	CFR: ".has brought my family together"		CFR: $\alpha = .67$	
	Increased Sensitivity toward Other People (ISO).	ISO: ".has helped me realize who my true friends are"		ISO: $\alpha = .56$	

Changes in Outlook Questionnaire (CiOQ)	Joseph, Williams & Yule (1993)	Changes in Outlook: Positive (CiOP); Negative (CiON)	CiOP: <i>"I live every day to the full now"</i> CiON: <i>"My life has no meaning anymore"</i>	5-point - scale: 1 = <i>strongly disagree</i> ; 6 = <i>strongly agree</i>	CiOP: $\alpha = .83$ CiON: $\alpha = .90$	Adult survivors of fatal ship-sinking
Hogan Grief Reaction Checklist (HGRC)	Hogan, Greenfield & Schmidt (2001)	Grief to Personal Growth: Personal growth (subscale)	<i>"Compassion for others"</i>	5-point - scale: 1 = <i>does not describe me at all</i> ; 5 = <i>describes me very well</i>	$\alpha = .90$	Bereaved adults
Perceived Benefits Scale (PBS)	McMillen & Fisher, (1998)	Perceived Benefits: Enhanced Self-efficacy (ESE); Increased Community Closeness (ICC); Increased Spirituality (IS); Increased Compassion	ESE: <i>"This event made me a stronger person"</i> ICC: <i>"Because of this event, I feel more a part of this community"</i> IS: <i>"Because of this event, I have a greater faith in God"</i> IC: <i>"Because of this event, I am more understanding of those in need"</i> IFP: <i>"Because of this event, I learned how</i>	38 items. 5-point -scale: 0 = <i>not at all like my experience</i> ; 4 = <i>very much like my experience</i>	PBS subscales: ESE: $\alpha = .88$ ICC: $\alpha = .85$ IS: $\alpha = .93$ IC: $\alpha = .84$ IFP: $\alpha = .87$ LC: $\alpha = .73$	Adults, community sample

Positive Life Change (PLC)	(IC); Increased Faith in People (IFP); Lifestyle Changes (LC); Enhanced Family Closeness (EFC); Material Gain (MG) ^a	good people can be” LC: “As a result of this event, I live more for the moment” EFC: “As result of this event, I learned that my family loves me” MG: “I gained financially as a result of this event”	EFC: $\alpha = .81$ MG: $\alpha = .74$	Women following sexual assault
	Positive Life Change: Self; Relationships; Life Philosophy (spirituality); Empathy	Self: “My ability to take care of myself”; Relationships: “My relationships with family”; Life Philosophy (spirituality) “My sense of purpose in life”; Empathy: “My concern for others in a similar situation”	$\alpha = .92$	
		5-point scale: 1 = much worse now; 5 = much better now		
Posttraumatic Growth Inventory (PTGI)	Posttraumatic Growth: Relating to Others (RO); New Possibilities (NP); Personal Strength (PS);	RO: “A sense of closeness with others” NP: “I established a new path for my life” PS: “Knowing I can handle difficulties” SC: “A better understanding of spiritual matters”	PTGI: $\alpha = .90$ RO: $\alpha = .85$ NP: $\alpha = .84$ PS: $\alpha = .72$ SC: $\alpha = .85$	College students
			6-point scale: 0 = I did not experience this change; 5 = I experienced this change	

Posttraumatic Growth Inventory for Children (PTGI-C)	Cryder, Kilmer, Tedeschi & Calhoun, (2006)	Posttraumatic Growth	AL: “ <i>I learned that life is important</i> ”	to a very great degree	AL: $\alpha = .67$	Children
Posttraumatic Growth	Cryder, Kilmer, Tedeschi & Calhoun, (2006)	Posttraumatic Growth	“ <i>I learned that life is important</i> ”	4-point scale: 1-4; higher scores reflect more growth	$\alpha = .89$	Children
Psychological Thriving Scale (PTS)	Abraído-Lanza, Guier & Colón (1998)	Psychological thriving	Selected items from SRGS and PTGI (some modified) plus “ <i>My relationship with my family is more meaningful</i> ” and “ <i>I learned to be more patient</i> ”	5-point - scale: 0-4; higher scores reflect greater benefit	$\alpha = .92$	Latina women in poverty with arthritis
Siegels & Schrimshaw	Siegels & Schrimshaw			24 items. 5-point scale: 0 = <i>this has not happened to</i>		Women with HIV/AIDS

(2007); Siegel, Schrimshaw & Pretter (2005)		me; 4 = a great deal		$\alpha = .92$	
Psychological Well-Being Scales (PWBS)	Ryff (1989)	Psychological Well-Being: Autonomy (AU); Positive Relations with Others (PR); Environmental Mastery (EM); Purpose in Life (PL); Personal Growth (PG); Self-acceptance (SA)	AU: "I have confidence in my opinions, even if they are contrary to the general consensus" PR: "People would describe me as a giving person, willing to share my time with others" EM: "In general, I feel I am in charge of the situation in which I live" PL: "Some people wander aimlessly through life, but I am not one of them" PG: "For me life has been a continuous process of learning, changing and growing" SA: "I like most aspects of my personality"	6-point scale: 1 = strongly disagree; 6 = strongly agree	^b AU: $\alpha = .81$ PR: $\alpha = .80$ EM: $\alpha = .78$ PL: $\alpha = .81$ PG: $\alpha = .72$ SA: $\alpha = .81$ Adult community residents
Stress-Related Growth Scale	Park, Cohen & Murch (1996)	Stress-related Growth	"I learned that I was stronger than I thought"	3-point scale:	$\alpha = .95$ College students

(SRGS)

0 = not at
all; 1 =
somewhat;
2 =
somewhat;
3 = a great
deal

^a = subscale of *material gain* not used in review studies

^b = All α s reported by van Dierendonck (2005)

Appendix 3

Social Support measures reported in Chapter 4

Summary of Social Support Measures Used in Review Studies

Scale	Author	Construct	Example items	Response Format	Reliability	Population
Perceived Social Support						
ENRICHD Social Support Instrument (ESSI)	ENRICHD (2001)	Perceived social support	<i>"Is there someone available to you whom you can count on to listen to you when you need to talk?"</i>	Six items: 5-point scale: 1 = none of the time; 5 = all of the time	$\alpha = .86$	ESSI derived from several previously published measures of perceived social support
Interpersonal Support						
Evaluation List – Short Form (ISEL-SF)	Pierce, Frone, Russell & Cooper (1996)	Perceived social support: Tangible, Appraisal and Belonging Support	Tangible: <i>"If I needed help moving, I would be able to find someone to help"</i> Appraisal: <i>"There is at least one person I know whose advice I really trust"</i> Belonging: <i>"I am usually invited to do things with others"</i>	15 items. 4-point scale: 1 = completely false; 4 = completely true	$\alpha = .83$	Adult community residents

Inventory of Social Support (ISS)	Hogan & Schmidt (2002)	Perceived availability of at least one person	<i>"People take the time to listen to how I feel"</i>	Five items. 5-point -scale: 1 = <i>does not describe me at all</i> ; 5 = <i>describes me very well</i>	$\alpha = .76$	Bereaved parents
Inventory of Social Support for children (ISS-C)	Hogan & Schmidt (2002) modified by Cryder et al. (2006) into two parts.	Perceived availability of emotional comfort (Part 1) and number of supportive others (Part 2).	Part 1: Perceived social support experienced.	Part 1: 4-point - scale: higher scores reflect more perceived support	Part 1: $\alpha = .43$	Study's authors
Louisville Social Support Scale	Kaniasty & Norris, (1993);	Perceived social	Part 2: Those who validate feelings and express understanding	Part 2: number of supportive others (up to 10)	Part 2: $\alpha = .85$	Adults aged 55 and over
			LSSS: <i>"If everything went badly, how many people could you turn</i>		LSSS: $\alpha = .82$	

(LSSS)	Norris & Murrell (1987)	support	to for real comfort and support?"			
	Sattler, de Alvaro, de Castro, van Male, Zetino & Vega (2006)			Eight items. 4- point scale: 1 = not at all; 4 = quite a bit	Students and community adults	
Medical Outcomes Study (MOS)	Sherborne & Stewart (1991)	Perceived availability of functional social support	"Someone to confide in or talk to about yourself or your problems"	Eight items. 5-point scale: 1 = none of the time; all of the time	Adults with chronic medical conditions	$\alpha = .97$
Multidimension al Scale of Perceived Social Support (MSPSS)	Zimet, Dahlem, Zimet & Farley (1988)	Perceived social support from Family (FAM), Friends (FRN) and Significant Other (SO)	FAM: "My family really tries to help me" FRN: "I can talk about my problems with my friends" SO: "I have a special person who	12 items. 7- point scale: 1 = agree very strongly; 7 = disagree very strongly	College students	MSPSS: $\alpha = .88$ FAM: $\alpha = .91$ FRN: $\alpha = .87$

				is a real source of comfort to me"	SO: $\alpha = .85$	
Perceived Social Support (PSS)	Procidano & Heller (1983)	Perceived social support from Family (PSS-Fa) and Friends (PSS-Fr)	PSS-Fa: "My family enjoys hearing about what I think" PSS-Fr: "My friends give me the moral support I need"	40 items (20 items per subscale): 3 point scale: +1 = Yes; 0 = Don't Know; -1 = No	PSS-Fa: $\alpha = .90$ PSS-Fr: $\alpha = .88$	College students
	Lev-Wiesel & Amir (2003)				PSS-Fr: $\alpha = .86$ PSS-Fr: $\alpha = .84$	Adult Holocaust child survivors
Provision of Social Relations (PSR)	Turner, Frankel & Levin (1983)	Perceived social support from Family and Friends	Family: "I know my family will always stand by me" Friends: "I have at least one friend that I could tell anything to"	15 items: Family = 6 items; Friends 9 items. 5-point scale: 1 = not at all like me; 5 = very much	$\alpha = .75-.87$	College students; psychiatric community residents

like me

Quality of Relationship Inventory (QRI)	Pierce, Sarason & Sarason (1991)	Perceived availability of support from specific relationship(s): Support (QRI-S); Depth of Commitment; Conflict.	QRI-S: "To what extent could you count on this person for help with a problem?"	25 items. 4-point scale: 1 = <i>not at all</i> ; 4 = <i>very much</i> QRI-S: $\alpha = .80$	QRI: $\alpha = .78$ College students
Social Provisions Scale (SPS)	Cutrona & Russell (1987)	Perceived Support: Provision of social relationships	"I feel a strong emotional bond with at least one other person"	24 items: 4-point scale: 1 = <i>strongly disagree</i> ; 4 = <i>strongly agree</i>	$\alpha = .92$ College students
Social Support Questionnaire (SSQ)	Lackner et al. (1993); O'Brien, Wortman, Kessler & Joseph (1993)	Perceived emotional, practical and informational support.	Emotional: "Would someone be available to talk to you if you were upset, nervous, or depressed?" (emotional)	Seven items, 0-3; higher scores – greater availability of	$\alpha = .87^c$ Men at risk for AIDS

			support.	
Siegel, Schrimshaw & Pretter (2005)	Perceived emotional and practical support	Practical: <i>"Is there someone who would help take care of you if you were confined to bed for several weeks?"</i>	Six items. 4- point -scale: 1 = <i>No</i> ; 2 = <i>Probably No</i> ; 3 = <i>Probably</i> Yes; 4 = Yes	Women with HIV/AIDS $\alpha = .69$ (emotional) $\alpha = .77$ (practical)
Social Support Questionnaire: Short version. (SSQ-6; Brief SSQ; SSQSR)	Sarason, Sarason, Shearin & Pierce (1987)	Perceived network size; Satisfaction with perceived network	Six items: Number of supporters 0-9 (SSQ-N)	College students SSQ-N: $\alpha = .97$ SSQ-S: $\alpha = .94$
			Six items: Satisfaction (SSQ-S): 5- point scale: 1 = <i>very</i> <i>dissatisfied</i> ; 6 = <i>very</i> <i>satisfied</i>	

Alferi Carver, Antoni, Wiess & Durán (2001)	Perceived social support	Reliance on significant others to help: “Not at all – A lot”	5-point scale: 1 = <i>not at all</i> ; 6 = <i>a lot</i>	$\alpha = .91^d$	Hispanic women with breast cancer
Sattler, de Alvarado, de Castro, van Male, Zetino & Vega (2006)	Perceived social support (including LSSS items)	“Strangers have been helpful”	Eight items.	$\alpha = .85$	Adult earthquake survivors
Sears, Stanton & Danoff-Burg (2003)	Perceived receptiveness of the social network	“I have people to talk to about my worries concerning cancer”	Three items. 5-point scale: 1 = <i>strongly disagree</i> ; 5 = <i>strongly agree</i>	$\alpha = .75$	Women with breast cancer

Received Social Support

Berlin Social Support Scales (BSSS)	Schulz & Schwarzer (2003); Schwarzer & Schulz (2000)	Received social support relating to cancer. Assesses Emotional Support (RES) and Instrumental Support (RIS) from several sources	RES: “ <i>This person comforted me when I was feeling bad</i> ” RIS: “ <i>This person took care of many things for me</i> ”	Nine items. 4-point scale: 1 = <i>definitely not</i> ; 4 = <i>exactly true</i>	RES: $\alpha = .91^a$ RIS: $\alpha = .68$	Cancer patients
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BSSS (modified)

Schulz & Mohamed (2004)

Nine items. 4-point scale: 1 = <i>strongly disagree</i> ; 4 = <i>strongly agree</i>	RES: $\alpha = .91^a$ RIS: $\alpha = .68$	Cancer patients
Five items: 4-point scale: 1 = <i>definitely</i>		

Received social support relating to HIV. Assesses

Luszczynska, Sarkar & Knoll (2007)	received social support (RSS), and satisfaction, from several sources	RSS: "This person was there when I needed them"	not; 4 = exactly true	RSS: $\alpha = .78$	HIV patients
		Satisfaction item: "In general, I am very satisfied with the way this person behaved"			
Crisis Support Scale (CSS)	Joseph, Andrews Williams & Yule (1992)	Received support following crisis. CSS-R. Satisfaction with support (CSS-S).	Seven items. 7-point scale: 1 = never; 7 = always	$\alpha = .82^b$	Adult survivors of fatal ship-sinking
		Satisfaction: "Overall are you satisfied with the support you receive?"			
Inventory of Postdisaster Social support (IPSS)	Norris, Murphy, Kaniasty, Perilla and Ortis (2001)	Received social support following natural disaster. Frequency of others (family, friends and outsiders) providing Emotional	36 items (12 per subscale). 4-point scale: 1 = never; 4 = many times	ES: $\alpha s = .82-.88$; IS: $\alpha s = .79-.87$; TS: $\alpha s = .82-.91$.	Adult hurricane survivors; normative and non-normative groups.
		IS: "Suggested an action you could take"			
		TS: "Offered or provided a place			

Support (ES), Informational Support (IS) and Tangible Support (TS)		to stay"		Family: α = .86-.88; Friend: α = .85-.89; Outsider: α = .83-.88 Overall: α = .95	
National Vietnam Veterans Readjustment Study (NVVRS)	Kulka, Schlenger, Fairbank, Hough & Jordan (1990)	Received post-captivity support following i) repatriation or freedom, and ii) at the present time. Functional social support (FSS) and Structural social support (SSS)	FSS: "Among your friends and relatives (excluding your wife), was/is there someone you felt/feel you can tell just about anything to, count on for understanding and advice?"	18 items (from original 22 items). FSS = 8 items; SSS = 10 items.	FSS: α = .85 SSS: α = .84 Vietnam war veterans
			SSS: "Among your friends and relatives, was/is there someone you could turn to in times of need"	Answer Yes/No and Then/Now selecting from multiple responses e.g. (a) most	

of the time,
(b) some of
the time (c)
never

Social Reactions Questionnaire (SRQ)	Ullman (2000)	Positive and negative reactions to disclosing sexual assault.	Positive: <i>"Saw your side of things and did not make judgments"</i> Negative: <i>"Told you to stop talking about it"</i>	48 items. 5- point scale: 0 = <i>never</i> ; 4 = <i>always</i>	Subscales: $\alpha s = .77-.93$	Sexually-assaulted women
	Frazier, Tashiro, Berman, Steger & Long (2004)	Received social support: Amount and Helpfulness (Help)	Help: <i>"Very caring and helpful"</i> Amount: <i>"A lot of support";</i>	Two items. 11- point scale: Help; 0 = <i>not at all</i> <i>caring and</i> <i>helpful</i> ; 10 = <i>very caring</i> <i>and helpful</i>	$\alpha = .81$ Range across four timepoints: α = $.78-.86$	Women following sexual assault

Maguen, Vogt, King, King & Litz (2006)	Received support during military deployment (DSS) and following deployment (PDSS)	DSS: <i>"Felt unit was like family"</i> PDSS: Amount of emotional and instrumental help	27 items: DSS = 12 items; PDSS = 15 items. 5- point scale: 1 = <i>strongly disagree</i> ; 5 = <i>strongly agree</i>	DSS: $\alpha = .94$ PDSS: $\alpha = .87$	Gulf War One veterans
Revenson, Schiaffino, Majerovitz & Gibofsky (1991)	Received Social Support from close network members: Positive Support (PosS) and Problematic Support (PrbS)	PosS: <i>"Talked about important decisions with you"</i> PrbS: <i>"Found it hard to understand the way you felt"</i>	20 behavioural items per network member, 5- point scale: 1 = <i>never</i> ; 5 = <i>all of the time</i>	PosS: $\alpha = .90$ PrbS: $\alpha = .64$	Adults with rheumatoid arthritis

Copng Social Support

Brief COPE (Brief Coping Strategies Inventory)	Carver (1997)	Social Support Coping: Using Emotional Support (UES); Using Instrumental Support (UIS)	UES: “I’ve been getting comfort and understanding from someone” UIS: “I’ve been getting help and advice from someone ”	4 items (2 per subscale). 4- point scale: 0 = never, 3 = always	UES: $\alpha = .71$ UIS: $\alpha = .64$	Adult community residents
	Thomton & Perez (2006)			4 items (2 per subscale). 4- point scale: 0 = I haven’t been doing this at all; 3 = I’ve been doing this a lot		Men with prostate cancer, and partners
COPE	Carver, Scheier & Weintraub (1989)	Social Support Coping: Seeking Emotional	SES: “I get sympathy and understanding from someone” SIS: “I try to get advice from	60 items. 4- point scale: 1 = I don’t do	SES: $\alpha = .85$	College students

	Support (SES); Seeking Instrumental Support (SIS)	someone about what to do"	this at all; 4 = I do this a lot	SIS: $\alpha = .85$	
Morris, Shakespeare- Finch & Scott (2007)			4-point scale: 1 = I haven't been doing this at all; 4 = I've been doing this a lot		Cancer patients
Coping Strategy Indicator (CSI)	Amirkhan (1990)	Coping social support: Seeking support (SS), problem solving, avoidance	SS: "Accepted sympathy and understanding from friends who had the same problem"	33 items; 12 items measure support seeking (SS): 3-point Scale: (a) a lot (b) a little (c) not at all	$\alpha = .93$ Adult community residents

Ways of Coping Questionnaire (WCQ)	Folkman & Lazarus (1988)	Social Support Coping: Seeking social support	<i>“Talk to someone to find out more about the situation”</i>	66 items. 4- point -scale: 0 = <i>not used</i> ; 3 = <i>used a great deal</i>	$\alpha = .76$	Married couples
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^a = reported in Schulz & Mohamed (2004)

^b = reported by Elklit, Pedersen & Jind (2001)

^c = reported by Siegel & Schrimshaw (2007)

^d = reported by Littlewood, Venable, Carey & Blair (2001)

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Appendix 4

Detailed review of studies measuring social support and growth in Chapter 4

Studies reporting tests of association between social support and growth

Study	Event	Growth	Social Support	Relation
Perceived social support and growth:				
Correlational				
Berger & Weiss (2006)	Immigration. <i>N</i> = 100; women	PTGI (Spanish version)	SSQ6	<i>r</i> = not reported, <i>ns</i>
Cadell, Regehr & Hemsworth (2003)	Bereavement:	PTGI;	SSQ (O'Brien et al., 1993).	<i>r</i> = .21, <i>p</i> < .05 between overall growth (PTGI+SRGS) and overall social support (SSQ+PSR)
	HIV/AIDS caregivers	SRGS (15-item version) ^a	PSR	
	<i>N</i> = 174; 90 men, 80, women, 4 transgender			
Cryder, Ryan, Tedeschi & Calhoun (2006)	Flooding: Children and adolescents <i>N</i> = 46; 18 boys, 28 girls	PTGI-C	ISS-C (modified: 2 parts)	<i>r</i> = not reported, <i>ns</i> .
Dirik & Karanci (2008)	Rheumatoid Arthritis: <i>N</i> = 117; 18 men, 99 women	PTGI (Turkish version; 3 factors): Relationships with Others (RO); Philosophy of Life (PhL); Self-perception (SP)	MSPSS (Turkish version)	β = .33, <i>p</i> < .001 between PTGI and MSPSS; β = .33, <i>p</i> < .001 between RO and MSPSS; β = .27, <i>p</i> < .01 between PTGI and MSPSS and PhL; β = .27, <i>p</i> < .01 between PTGI and MSPSS and SP (demographic variables, resources and self-efficacy controlled).

Feder, Southwick, Goetz, Wang, Alonso, Smith, Bucholz, Waldeck, Ameli, Moore, Hain, Charney & Vythilingam (2008)	Former prisoners of war. $N = 30$.	PTGI	MOS	$r = .22$, <i>ns</i> between PTGI and MOS.
Harris, Erbes, Engdahl & Olson (2008)	Community exposed to trauma: $N = 327$; 95 men, 228 women, 1 transgender	PTGI	MOS	$r = .14$, $p < .05$ between PTGI and MOS
Hogan & Schmidt (2002)	Bereavement: $N = 167$; 38 men, 129 women	HGRC: Personal Growth (PG) subscale	ISS	$r = .29$, $p < .05$ between PG and ISS
Karanci & Erkam (2007)	Breast cancer: $N = 90$ (women)	SRGS (Turkish version)	MSPSS (Turkish version)	$pr = .22$, $p < .01$ between SRGS and MSPSS (<i>demographic variables and depression scores controlled</i>).
Kinsinger, Penedo, Antoni, Dahn, Lcchner & Schneiderman (2008)	Prostate cancer: $N = 250$	BFS	ESSI: ES; TS	$r = .17$, $p < .01$ between BFS and ESSI; $r = .16$, $p < .01$ between BFS and ES; $r = .16$, $p = .02$ between BFS and TS. $\beta = .26$, $p < .001$ between BFS and ESSI (<i>demographic variables and health-related variables controlled</i>)

Lev-Wiesel & Amir (2003)	Holocaust Child Survivors: N = 97; 47 men, 50 women	PTGI: RO, AL, PS, NP, SC.	PSS: PSS-Fa; PSS-Fr	<p>$r = .14$, ns between PTGI and PSS-Fa.</p> <p>$r = .24$, $p < .05$ between PTGI and PSS-Fr.</p> <p>$\beta = .20$, $p < .01$ between PTGI and PSS-Fr (<i>posttraumatic stress disorder</i> and <i>age</i> controlled);</p> <p>$\beta = .20$, $p < .01$ between PTGI and PSS-Fr (<i>arousal</i> and <i>age</i> controlled)</p>
Littlewood, Venable, Carey & Blair (2008)	HIV: N = 221; 124 men, 97 women	BFS	Author-developed HIV-related support measure	<p>$r = .31$, $p < .01$ between BFS and social support.</p>
Sattler, de Alvaro, de Castro, van Male, Zetino & Vega (2006; Study 2)	Earthquake: Community sample N = 83; 31 men, 52 women	PTGI (adapted for study)	LSSS (8-item form)	<p>$r = .31$, $p < .01$ between PTGI and LSSS.</p>
Sheikh (2004)	Heart Disease: N = 110; 87 men, 23 women	PTGI.	SSQSR	<p>$r = .19$, $p < .05$ between PTGI and SSQ.</p>

Shiri, Gurevich, Feintuch & Bechlaibter (2007)	Bariatric Surgery. N = 31; 6 men, 25 women	PTGI	PSS-Fa (Family support subscale	$r = .16$, ns between PTGI and PSS-Fa.
Siegel, Schrimshaw & Pretter (2005)	HIV/AIDS: N = 138; women	PTS (modified)	HIV/AIDS specific support from SSQ (O'Brien et al., 1993): PES; PPS.	$r = .54$, $p < .05$, between PTS and PES; $r = .40$, $p < .05$ between PTS and PPS.
Siegel & Schrimshaw (2007)	HIV/AIDS: N = 138; women	PTS (modified)	HIV/AIDS specific social support	$r = .50$, $p < .01$, between BF and social support.
Weiss (2004a)	Husbands of Breast Cancer Survivors: N = 72	PTGI; five domains: Relationships with Others (RO); Appreciation of Life (AL); Perceived Strength (PS); New Possibilities (NP); Spiritual Change (SC).	QRI-S. SSQ6: SSQ-S, SSQ-N.	$r = .36$, $p < .005$ between PTGI and QRI-S. $r = .29$, $p < .01$ between RO and QRI-S. $r = .33$, $p < .005$ between AL and QRI-S. $r = .32$, $p < .005$ between PS and QRI-S. $r = .31$, $p < .005$ between NP and QRI-S. $r = .23$, $p < .05$ between SC and QRI-S.
				$r = .14$, ns. between PTGI and

SSQ-S ($N = 54$).

$r = .28, p < .01$ between PTGI and SSQ-N. ($N = 67$).

QRI-S.
SSQ6: SSQ-S, SSQ-N.

PTGI: RO, AL, PS, NP, SC.

Breast Cancer Survivors: $N = 72$

Weiss (2004b)

$r = .24, p < .05$ between PTGI and QRI-S ($N = 72$).

$r = .36, p < .01$ between RO and QRI-S ($N = 72$).

All r s ns between remaining PTGI domains and QRI-S.

$r = .15, ns$ between PTGI and SSQ-S ($N = 65$).

$r = .23, ns$ between PTGI and SSQ-N ($N = 71$)

SSQ6: SSQ-S, SSQ-N.

PTGI

Life events: Students. $N = 104$; 24 men, 80 women.

Wilson & Boden (2008)

$r = .27, p < .01$ between PTGI and SSQ-N.

$r = .17, ns$ between PTGI and SSQ-S.

$\beta = .17, ns$ between PTGI and SSQ-N. (*personality controlled*)

$\beta = .12, p < .01$ between PTGI and SSQ-S. (*personality and religiosity controlled*)

$\beta = .21, p < .05$ between PTGI and SSQ-N; $\beta = .11, ns$ between PTGI and SSQ-S (*religiosity controlled*).

Perceived social support and growth

Longitudinal

Erbes, Eberly, Dikel, Johnsen, Harris, & Engdahl, (2005)	Former prisoners of war. $N = 95$. Time 2 = 5 years.	PTGI: RO, AL, PS, NP, SC.	NVRS: Functional social support (FuSS); Structural social support (StSS).	$r = .24, p < .05$ between Time 2 PTGI and Time 1 StSS. $r = .26, p < .05$ between Time 2 RO and StSS. $r = .31, p < .01$; $r = .29, p < .01$ between Time 2 RO and Time 1 FuSS. $r = .22, p < .05$ between Time 2 SC and Time 1 FuSS.
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Park, Cohen & Murch (1996; Study 3)	Adverse life event. Students: Time 1: 3535; 83 men, 173 women. Time 2 = six months: N = 142; 36 men, 106 women.	SRGS	SSQ (Sarason et al., 1983): SSQ-S, SSQ-N. $r = .23, p < .01$ between Time 1 SRGS and Time 1 SSQ-S ($N = 256$). $r = .09, ns$ between Time 1 SRGS and Time 1 SSQ-N. $r = .35, p < .001$ between Time 2 SRGS and Time 2 SSQ-S ($N = 142$). $r = .29, p < .001$ between Time 2 SRGS and Time 2 SSQ-N ($N = 142$). $\theta = .23, p < .01$ between Time 2 SRGS and Time 1 SSQ-S (<i>gender, religiousness, affect and optimism controlled</i> and $\theta = .14, p < .05$ between Time 2 SRGS and Time 1 SSQ-S (with <i>event characteristics, coping, resolution and recent events added</i>)).
Sears, Stanton & Danoff-Burg (2003)	Breast cancer: N = 92 (women) Time 1 = baseline (average 28 weeks post-diagnosis), Time 2 = 12 months post-baseline.	PTGI	Author-developed emotional support (ES) measure. $r = .15, ns$ between Time 2 PTGI and Time 1 ES.

Widows, Jacobsen, Booth-Jones & Fields (2005)	Bone Marrow Transplant (cancer patients): <i>N</i> = 72; 19 men, 53 women.	PTGI (English or Spanish version)	ISEL-SF (English or Spanish version)	<i>r</i> = .05, <i>ns</i> between Time 2 PTGI and Time 1 ISEL-SF (<i>distress and coping</i> controlled)
Time 1 = pre-transplant, Time 2 = at least 6 months post-transplant				
Received social support and growth				
Correlational				
Abraído-Lanza, Guier and Colón (1998)	Chronic illness (arthritis): <i>N</i> = 66; women. Time 2 = 3 years.	PTS	Received social support (RSS) from two people ^c	<i>r</i> = .00, <i>ns</i> between Time 2 PTS and Time 1 RSS. <i>r</i> = .08, <i>ns</i> between Time 2 PTS and Time 2 RSS.
Borja, Callahan & Long (2006)	Sexual assault. <i>N</i> = 115; women.	PBS	SRQ: PS-F, PS-I, NS-F, NS-I.	<i>r</i> = .62, <i>p</i> < .01, between PBS and PS-F. <i>r</i> = .64, <i>p</i> < .01 between PBS and PS-I. <i>r</i> = .31, <i>ns</i> between PBS and NS-F. <i>r</i> = .29, <i>ns</i> between PBS and NS-

Cieslak, Benight, Schmidt, Luszczynska, Curtin, Clark & Kissinger (2009)	Hurricane Survivors with HIV. <i>N</i> = 90; 57 men, 30 women, 3 unknown	PTGI: RO, AL, PS, NP, SC.	IPSS	t.
				<i>r</i> = .23, <i>p</i> < .05 between PTGI and IPSS.
				<i>r</i> = .28, <i>p</i> < .01, between RO and IPSS.
				<i>r</i> = .22, <i>p</i> < .05 between NP and IPSS.
				<i>r</i> = .15, <i>ns</i> between PS and IPSS.
				<i>r</i> = .18, <i>ns</i> between SC and IPSS
Joseph, Williams & Yule (1993)	Ship-sinking: <i>N</i> = 35; 8 men, 27 women	CiOO: CiOP	CSS	<i>r</i> = -.13, <i>ns</i> between CiOP and CSS.
Luszczynska, Sarker & Knoll (2007)	HIV patients: <i>N</i> = 104; 38 men, 66 women	BFS	BSSS (modified for HIV). Received social support and satisfaction subscale (RSS)	<i>r</i> = .54, <i>p</i> < .001 between BFS and RSS β = .34, <i>p</i> < .001 between BFS and RSS (mediated by <i>self-efficacy</i>)
Maguen, Vogt, King, King, & Litz (2006)	Gulf War Veterans: <i>N</i> = 61; 35 men, 26 women.	PTGI: RO, AL, PS, NP, SC.	Author-developed Deployment Social support (DSS) and post-deployment Social Support (PDSS)	<i>F</i> (5, 53) = 3.7, <i>p</i> < .01, between PDSS and RO; <i>F</i> (5, 52) = 3.05, <i>p</i> < .05 between PDSS and PS; <i>F</i> (5, 54) = 3.21, <i>p</i> < .05, between PDSS and overall PTGI (<i>early life</i>

trauma, warfare and threat, and unit support controlled)

$r = .40, p < .05$ between PTGI and SPS

SPS

PTGI

Daughters of Breast Cancer Survivors
 $N = 30$ (women)

Mosher, Danoff-Burg & Brunker (2006)

Received social support and growth

Longitudinal

Frazier, Tashiro, Berman, Steger & Long (2004)

Sexual Assault:

Women; $N = 171$; women. Time 1 = 2 weeks, Time 2 = 2 months = Time 3 = 6 months, Time 4 = 12 months post-assault.

Author-developed positive life change measure (PLC).

Author-developed, 2-item received social support measure (RSS).

(χ^2) 26.51, $t = 5.37, p < .005$ testing Time 1 social support (comparing with sociodemographic, victimisation, coping and control variables) and Time 1 growth.

$ts = 4.42 - 4.48$ dfs 166 - 168, $p < .001$ showing changes in social support related to changes in growth (controlling for coping, control and precaution). Control mediates the relation between social support changes and growth

changes over time.

Linley & Joseph (2006)	Exposure to Disaster: N = 56; 35 men, 20 women, one unknown. Time 2 = 6 months.	CiOQ: CiOP	CSS: CSS-R; CSS-S.	$r = -.07$, <i>ns</i> between Time 2 PTGI and Time 1 CSS-R; $r = .05$, <i>ns</i> between Time 2 PTGI and Time 1 CSS-S; $r = -.01$, <i>ns</i> between Time 2 CiOP and Time 1 CSS-R; $r = .21$, <i>ns</i> between Time 2 CiOP and Time 1 CSS-S.
Luszczynska, Mohamed & Schwarzer (2005)	Cancer surgery: N = 97; 63 men, 34 women. Time 1 = 1 month post-surgery, Time 2 = 12 months post-surgery.	BFS: Acceptance of Life Imperfection (ALI); Personal Growth (PG); Positive Changes in Family Relationships (CFR); Increased Sensitivity to Others (ISO).	BSSS: RSS.	$r = .16$, <i>ns</i> between Time 2 ALI and Time 1 RSS. $r = .19$, $p < .10$ between Time 2 PG and RSS. $r = .31$, $p < .01$, between Time 2 CFR and Time 1 RSS. $r = .26$, $p < .05$, between Time 2 ISO and Time 1 RSS. $\beta = .23$, $p < .01$, between Time 1 RSS and Time 2 CFR (Time 1 self-efficacy controlled and remaining subscales controlled at Time 2)

Schulz & Mohamed (2004)	Cancer surgery: N = 105; 64 men, 41 women. Time 1 = 1 month post-surgery, Time 2 = 12 months post-surgery.	BFS (German version; tumour specific)	BSSS: RSS; RES; RIS.	<p>$r = .41, p < .01$, between Time 2 BFS and Time 1 RES.</p> <p>$r = .38, p < .01$, between Time 2 BFS and Time 1 RIS.</p> <p>$\beta = .45, p < .01$ between Time 2 BFS and Time 1 RSS (<i>self-efficacy</i> controlled)</p> <p>$\beta = .34, p < .01$ between Time 2 BFS and Time 1 RSS (<i>social comparison</i> controlled)</p>
Schwarzer, Luszczynska, Boehmer, Taubert & Knoll (2006)	Cancer surgery: N = 117; 73 men, 44 women. Timepoints: Pre-surgery (T1), one month post-surgery T2) and 12 months post-surgery (T3).	BFS (7-item version)	BSSS: RES.	<p>$r = .27, p < .01$, between Time1 BFS and Time 1 RES.</p> <p>$r = .21, p < .05$, between Time 2 BFS and Time 1 RES.</p> <p>$r = .26, p < .01$, between Time 3 BFS and Time 1 RES.</p> <p>$r = .20, p < .05$, between Time 3 BFS and Time 3 RES.</p> <p>Changes in growth over time not related to any social support measure.</p>

Coping social support and growth

Correlational

Mohr, Dick, Russo, et al. (1999)	Multiple Sclerosis: <i>N</i> = 94; 74 men, 20 women	Author-developed benefit-finding measure (BF)	WCQ (seeking social support subscale)	$r = .30, p < .01$ between BF and seeking social support.
Morris, Shakespeare-Finch & Scott (2007)	Cancer: <i>N</i> = 335; 150 men, 185 women.	PTGI: RO, AL, PS, NP, SC.	COPE ⁴ : UES, UIS	$r = .30, p < .001$ between NP and UES; $r = .42, p < .001$ between NP and UIS. $r = .32, p < .001$ between RO and UES; $r = .30, p < .001$ between RO and UIS
Mosher, Danoff-Burg & Brunker (2006)	Daughters of Breast Cancer Survivors <i>N</i> = 30 (women)	PTGI	COPE: SES, SIS	$r = .37, p = .05$ between PTGI and SES; $r = .59, p < .01$ between PTGI and SIS
Park, Cohen & Murch (1996; Study 3)	Adverse life event. College students: <i>N</i> = 142; 36 men, 106 women. Time 2 = six months	SRGS	COPE: SES, SIS	$r = .23, p < .01$ between Time 2 SRGS and Time 2 SES. $r = .16. ns$ between Time 2 SRGS and Time 2 SIS.

Swickert & Hittner (2009)	College students ($N = 169$) and community adults ($N = 52$); 43 men, 178 women	PBS ² : Enhanced Self-efficacy (ESE), Increased Compassion (IC), Increased Faith in People (IFP), Increased Spirituality (IS), Lifestyle Changes (LC); Increased Community Closeness (ICC), Enhanced Family Closeness (EFC)	CSI	$pr = .38, p < .01$ between PBS and CSI (perceived stressfulness controlled). $pr = .28, p < .01$ between ESE and CSI; $pr = .24, p < .01$ between IC and CSI; $pr = .34, p < .01$; between IFP and CSI; $pr = .20, p < .01$ between IS and CSI; $pr = .21, p < .01$ between LC and CSI; $pr = .26, p < .01$ between ICC and CSI; $pr = .33, p < .01$ between EFC and CSI.
Tang (2006)	Tsunami survivors. $N = 267$	PTGI	Brief COPE ⁴ : SSS	$r = .38, p < .01$ between PTGI and SSS.
Thornton & Perez (2006)	Prostate cancer surgery: $N = 82$ men. Time 2 = 12 months post-surgery	PTGI	Brief COPE: SES; SIS	$\beta = .29, p < .05$, between Time 2 PTGI and Time 2 SES. $\beta = .06, ns$ between Time 2 PTGI and Time 2 SIS (<i>demographic, stress and medical variables controlled</i>)
Thornton & Perez (2006)	Prostate cancer surgery: $N = 67$ women. Time 2 = 12 months post-surgery	PTGI	Brief COPE: SES; SIS	$\beta = .15, ns$ between Time 2 PTGI and Time 2 SES. $\beta = -.11, ns$ between Time 2 PTGI and Time 2 SIS.

(demographic, stress and
medical variables controlled)

^a = Adapted by Cohen, Hettler & Pane (1998)

^b = “Positive Relations with Others” subscale excluded to avoid confound with social support

^c = Adapted from Revenson, Schiaffano, Majerovitz & Gibofsky (1991)

^d = COPE subscales are worded as ‘Seeking...’ social support (Carver, Scheier & Weintraub, 1989) while Brief COPE subscales are worded ‘Using...’ social support (Carver, 1997) however, these studies report ‘Seeking...’ with the Brief COPE or ‘Using...’ with the COPE.

^e = Material Gain subscale excluded from study

Note. Growth measures: BFS = Benefit Finding Scale; (ALU = Acceptance of Life Imperfection; PG: Personal Growth; CFR = Changes in Family Relationships; ISO: = Increased Sensitivity to Others). GIOQ = Changes in Outlook Questionnaire (CIOP = Changes in Outlook Positive); HGRC = Hogan Grief Reaction Checklist; PBS = Perceived Benefits Scale (ESE = Enhanced Self-efficacy, IC = Increased Compassion, IFP = Increased Faith in People, IS = Increased Spirituality, LC = Lifestyle Changes, ICC = Increased Community Closeness, EFC = Enhanced Family Closeness); PLC = Positive Life Change; PTGI = Posttraumatic Growth Inventory (RO = Relationships with Others, AL = Appreciation of Life, PS = Perceived Strength, NP = New Possibilities, SC = Spiritual Change; Turkish version: PHL = Philosophy of Life, SP = Self-perception); PTGI-C = Posttraumatic Growth Inventory - Children’s version); PTS = Psychological Thriving Scale; SRGS = Stress-Related Growth Scale; PWBS = Psychological Well-Being Scales.

Support measures: Brief COPE (UES = Using Emotional Support; UIS = Using Informational Support); BSSS = Berlin Social Support Scales; RSS = Received Social Support; RES = Received Emotional Support; RIS = Received Instrumental Support; COPE (SES = Seeking Emotional Support; SIS = Seeking Informational Support; SSS = Seeking Social Support (sum of 2 subscales)); CSI = Coping Strategy Indicator; CSS = Crisis Support Scale (CSS-R = Received; CSS-S = Satisfaction); DSS = Deployment Social Support; ESS1 = ENRICH Social Support Instrument (ES = Emotional Support, TS = Tangible Support); IPSS = Inventory of Postdisaster Social Support; ISEL-SF = Interpersonal Support Evaluation List – Short Form (tangible, appraisal and belonging support); ISS = Inventory of Social Support; ISS-C = Inventory of Social Support for Children; LSSS = Louisville Social Support Scales; MSPSS = Multidimensional Scale of Perceived Social Support; MOS = Medical Outcomes Study; NVVRS = National Vietnam Veterans Readjustment Study (FuSS = Functional Social Support; SSSS = Structural Social Support); PDSS = Post-deployment Social Support; PES = Perceived Emotional Support; PFS = Perceived Family Support; PPS = Perceived Practical Support; PSR = Provision of Social Relations; PSS = Perceived Social Support Scale (PSS-Fa = Family Support Subscale) QRI-S Quality of Relationship Inventory – Support; RSS = Received Social Support; SB = Supportive Behaviour; SAT = Satisfaction with received support (single-item); SPS = Social Provisions Scale; SRQ = Social Reactions Questionnaire; SSQ = Social Support Questionnaire; SSQ6 & SSQSR = Social Support Questionnaire – Short Form (SSQ-S = Satisfaction subscale; SSQ-N = Network size subscale); SS = Support Seeking; WCQ = Ways of Coping Questionnaire.

Appendix 5

Questionnaire pack for Chapter 5

This questionnaire pack is presented in the way it would have been received by participants.

The ordering of the questionnaires is as follows:

Psychological Well-Being Scales

Social Support Questionnaire – short form

Provision of Social Relations

Stressful Experience information

Traumatic Events Questionnaire

Impact of Event Scale

Crisis Support Scale

Changes in Outlook Questionnaire

Posttraumatic Growth Inventory

Demographic Information

The questionnaire is arranged in a particular order. It asks about you, people you know and then about a significant incident that had an emotional impact on you. It may be a serious operational incident, or a personal one at work, such as an accident, a bad decision or something unpleasant that happened to you, or that you witnessed. The important thing is that it was upsetting for you, regardless of anybody else. Once you have identified an incident it will ask you about your reactions to it, and others' reactions to you following that incident.

PWB						
<i>The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.</i>						
	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
1. Maintaining close relationships has been difficult and frustrating for me	1	2	3	4	5	6
2. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
3. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
4. I think it is important to have new experiences that challenge how you think about yourself and the world	1	2	3	4	5	6
5. I live one day at a time and don't really think about the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6

	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
8. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
9. The demands of everyday life often get me down.	1	2	3	4	5	6
10. For me, life has been a continuous process of learning, changing and growing.	1	2	3	4	5	6
11. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
12. I like most aspects of my personality.	1	2	3	4	5	6
13. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
14. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
15. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
16. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
17. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
18. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6

SSQ6

The following questions ask about people in your environment who provide you with help and support. Each question has two parts.

- 1. Give the **number of people** (from 0-9, excluding yourself) whom you can count on for help or support in the manner described.
- 2. Circle **how satisfied** you are with the overall support you have.

1. Whom can you really count on to distract you from your worries when you feel under stress?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

2. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

3. Who accepts you totally, including both your best and your worst points?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

4. Whom can you really count on to care about you, regardless of what is happening to you?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

5. Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

Number

Satisfaction 0 1 2 3 4 5

Very dissatisfied

Very satisfied

6. Whom can you really count on to console you when you are very upset?

Number

Satisfaction 0 1 2 3 4 5

Very dissatisfied

Very satisfied

PSR

We would like to know something about your relationships with other people. Please read each statement below and decide how well the statement describes you. For each statement, show your answer by indicating to the left of the item the number that best describes how you feel. The numbers represent the following answers.

1 = Very much like me

2 = Much like me

3 = Somewhat like me

4 = Not very much like me

5 = Not at all like me

___ 1. When I'm with my friends, I feel completely able to relax and be myself.

___ 2. I share the same approach to life that many of my friends do.

___ 3. People who know me trust me and respect me.

___ 4. There are some things I could only discuss with a colleague.

___ 5. No matter what happens, I know that my family will always be there for me should I need them.

1 = Very much like me

2 = Much like me

3 = Somewhat like me

4 = Not very much like me

5 = Not at all like me

- ___ 6. *When I want to go out and to do things I know that many of my friends would enjoy doing these things with me.*
- ___ 7. I have at least one friend I could tell anything to.
- ___ 8. The team I work in has a special trust and respect for me.
- ___ 9. Sometimes I'm not sure if I can completely rely on my family.
- ___ 10. People who know me think I am good at what I do.
- ___ 11. I feel very close to some of my friends.
- ___ 12. Sometimes I'm not sure if I can completely rely on my colleagues.
- ___ 13. People in my family have confidence in me.
- ___ 14. My family lets me know they think I am a worthwhile person.
- ___ 15. People in my family provide me with help in finding solutions to my problems.
- ___ 16. I wouldn't tell any of my colleagues if I was feeling nervous.
- ___ 17. My friends would take the time to talk over my problems, should I ever want to.
- ___ 18. I know my family will always stand by me.
- ___ 19. Even when I am with my friends I feel alone.
- ___ 20. I would rather talk about upsetting incidents with my colleagues than friends and family.

INCIDENT

*Recall an operational or job-related incident that occurred during your career that **you found upsetting**, or one that **you found difficult to deal with** at the time and/or afterwards. Please choose one that is relevant to you personally, rather than one that others reported as difficult*

When did this happen? _____

What happened? (no detailed description is necessary)

Now, thinking about that incident, please answer the following questions. Please indicate your response by placing the appropriate number alongside the item, according to the scale below:

0 1 2 3 4 5 6 7

Not at all

Severely/extremely

- 1. To what extent were you physically injured? _____
- 2. To what extent was someone else physically injured? _____
- 3. How much did you feel that your life was in danger? _____
- 4. How much did you feel that someone else's life was in danger? _____
- 5. How helpless did you feel? _____
- 6. How afraid did you feel? _____

0 1 2 3 4 5 6 7

Not at all

Severely/extremely

7. How horrified did you feel?
8. How upsetting was the event at the time?
9. How upsetting is the event now?
-

IES

Below is a list of comments made by people after stressful events. Please think about your stressful event. Then please check each item, indicating how frequently these comments were true for you **during the past seven days**. If they did not occur during that time, please circle “not at all”.

	0	1	2	3
	not at all	rarely	sometimes	often
1. I thought about it when I didn't mean to	0	1	2	3
2. I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3
3. I tried to remove it from memory	0	1	2	3
4. I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my head	0	1	2	3
5. I had waves of strong feelings about it	0	1	2	3
6. I had dreams about it	0	1	2	3
7. I stayed away from reminders of it	0	1	2	3
8. I felt as if it hadn't happened or it wasn't real	0	1	2	3
9. I tried not to talk about it	0	1	2	3
10. Pictures about it popped into my mind	0	1	2	3
11. Other things kept making me think about it	0	1	2	3
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3

	0	1	2	3
	not at all	rarely	sometimes	often
13. I tried not to think about it	0	1	2	3
14. Any reminder brought back feelings about it	0	1	2	3
15. My feelings about it were kind of numb	0	1	2	3

CSS

Below is a list of statements about the help, advice and support that you received following incidents like the one you reported above. Please indicate, using the scale below, how often you receive this support.

1	2	3	4	5	6	7
Never						Always

- 1 Whenever you want to talk, how often is there someone willing to listen?

- 2 Do you have personal contact with other people with similar experiences?

- 3 Are you able to talk about your thoughts and feelings?

- 4 Are people sympathetic and supportive?

- 5 Are people helpful in a practical sort of way?

- 6 Do people you expected to be supportive make you feel worse at any time?

- 7 Overall, are you satisfied with the support you receive?

CIOQ

*Below are printed some statements about your current thoughts and feelings following your stressful event. **Please read each one and indicate, by circling one of the numbers beside each statement, how much you agree or disagree with it at the present time, using the following scale.***

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
1 I don't look forward to the future anymore	1	2	3	4	5	6
2 My life has no meaning anymore	1	2	3	4	5	6
3 I no longer feel able to cope with things	1	2	3	4	5	6
4 I don't take life for granted anymore	1	2	3	4	5	6
5 I value my relationships much more now	1	2	3	4	5	6
6 I feel more experienced about life now	1	2	3	4	5	6
7 I do not worry about death at all anymore	1	2	3	4	5	6
8 I live every day to the full now	1	2	3	4	5	6
9 I fear death very much now	1	2	3	4	5	6
10 I look upon each day as a bonus	1	2	3	4	5	6
11 I feel as if something bad is just waiting around the corner to happen	1	2	3	4	5	6
12 I am a more understanding and tolerant person now	1	2	3	4	5	6
13 I have a greater faith in human nature now	1	2	3	4	5	6

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
14 I no longer take people or things for granted	1	2	3	4	5	6
15 I desperately wish I could turn the clock back to before it happened	1	2	3	4	5	6
16 I sometimes think it's not worth being a good person	1	2	3	4	5	6
17 I have very little trust in other people now	1	2	3	4	5	6
18 I feel very much as if I'm in limbo	1	2	3	4	5	6
19 I have very little trust in myself now	1	2	3	4	5	6
20 I feel harder towards people	1	2	3	4	5	6
21 I am less tolerant of others now	1	2	3	4	5	6
22. I am much less able to communicate with other people	1	2	3	4	5	6
23 I am less tolerant of others now	1	2	3	4	5	6
24 I am more determined to succeed in life now	1	2	3	4	5	6
25 Nothing makes me happy anymore	1	2	3	4	5	6
26 I feel as if I'm dead from the neck downwards	1	2	3	4	5	6

PTGI

*We are interested in how you think you have changed after the event you described. Below are a number of statements that may or may not be representative of how you think you have changed. **Please read each statement carefully and circle the number that best describes how you feel.** People react to events in many different ways.*

- 0 = I **did not** change as a result of the event I described
- 1 = I changed to a **very small** degree as a result of the event I described
- 2 = I changed to a **small** degree as a result of the event I described
- 3 = I changed to a **moderate** degree as a result of the event I described
- 4 = I changed to a **great** degree as a result of the event I described
- 5 = I changed to a **very great** degree as a result of the event I described

1. My priorities about what is important in life	0	1	2	3	4	5
2. An appreciation for the value of my own life	0	1	2	3	4	5
3. I developed new interests	0	1	2	3	4	5
4. A feeling of self reliance	0	1	2	3	4	5
5. A better understanding of spiritual matters	0	1	2	3	4	5
6. Knowing that I can count on people in times of trouble	0	1	2	3	4	5
7. I established a new path for my life	0	1	2	3	4	5
8. A sense of closeness with others	0	1	2	3	4	5
9. A willingness to express my emotions	0	1	2	3	4	5
10. Knowing I can handle difficulties	0	1	2	3	4	5
11. I'm able to do better things with my life	0	1	2	3	4	5

12. Being able to accept the way things work out	0	1	2	3	4	5
13. Appreciating each day	0	1	2	3	4	5
14. New opportunities are available which wouldn't have been otherwise	0	1	2	3	4	5
15. Having compassion for others	0	1	2	3	4	5
16. Putting effort into my relationships	0	1	2	3	4	5
17. I'm more likely to change things which need changing	0	1	2	3	4	5
18. I have a stronger religious faith	0	1	2	3	4	5
19. I discovered that I'm stronger than I thought I was	0	1	2	3	4	5
20. I learned a great deal about how wonderful people are	0	1	2	3	4	5
21. I accept needing others	0	1	2	3	4	5

Demographic Information

Please provide some personal details below. This information will be treated in the strictest confidence and used solely for the purposes of the research.

Personal

Brigade Number: _____ Name (optional):-

Date of Birth: _____ Sex: Male ___ Female ___ Age: _____ years

Length of service: _____ years _____ months

Current Relationship Status

Single / Never Married ___ Married / living as married ___ Separated ___
 Divorced ___ Widowed ___ Other ___

Ethnic Origin

White British ___ White Irish ___ White Other ___
 Black African Caribbean ___ Black African ___ Black Other ___
 Asian Indian ___ Asian Pakistani ___ Asian Bangladeshi ___
 Asian Other ___ Chinese ___
 Other Ethnic Group (please specify) _____

Educational Level (please indicate highest qualification)

O-level / GCSE ___ High school / A-level ___ Bachelor's Degree ___

 Master's degree ___ Doctoral degree ___ Professional / Vocational ___

 Other ___ (please describe): _____

Once complete, please return your questionnaire. If you have any comments to make on any aspect of this project or stress in the brigade, please record them below.
Thank you for your participation.

Appendix 6

Questionnaire pack for Chapter 6

This questionnaire pack is presented in the way it would have been received by participants.

The ordering of the questionnaires is as follows:

Psychological Well-Being Scales

Stressful Experience information

Traumatic Events Questionnaire

Impact of Event Scale

Unsupportive Social Interactions Inventory

Changes in Outlook Questionnaire

Posttraumatic Growth Inventory

Demographic Information

The questionnaire is arranged in a particular order. It asks about you, people you know and then about a significant incident that had an emotional impact on you. It may be a serious operational incident, or a personal one at work, such as an accident, a bad decision or something unpleasant that happened to you, or that you witnessed. The important thing is that it was upsetting for you, regardless of anybody else. Once you have identified an incident it will ask you about your reactions to it, and others' reactions to you following that incident.

PWB						
<i>The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.</i>						
	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
1. Maintaining close relationships has been difficult and frustrating for me	1	2	3	4	5	6
2. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
3. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
4. I think it is important to have new experiences that challenge how you think about yourself and the world	1	2	3	4	5	6
5. I live one day at a time and don't really think about the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6

	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
8. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
9. The demands of everyday life often get me down.	1	2	3	4	5	6
10. For me, life has been a continuous process of learning, changing and growing.	1	2	3	4	5	6
11. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
12. I like most aspects of my personality.	1	2	3	4	5	6
13. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
14. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
15. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
16. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
17. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
18. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6

INCIDENT

*Recall an operational or job-related incident that occurred during your career that **you found upsetting**, or one that **you found difficult to deal with** at the time and/or afterwards. Please choose one that is relevant to you personally, rather than one that others reported as difficult*

When did this happen? _____

What happened? (no detailed description is necessary)

Now, thinking about that incident, please answer the following questions. Please indicate your response by placing the appropriate number alongside the item, according to the scale below:

0	1	2	3	4	5	6	7
Not at all				Severely/extremely			

1. To what extent were you physically injured?

2. To what extent was someone else physically injured?

3. How much did you feel that your life was in danger?

4. How much did you feel that someone else's life was in danger?

5. How helpless did you feel?

6. How afraid did you feel?

	0	1	2	3	4	5	6	7		
	Not at all									Severely/extremely
7.	How horrified did you feel?									_____
8.	How upsetting was the event at the time?									_____
9.	How upsetting is the event now?									_____

IES

*Below is a list of comments made by people after stressful events. Please think about your stressful event. Then please check each item, indicating how frequently these comments were true for you **during the past seven days**. If they did not occur during that time, please circle "not at all".*

	0	1	2	3				
	not at all	rarely	sometimes	often				
1.	I thought about it when I didn't mean to				0	1	2	3
2.	I avoided letting myself get upset when I thought about it or was reminded of it				0	1	2	3
3.	I tried to remove it from memory				0	1	2	3
4.	I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my head				0	1	2	3
5.	I had waves of strong feelings about it				0	1	2	3
6.	I had dreams about it				0	1	2	3
7.	I stayed away from reminders of it				0	1	2	3
8.	I felt as if it hadn't happened or it wasn't real				0	1	2	3
9.	I tried not to talk about it				0	1	2	3
10.	Pictures about it popped into my mind				0	1	2	3
11.	Other things kept making me think about it				0	1	2	3
12.	I was aware that I still had a lot of feelings about it, but I didn't deal with them				0	1	2	3

	0	1	2	3
	<i>not at all</i>	<i>rarely</i>	<i>sometimes</i>	<i>often</i>
13. I tried not to think about it	0	1	2	3
14. Any reminder brought back feelings about it	0	1	2	3
15. My feelings about it were kind of numb	0	1	2	3

USSI

Below are a number of statements given by people who experience stressful events, about the behaviour of others towards them afterwards. Please rate each statement with how much of that response you received from others following the incident that you described, from 0 (none) to 4 (a lot).

	None				A lot
1. Did not seem to want to hear about it	0	1	2	3	4
2. Did not seem to know what to say, or seemed afraid of saying or doing the “wrong” thing	0	1	2	3	4
3. Felt that I should stop worrying about the event and just forget about it	0	1	2	3	4
4. Asked “why” questions about my role in the event	0	1	2	3	4
5. Refused to take me seriously	0	1	2	3	4
6. Seemed to be telling me what he or she thought I wanted to hear	0	1	2	3	4
7. Told me to be strong, to keep my chin up, or that I should not let it bother me	0	1	2	3	4
8. “Should or shouldn’t have” comments about my role in the event	0	1	2	3	4
9. Changed the subject before I wanted to	0	1	2	3	4

	None			A lot	
10. From voice tone, expression, or body language, I got the feeling he or she was uncomfortable talking about it	0	1	2	3	4
11. Felt that I should focus on the present or the future and that I should forget about what has happened and get on with my life	0	1	2	3	4
12. Told me that I had got myself into the situation in the first place, and now must deal with the consequences	0	1	2	3	4
13. Refused to provide the type of help or support I was asking for	0	1	2	3	4
14. Tried to cheer me up when I was not ready to	0	1	2	3	4
15. Felt that it could have been worse or was not as bad as I thought	0	1	2	3	4
16. Blaming me, trying to make me feel responsible for the event	0	1	2	3	4
17. When I was talking about it, person didn't give me enough time, or made me feel like I should hurry	0	1	2	3	4
18. Responded with uninvited physical touching (e.g., hugging)	0	1	2	3	4
19. Said I should look on the bright side	0	1	2	3	4
20. "I told you so" or similar comment	0	1	2	3	4
21. Discouraged me from expressing feelings such as anger, hurt or sadness	0	1	2	3	4
22. Did things for me that I wanted to do and could have done for myself	0	1	2	3	4
23. Felt that I was overreacting	0	1	2	3	4
24. Seemed disappointed in me	0	1	2	3	4

CIOQ

*Below are printed some statements about your current thoughts and feelings following your stressful event. **Please read each one and indicate, by circling one of the numbers beside each statement, how much you agree or disagree with it at the present time, using the following scale.***

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
1 I don't look forward to the future anymore	1	2	3	4	5	6
2 My life has no meaning anymore	1	2	3	4	5	6
3 I no longer feel able to cope with things	1	2	3	4	5	6
4 I don't take life for granted anymore	1	2	3	4	5	6
5 I value my relationships much more now	1	2	3	4	5	6
6 I feel more experienced about life now	1	2	3	4	5	6
7 I do not worry about death at all anymore	1	2	3	4	5	6
8 I live every day to the full now	1	2	3	4	5	6
9 I fear death very much now	1	2	3	4	5	6
10 I look upon each day as a bonus	1	2	3	4	5	6
11 I feel as if something bad is just waiting around the corner to happen	1	2	3	4	5	6
12 I am a more understanding and tolerant person now	1	2	3	4	5	6
13 I have a greater faith in human nature now	1	2	3	4	5	6

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
14 I no longer take people or things for granted	1	2	3	4	5	6
15 I desperately wish I could turn the clock back to before it happened	1	2	3	4	5	6
16 I sometimes think it's not worth being a good person	1	2	3	4	5	6
17 I have very little trust in other people now	1	2	3	4	5	6
18 I feel very much as if I'm in limbo	1	2	3	4	5	6
19 I have very little trust in myself now	1	2	3	4	5	6
20 I feel harder towards people	1	2	3	4	5	6
21 I am less tolerant of others now	1	2	3	4	5	6
22. I am much less able to communicate with other people	1	2	3	4	5	6
23 I am less tolerant of others now	1	2	3	4	5	6
24 I am more determined to succeed in life now	1	2	3	4	5	6
25 Nothing makes me happy anymore	1	2	3	4	5	6
26 I feel as if I'm dead from the neck downwards	1	2	3	4	5	6

PTGI

*We are interested in how you think you have changed after the event you described. Below are a number of statements that may or may not be representative of how you think you have changed. **Please read each statement carefully and circle the number that best describes how you feel.** People react to events in many different ways.*

- 0 = I did not** change as a result of the event I described
- 1 = I changed to a very small** degree as a result of the event I described
- 2 = I changed to a small** degree as a result of the event I described
- 3 = I changed to a moderate** degree as a result of the event I described
- 4 = I changed to a great** degree as a result of the event I described
- 5 = I changed to a very great** degree as a result of the event I described
-

1. My priorities about what is important in life	0	1	2	3	4	5
2. An appreciation for the value of my own life	0	1	2	3	4	5
3. I developed new interests	0	1	2	3	4	5
4. A feeling of self reliance	0	1	2	3	4	5
5. A better understanding of spiritual matters	0	1	2	3	4	5
6. Knowing that I can count on people in times of trouble	0	1	2	3	4	5
7. I established a new path for my life	0	1	2	3	4	5
8. A sense of closeness with others	0	1	2	3	4	5
9. A willingness to express my emotions	0	1	2	3	4	5
10. Knowing I can handle difficulties	0	1	2	3	4	5

11. I'm able to do better things with my life	0	1	2	3	4	5
12. Being able to accept the way things work out	0	1	2	3	4	5
13. Appreciating each day	0	1	2	3	4	5
14. New opportunities are available which wouldn't have been otherwise	0	1	2	3	4	5
15. Having compassion for others	0	1	2	3	4	5
16. Putting effort into my relationships	0	1	2	3	4	5
17. I'm more likely to change things which need changing	0	1	2	3	4	5
18. I have a stronger religious faith	0	1	2	3	4	5
19. I discovered that I'm stronger than I thought I was	0	1	2	3	4	5
20. I learned a great deal about how wonderful people are	0	1	2	3	4	5
21. I accept needing others	0	1	2	3	4	5

Demographic Information

Please provide some personal details below. This information will be treated in the strictest confidence and used solely for the purposes of the research.

Personal

Brigade Number: _____ Name (optional):-

Date of Birth: _____ Sex: Male ___ Female ___ Age: _____ years

Length of service: _____ years _____ months

Current Relationship Status

Single / Never Married ___ Married / living as married ___ Separated ___
 Divorced ___ Widowed ___ Other ___

Ethnic Origin

White British ___ White Irish ___ White Other ___
 Black African Caribbean ___ Black African ___ Black Other ___
 Asian Indian ___ Asian Pakistani ___ Asian Bangladeshi ___
 Asian Other ___ Chinese ___
 Other Ethnic Group (please specify) _____

Educational Level (please indicate highest qualification)

O-level / GCSE ___ High school / A-level ___ Bachelor's Degree ___
 Master's degree ___ Doctoral degree ___ Professional / Vocational ___
 Other ___ (please describe): _____

*Once complete, please return your questionnaire. If you have any comments to make on any aspect of this project or stress in the brigade, please record them below.
 Thank you for your participation.*

Appendix 7

Questionnaire pack for Chapter 7 and Chapter 8, Time 1

This questionnaire pack is presented in the way it would have been received by participants.

The ordering of the questionnaires is as follows:

Psychological Well-Being Scales

Social Support Questionnaire – short form

Provision of Social Relations

Stressful Experience information

Traumatic Events Questionnaire

Impact of Event Scale

Crisis Support Scale

Unsupportive Social Interactions Inventory

Changes in Outlook Questionnaire

Posttraumatic Growth Inventory

Demographic Information

The questionnaire is arranged in a particular order. It asks about you, people you know and then about a significant incident that had an emotional impact on you. It may be a serious operational incident, or a personal one at work, such as an accident, a bad decision or something unpleasant that happened to you, or that you witnessed. The important thing is that it was upsetting for you, regardless of anybody else. Once you have identified an incident it will ask you about your reactions to it, and others' reactions to you following that incident.

PWB						
<i>The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.</i>						
	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
1. Maintaining close relationships has been difficult and frustrating for me	1	2	3	4	5	6
2. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
3. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
4. I think it is important to have new experiences that challenge how you think about yourself and the world	1	2	3	4	5	6
5. I live one day at a time and don't really think about the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6

	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
8. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
9. The demands of everyday life often get me down.	1	2	3	4	5	6
10. For me, life has been a continuous process of learning, changing and growing.	1	2	3	4	5	6
11. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
12. I like most aspects of my personality.	1	2	3	4	5	6
13. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
14. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
15. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
16. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
17. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
18. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6

SSQ6

The following questions ask about people in your environment who provide you with help and support. Each question has two parts.

- 3. Give the **number of people** (from 0-9, excluding yourself) whom you can count on for help or support in the manner described.
- 4. Circle **how satisfied** you are with the overall support you have.

1. Whom can you really count on to distract you from your worries when you feel under stress?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

2. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

3. Who accepts you totally, including both your best and your worst points?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

4. Whom can you really count on to care about you, regardless of what is happening to you?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

5. Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

Number

Satisfaction 0 1 2 3 4 5

Very dissatisfied

Very satisfied

6. Whom can you really count on to console you when you are very upset?

Number

Satisfaction 0 1 2 3 4 5

Very dissatisfied

Very satisfied

PSR

We would like to know something about your relationships with other people. Please read each statement below and decide how well the statement describes you. For each statement, show your answer by indicating to the left of the item the number that best describes how you feel. The numbers represent the following answers.

1 = Very much like me

2 = Much like me

3 = Somewhat like me

4 = Not very much like me

5 = Not at all like me

___ 1. When I'm with my friends, I feel completely able to relax and be myself.

___ 2. I share the same approach to life that many of my friends do.

___ 3. People who know me trust me and respect me.

___ 4. There are some things I could only discuss with a colleague.

___ 5. No matter what happens, I know that my family will always be there for me should I need them.

1 = Very much like me

2 = Much like me

3 = Somewhat like me

4 = Not very much like me

5 = Not at all like me

- ___ 6. When I want to go out and to do things I know that many of my friends would enjoy doing these things with me.
- ___ 7. I have at least one friend I could tell anything to.
- ___ 8. The team I work in has a special trust and respect for me.
- ___ 9. Sometimes I'm not sure if I can completely rely on my family.
- ___ 10. People who know me think I am good at what I do.
- ___ 11. I feel very close to some of my friends.
- ___ 12. Sometimes I'm not sure if I can completely rely on my colleagues.
- ___ 13. People in my family have confidence in me.
- ___ 14. My family lets me know they think I am a worthwhile person.
- ___ 15. People in my family provide me with help in finding solutions to my problems.
- ___ 16. I wouldn't tell any of my colleagues if I was feeling nervous.
- ___ 17. My friends would take the time to talk over my problems, should I ever want to.
- ___ 18. I know my family will always stand by me.
- ___ 19. Even when I am with my friends I feel alone.
- ___ 20. I would rather talk about upsetting incidents with my colleagues than friends and family.

INCIDENT

*Recall an operational or job-related incident that occurred during your career that **you found upsetting**, or one that **you found difficult to deal with** at the time and/or afterwards. Please choose one that is relevant to you personally, rather than one that others reported as difficult.*

When did this happen? _____

What happened? (no detailed description is necessary)

Now, thinking about that incident, please answer the following questions. Please indicate your response by placing the appropriate number alongside the item, according to the scale below:

	0	1	2	3	4	5	6	7	
	Not at all				Severely/extremely				
1.	To what extent were you physically injured?								_____
2.	To what extent was someone else physically injured?								_____
3.	How much did you feel that your life was in danger?								_____
4.	How much did you feel that someone else's life was in danger?								_____
5.	How helpless did you feel?								_____
6.	How afraid did you feel?								_____

0 1 2 3 4 5 6 7

Not at all

Severely/extremely

7. How horrified did you feel? _____
8. How upsetting was the event at the time? _____
9. How upsetting is the event now? _____

IES

*Below is a list of comments made by people after stressful events. Please think about your stressful event. Then please check each item, indicating how frequently these comments were true for you **during the past seven days**. If they did not occur during that time, please circle "not at all".*

0	1	2	3
<i>not at all</i>	<i>rarely</i>	<i>sometimes</i>	<i>often</i>

- | | | | | |
|---|---|---|---|---|
| 1. I thought about it when I didn't mean to | 0 | 1 | 2 | 3 |
| 2. I avoided letting myself get upset when I thought about it or was reminded of it | 0 | 1 | 2 | 3 |
| 3. I tried to remove it from memory | 0 | 1 | 2 | 3 |
| 4. I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my head | 0 | 1 | 2 | 3 |
| 5. I had waves of strong feelings about it | 0 | 1 | 2 | 3 |
| 6. I had dreams about it | 0 | 1 | 2 | 3 |
| 7. I stayed away from reminders of it | 0 | 1 | 2 | 3 |
| 8. I felt as if it hadn't happened or it wasn't real | 0 | 1 | 2 | 3 |
| 9. I tried not to talk about it | 0 | 1 | 2 | 3 |
| 10. Pictures about it popped into my mind | 0 | 1 | 2 | 3 |

	0	1	2	3
	<i>not at all</i>	<i>rarely</i>	<i>sometimes</i>	<i>often</i>
11. Other things kept making me think about it	0	1	2	3
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3
13. I tried not to think about it	0	1	2	3
14. Any reminder brought back feelings about it	0	1	2	3
15. My feelings about it were kind of numb	0	1	2	3

CSS

Below is a list of statements about the help, advice and support that you received following incidents like the one you reported above. Please indicate, using the scale below, how often you receive this support.

	1	2	3	4	5	6	7	
	Never							Always
1	Whenever you want to talk, how often is there someone willing to listen?							_____
2	Do you have personal contact with other people with similar experiences?							_____
3	Are you able to talk about your thoughts and feelings?							_____
4	Are people sympathetic and supportive?							_____
5	Are people helpful in a practical sort of way?							_____
6	Do people you expected to be supportive make you feel worse at any time?							_____
7	Overall, are you satisfied with the support you receive?							_____

USSI

Below are a number of statements given by people who experience stressful events, about the behaviour of others towards them afterwards. Please rate each statement with how much of that response you received from others following the incident that you described, from 0 (none) to 4 (a lot).

	None				A lot
1. Did not seem to want to hear about it	0	1	2	3	4
2. Did not seem to know what to say, or seemed afraid of saying or doing the “wrong” thing	0	1	2	3	4
3. Felt that I should stop worrying about the event and just forget about it	0	1	2	3	4
4. Asked “why” questions about my role in the event	0	1	2	3	4
5. Refused to take me seriously	0	1	2	3	4
6. Seemed to be telling me what he or she thought I wanted to hear	0	1	2	3	4
7. Told me to be strong, to keep my chin up, or that I should not let it bother me	0	1	2	3	4
8. “Should or shouldn’t have” comments about my role in the event	0	1	2	3	4
9. Changed the subject before I wanted to	0	1	2	3	4
10. From voice tone, expression, or body language, I got the feeling he or she was uncomfortable talking about it	0	1	2	3	4
11. Felt that I should focus on the present or the future and that I should forget about what has happened and get on with my life	0	1	2	3	4
12. Told me that I had got myself into the situation in the first place, and now must deal with the consequences	0	1	2	3	4

13. Refused to provide the type of help or support I was asking for	0	1	2	3	4
14. Tried to cheer me up when I was not ready to	0	1	2	3	4
15. Felt that it could have been worse or was not as bad as I thought	0	1	2	3	4
16. Blaming me, trying to make me feel responsible for the event	0	1	2	3	4
17. When I was talking about it, person didn't give me enough time, or made me feel like I should hurry	0	1	2	3	4
18. Responded with uninvited physical touching (e.g., hugging)	0	1	2	3	4
19. Said I should look on the bright side	0	1	2	3	4
20. "I told you so" or similar comment	0	1	2	3	4
21. Discouraged me from expressing feelings such as anger, hurt or sadness	0	1	2	3	4
22. Did things for me that I wanted to do and could have done for myself	0	1	2	3	4
23. Felt that I was overreacting	0	1	2	3	4
24. Seemed disappointed in me	0	1	2	3	4

CIOQ

Below are printed some statements about your current thoughts and feelings following your stressful event. Please read each one and indicate, by circling one of the numbers beside each statement, how much you agree or disagree with it at the present time, using the following scale.

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
1 I don't look forward to the future anymore	1	2	3	4	5	6
2 My life has no meaning anymore	1	2	3	4	5	6
3 I no longer feel able to cope with things	1	2	3	4	5	6
4 I don't take life for granted anymore	1	2	3	4	5	6
5 I value my relationships much more now	1	2	3	4	5	6
6 I feel more experienced about life now	1	2	3	4	5	6
7 I do not worry about death at all anymore	1	2	3	4	5	6
8 I live every day to the full now	1	2	3	4	5	6
9 I fear death very much now	1	2	3	4	5	6
10 I look upon each day as a bonus	1	2	3	4	5	6
11 I feel as if something bad is just waiting around the corner to happen	1	2	3	4	5	6
12 I am a more understanding and tolerant person now	1	2	3	4	5	6
13 I have a greater faith in human nature now	1	2	3	4	5	6

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
14 I no longer take people or things for granted	1	2	3	4	5	6
15 I desperately wish I could turn the clock back to before it happened	1	2	3	4	5	6
16 I sometimes think it's not worth being a good person	1	2	3	4	5	6
17 I have very little trust in other people now	1	2	3	4	5	6
18 I feel very much as if I'm in limbo	1	2	3	4	5	6
19 I have very little trust in myself now	1	2	3	4	5	6
20 I feel harder towards people	1	2	3	4	5	6
21 I am less tolerant of others now	1	2	3	4	5	6
22. I am much less able to communicate with other people	1	2	3	4	5	6
23 I am less tolerant of others now	1	2	3	4	5	6
24 I am more determined to succeed in life now	1	2	3	4	5	6
25 Nothing makes me happy anymore	1	2	3	4	5	6
26 I feel as if I'm dead from the neck downwards	1	2	3	4	5	6

PTGI

*We are interested in how you think you have changed after the event you described. Below are a number of statements that may or may not be representative of how you think you have changed. **Please read each statement carefully and circle the number that best describes how you feel.** People react to events in many different ways.*

- 0 = I did not change as a result of the event I described**
- 1 = I changed to a very small degree as a result of the event I described**
- 2 = I changed to a small degree as a result of the event I described**
- 3 = I changed to a moderate degree as a result of the event I described**
- 4 = I changed to a great degree as a result of the event I described**
- 5 = I changed to a very great degree as a result of the event I described**
-

1. My priorities about what is important in life	0	1	2	3	4	5
2. An appreciation for the value of my own life	0	1	2	3	4	5
3. I developed new interests	0	1	2	3	4	5
4. A feeling of self reliance	0	1	2	3	4	5
5. A better understanding of spiritual matters	0	1	2	3	4	5
6. Knowing that I can count on people in times of trouble	0	1	2	3	4	5
7. I established a new path for my life	0	1	2	3	4	5
8. A sense of closeness with others	0	1	2	3	4	5
9. A willingness to express my emotions	0	1	2	3	4	5
10. Knowing I can handle difficulties	0	1	2	3	4	5

11. I'm able to do better things with my life	0	1	2	3	4	5
12. Being able to accept the way things work out	0	1	2	3	4	5
13. Appreciating each day	0	1	2	3	4	5
14. New opportunities are available which wouldn't have been otherwise	0	1	2	3	4	5
15. Having compassion for others	0	1	2	3	4	5
16. Putting effort into my relationships	0	1	2	3	4	5
17. I'm more likely to change things which need changing	0	1	2	3	4	5
18. I have a stronger religious faith	0	1	2	3	4	5
19. I discovered that I'm stronger than I thought I was	0	1	2	3	4	5
20. I learned a great deal about how wonderful people are	0	1	2	3	4	5
21. I accept needing others	0	1	2	3	4	5

Demographic Information

Please provide some personal details below. This information will be treated in the strictest confidence and used solely for the purposes of the research.

Personal

Brigade Number: _____ Name (optional):-

Date of Birth: _____ Sex: Male ___ Female ___ Age: _____ years

Length of service: _____ years _____ months

Current Relationship Status

Single / Never Married ___ Married / living as married ___ Separated ___
Divorced ___ Widowed ___ Other ___

Ethnic Origin

White British ___ White Irish ___ White Other ___
Black African Caribbean ___ Black African ___ Black Other ___
Asian Indian ___ Asian Pakistani ___ Asian Bangladeshi ___
Asian Other ___ Chinese ___
Other Ethnic Group (please specify) _____

Educational Level (please indicate highest qualification)

O-level / GCSE ___ High school / A-level ___ Bachelor's Degree ___
Master's degree ___ Doctoral degree ___ Professional / Vocational ___
Other ___ (please describe): _____

Once complete, please return your questionnaire. If you have any comments to make on any aspect of this project or stress in the brigade, please record them below.
Thank you for your participation.

Appendix 8

Questionnaire pack for Chapter 8, Time 2 (9-month follow-up)

This questionnaire pack is presented in the way it would have been received by participants.

The ordering of the questionnaires is as follows:

Psychological Well-Being Scales

Social Support Questionnaire – short form

Provision of Social Relations

Stressful Experience information – (Time 1 specific)

Traumatic Events Questionnaire

Impact of Event Scale

Crisis Support Scale

Unsupportive Social Interactions Inventory

Changes in Outlook Questionnaire

Posttraumatic Growth Inventory

The questionnaire is arranged in a particular order. As in the previous one, it starts by asking questions about you and people that you know. Then it asks about the incident that you reported in the earlier questionnaire, about six months ago. The second part of the questionnaire asks you about your reactions to the incident, and others reactions to you. Finally, you will be asked to report any significant event that has occurred since October 2008.

PWB						
<i>The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.</i>						
	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
1. Maintaining close relationships has been difficult and frustrating for me	1	2	3	4	5	6
2. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
3. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
4. I think it is important to have new experiences that challenge how you think about yourself and the world	1	2	3	4	5	6
5. I live one day at a time and don't really think about the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6

	Strongly disagree	Disagree somewhat	Disagree slightly	Agree slightly	Agree somewhat	Strongly agree
8. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
9. The demands of everyday life often get me down.	1	2	3	4	5	6
10. For me, life has been a continuous process of learning, changing and growing.	1	2	3	4	5	6
11. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
12. I like most aspects of my personality.	1	2	3	4	5	6
13. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
14. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
15. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
16. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
17. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
18. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6

SSQ6

The following questions ask about people in your environment who provide you with help and support. Each question has two parts.

- 5. Give the **number of people** (from 0-9, excluding yourself) whom you can count on for help or support in the manner described.
- 6. Circle **how satisfied** you are with the overall support you have.

1. Whom can you really count on to distract you from your worries when you feel under stress?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

2. Whom can you really count on to help you feel more relaxed when you are under pressure or tense?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

3. Who accepts you totally, including both your best and your worst points?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

4. Whom can you really count on to care about you, regardless of what is happening to you?

Number

Satisfaction	0	1	2	3	4	5
	Very dissatisfied				Very satisfied	

5. Whom can you really count on to help you feel better when you are feeling generally down-in-the-dumps?

Number

Satisfaction 0 1 2 3 4 5

Very dissatisfied

Very satisfied

6. Whom can you really count on to console you when you are very upset?

Number

Satisfaction 0 1 2 3 4 5

Very dissatisfied

Very satisfied

PSR

We would like to know something about your relationships with other people. Please read each statement below and decide how well the statement describes you. For each statement, show your answer by indicating to the left of the item the number that best describes how you feel. The numbers represent the following answers.

1 = Very much like me

2 = Much like me

3 = Somewhat like me

4 = Not very much like me

5 = Not at all like me

___ 1. When I'm with my friends, I feel completely able to relax and be myself.

___ 2. I share the same approach to life that many of my friends do.

___ 3. People who know me trust me and respect me.

___ 4. There are some things I could only discuss with a colleague.

___ 5. No matter what happens, I know that my family will always be there for me
should I need them.

1 = Very much like me

2 = Much like me

3 = Somewhat like me

4 = Not very much like me

5 = Not at all like me

- ___ 6. *When I want to go out and to do things I know that many of my friends would enjoy doing these things with me.*
- ___ 7. I have at least one friend I could tell anything to.
- ___ 8. The team I work in has a special trust and respect for me.
- ___ 9. Sometimes I'm not sure if I can completely rely on my family.
- ___ 10. People who know me think I am good at what I do.
- ___ 11. I feel very close to some of my friends.
- ___ 12. Sometimes I'm not sure if I can completely rely on my colleagues.
- ___ 13. People in my family have confidence in me.
- ___ 14. My family lets me know they think I am a worthwhile person.
- ___ 15. People in my family provide me with help in finding solutions to my problems.
- ___ 16. I wouldn't tell any of my colleagues if I was feeling nervous.
- ___ 17. My friends would take the time to talk over my problems, should I ever want to.
- ___ 18. I know my family will always stand by me.
- ___ 19. Even when I am with my friends I feel alone.
- ___ 20. I would rather talk about upsetting incidents with my colleagues than friends and family.

INCIDENT

This is the bit that's changed that each individual has to have their own page for...

When did this happen? _____

What happened? (no detailed description is necessary)

Now, thinking about that incident, please answer the following questions. Please indicate your response by placing the appropriate number alongside the item, according to the scale below:

0 1 2 3 4 5 6 7

Not at all

Severely/extremely

1. To what extent were you physically injured? _____
2. To what extent was someone else physically injured? _____
3. How much did you feel that your life was in danger? _____
4. How much did you feel that someone else's life was in danger? _____
5. How helpless did you feel? _____
6. How afraid did you feel? _____

0 1 2 3 4 5 6 7

Not at all	Severely/extremely
7. How horrified did you feel?	_____
8. How upsetting was the event at the time?	_____
9. How upsetting is the event now?	_____

IES

*Below is a list of comments made by people after stressful events. Please think about your stressful event. Then please check each item, indicating how frequently these comments were true for you **during the past seven days**. If they did not occur during that time, please circle “not at all”.*

	0 not at all	1 rarely	2 sometimes	3 often
1. I thought about it when I didn't mean to	0	1	2	3
2. I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3
3. I tried to remove it from memory	0	1	2	3
4. I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my head	0	1	2	3
5. I had waves of strong feelings about it	0	1	2	3
6. I had dreams about it	0	1	2	3
7. I stayed away from reminders of it	0	1	2	3
8. I felt as if it hadn't happened or it wasn't real	0	1	2	3
9. I tried not to talk about it	0	1	2	3
10. Pictures about it popped into my mind	0	1	2	3
11. Other things kept making me think about it	0	1	2	3
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3

13. I tried not to think about it	0	1	2	3
14. Any reminder brought back feelings about it	0	1	2	3
15. My feelings about it were kind of numb	0	1	2	3

Below is a list of statements about the help, advice and support that you received following incidents like the one you reported above. Please indicate, using the scale below, how often you receive this support.

1	2	3	4	5	6	7
Never			Always			

- 1 Whenever you want to talk, how often is there someone willing to listen? _____
- 2 Do you have personal contact with other people with similar experiences? _____
- 3 Are you able to talk about your thoughts and feelings? _____
- 4 Are people sympathetic and supportive? _____
- 5 Are people helpful in a practical sort of way? _____
- 6 Do people you expected to be supportive make you feel worse at any time? _____
- 7 Overall, are you satisfied with the support you receive? _____

USSI

Below are a number of statements given by people who experience stressful events, about the behaviour of others towards them afterwards. Please rate each statement with how much of that response you received from others following the incident that you described, from 0 (none) to 4 (a lot).

	None			A lot	
1. Did not seem to want to hear about it	0	1	2	3	4
2. Did not seem to know what to say, or seemed afraid of saying or doing the "wrong" thing	0	1	2	3	4
3. Felt that I should stop worrying about the event and just forget about it	0	1	2	3	4
4. Asked "why" questions about my role in the event	0	1	2	3	4
5. Refused to take me seriously	0	1	2	3	4
6. Seemed to be telling me what he or she thought I wanted to hear	0	1	2	3	4
7. Told me to be strong, to keep my chin up, or that I should not let it bother me	0	1	2	3	4
8. "Should or shouldn't have" comments about my role in the event	0	1	2	3	4
9. Changed the subject before I wanted to	0	1	2	3	4
10. From voice tone, expression, or body language, I got the feeling he or she was uncomfortable talking about it	0	1	2	3	4
11. Felt that I should focus on the present or the future and that I should forget about what has happened and get on with my life	0	1	2	3	4
12. Told me that I had got myself into the situation in the first place, and now must deal with the consequences	0	1	2	3	4

	None				A lot
13. Refused to provide the type of help or support I was asking for	0	1	2	3	4
14. Tried to cheer me up when I was not ready to	0	1	2	3	4
15. Felt that it could have been worse or was not	0	1	2	3	4
16. Blaming me, trying to make me feel responsible for the event	0	1	2	3	4
17. When I was talking about it, person didn't give me enough time, or made me feel like I should hurry	0	1	2	3	4
18. Responded with uninvited physical touching (e.g., hugging)	0	1	2	3	4
19. Said I should look on the bright side	0	1	2	3	4
20. "I told you so" or similar comment	0	1	2	3	4
21. Discouraged me from expressing feelings such as anger, hurt or sadness	0	1	2	3	4
22. Did things for me that I wanted to do and could have done for myself	0	1	2	3	4
23. Felt that I was overreacting	0	1	2	3	4
24. Seemed disappointed in me	0	1	2	3	4

CIOQ

Below are printed some statements about your current thoughts and feelings following your stressful event. Please read each one and indicate, by circling one of the numbers beside each statement, how much you agree or disagree with it at the present time, using the following scale.

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
1 I don't look forward to the future anymore	1	2	3	4	5	6
2 My life has no meaning anymore	1	2	3	4	5	6
3 I no longer feel able to cope with things	1	2	3	4	5	6
4 I don't take life for granted anymore	1	2	3	4	5	6
5 I value my relationships much more now	1	2	3	4	5	6
6 I feel more experienced about life now	1	2	3	4	5	6
7 I do not worry about death at all anymore	1	2	3	4	5	6
8 I live every day to the full now	1	2	3	4	5	6
9 I fear death very much now	1	2	3	4	5	6
10 I look upon each day as a bonus	1	2	3	4	5	6
11 I feel as if something bad is just waiting around the corner to happen	1	2	3	4	5	6
12 I am a more understanding and tolerant person now	1	2	3	4	5	6
13 I have a greater faith in human nature now	1	2	3	4	5	6

	1	2	3	4	5	6
	Strongly disagree	Disagree	Disagree a little	Agree a little	Agree	Strongly agree
14 I no longer take people or things for granted	1	2	3	4	5	6
15 I desperately wish I could turn the clock back to before it happened	1	2	3	4	5	6
16 I sometimes think it's not worth being a good person	1	2	3	4	5	6
17 I have very little trust in other people now	1	2	3	4	5	6
18 I feel very much as if I'm in limbo	1	2	3	4	5	6
19 I have very little trust in myself now	1	2	3	4	5	6
20 I feel harder towards people	1	2	3	4	5	6
21 I am less tolerant of others now	1	2	3	4	5	6
22. I am much less able to communicate with other people	1	2	3	4	5	6
23 I am less tolerant of others now	1	2	3	4	5	6
24 I am more determined to succeed in life now	1	2	3	4	5	6
25 Nothing makes me happy anymore	1	2	3	4	5	6
26 I feel as if I'm dead from the neck downwards	1	2	3	4	5	6

PTGI

We are interested in how you think you have changed after the event you described. Below are a number of statements that may or may not be representative of how you think you have changed. Please read each statement carefully and circle the number that best describes how you feel. People react to events in many different ways.

0 = I did not change as a result of the event I described

1 = I changed to a very small degree as a result of the event I described

2 = I changed to a small degree as a result of the event I described

3 = I changed to a moderate degree as a result of the event I described

4 = I changed to a great degree as a result of the event I described

5 = I changed to a very great degree as a result of the event I described

1. My priorities about what is important in life	0	1	2	3	4	5
2. An appreciation for the value of my own life	0	1	2	3	4	5
3. I developed new interests	0	1	2	3	4	5
4. A feeling of self reliance	0	1	2	3	4	5
5. A better understanding of spiritual matters	0	1	2	3	4	5
6. Knowing that I can count on people in times of trouble	0	1	2	3	4	5
7. I established a new path for my life	0	1	2	3	4	5
8. A sense of closeness with others	0	1	2	3	4	5
9. A willingness to express my emotions	0	1	2	3	4	5
10. Knowing I can handle difficulties	0	1	2	3	4	5

11. I'm able to do better things with my life	0	1	2	3	4	5
12. Being able to accept the way things work out	0	1	2	3	4	5
13. Appreciating each day	0	1	2	3	4	5
14. New opportunities are available which wouldn't have been otherwise	0	1	2	3	4	5
15. Having compassion for others	0	1	2	3	4	5
16. Putting effort into my relationships	0	1	2	3	4	5
17. I'm more likely to change things which need changing	0	1	2	3	4	5
18. I have a stronger religious faith	0	1	2	3	4	5
19. I discovered that I'm stronger than I thought I was	0	1	2	3	4	5
20. I learned a great deal about how wonderful people are	0	1	2	3	4	5
21. I accept needing others	0	1	2	3	4	5

RECENT INCIDENT

Have any of the following life events or problems happened to you during the last 6 months or so since completing the previous questionnaire? Please tick the box or boxes corresponding to any of the events occurring or beginning.

	Yes	No
You yourself suffered a serious illness, injury, or an assault.		
A serious illness, injury, or assault happened to a close relative.		
Your parent, child or spouse died.		
A close family friend or another relative (e.g. aunt, cousin, grandparent) died.		
You had a separation due to marital difficulties.		
You broke off a steady relationship		
You had a serious problem with a close friend, neighbour or relative.		
You became unemployed or you were seeking work unsuccessfully for more than one month.		
You were sacked from your job.		
You had a major financial crisis.		
You had problems with the police and a court appearance.		
Something you valued was lost or stolen		

If you have answered 'No' to all the statements above, you have finished. Please place your questionnaire in the envelope, seal it and return as requested.

If any of the previous incidents have happened to you, please complete the following.IES

Below is a list of comments made by people after stressful events. Please think about your recent event. Then please check each item, indicating how frequently these comments were true for you **during the past seven days**. If they did not occur during that time, please circle "not at all".

	0 not at all	1 rarely	2 sometimes	3 often
1. I thought about it when I didn't mean to	0	1	2	3
2. I avoided letting myself get upset when I thought about it or was reminded of it	0	1	2	3
3. I tried to remove it from memory	0	1	2	3
4. I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my head	0	1	2	3
5. I had waves of strong feelings about it	0	1	2	3
6. I had dreams about it	0	1	2	3
7. I stayed away from reminders of it	0	1	2	3
8. I felt as if it hadn't happened or it wasn't real	0	1	2	3
9. I tried not to talk about it	0	1	2	3
10. Pictures about it popped into my mind	0	1	2	3
11. Other things kept making me think about it	0	1	2	3
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	2	3
13. I tried not to think about it	0	1	2	3
14. Any reminder brought back feelings about it	0	1	2	3
15. My feelings about it were kind of numb	0	1	2	3