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Psychological resilience: The influence of positive and negative life events upon optimism, hope, and perceived locus of control

Michael Philip Hand

Psychological Resilience: The Influence of Positive and Negative Life Events Upon Optimism, Hope, and Perceived Locus of Control

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Dissertation Submitted in Partial Fulfillment

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DOCTOR OF PHILOSOPHY DISSERTATION

OF

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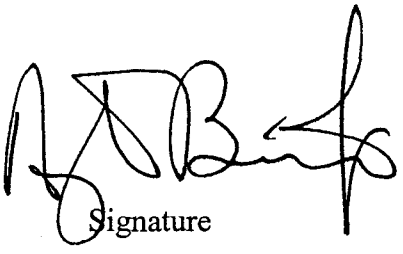

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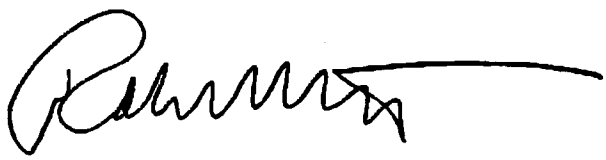

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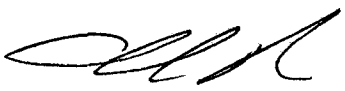

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ABSTRACT

Psychological Resilience: The Influence of Positive and Negative Life Events Upon Optimism, Hope, and Perceived Locus of Control

by

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Abstract

The purpose of this study was to clarify the optimal levels of optimism, perceived locus of control, hope, and degree of adversity experienced in life, in the development and maintenance of psychological resilience. A sample of 328 male and female students from Walden University and Washington State University completed either online or paper versions of a questionnaire consisting of the *Life Orientation Test-Revised*, *Internal-External Locus of Control Scale*, *HOPE Scale*, and the *Life Experiences Scale*. A series of bivariate correlation and multiple regression analyses tested the relationships between and among the five variables. As predicted, the bivariate analyses produced significant correlations between each of the variables. Contrary to predictions, negative life experience, rather than positive life experience, was predictive of stronger correlations between optimism and hope, optimism and control, and hope and control. The correlation between hope and control varied under differing levels of positive and negative life experience such that both high negative and high positive life experience resulted in the lowest correlation, and intermediate levels (low negative and low positive) resulted in the highest correlation. Hope itself was found not to be significantly correlated with either positive or negative life experience. Stepwise multiple regression analyses explored the relative influence of positive and negative life experience, age, gender and number of life experiences on optimism, hope and perceived locus of control. The analyses revealed unexpectedly strong loadings of age and gender in the predictions of both control and optimism. Suggested implications of the research included clinical approaches to trauma recovery, educational and parental methods to foster development of resilience in children, and military training to proactively prepare for the rigors of combat.

ACKNOWLEDGEMENTS

"Knowledge is in the end based on acknowledgement."
Ludwig Wittgenstein (1889-1951)

I have always loved words; they intrigue and inspire me. And yet I now find my command of them inadequate for expressing my appreciation to all who have guided and sustained me through this adventure. Nevertheless, I shall try.

I wish to express my deep appreciation and admiration for my chairman, Dr. Augustine Baron, who has been my advisor and mentor through this journey. I am also indebted beyond measure to the knowledge, support and encouragement generously provided by my other dissertation committee members, Dr. Robert Hunter, Dr. James Carroll, and the faculty representative, Dr. Abbie Brown.

This research would not have been possible without the permission and generous support provided by both Walden University and Washington State University, as well as the participants who graciously volunteered their time. In addition, I wish to acknowledge Dr. Mary Boynton whose boundless knowledge, advice and patience helped me wend my way through the labyrinth of statistical analyses.

Finally, without the selfless support, encouragement and love provided me by my wife, Sandy, my daughter, Camaryn, and my son, Christopher, I could not possibly have accomplished this goal. They make all things possible, are the source of my strength, and the guiding stars for my journey forward.

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Chapter 1: Introduction to the Study

Why do some people succumb to life's stresses and traumas when others do not? More pointedly, what factors, in which combination, and under what circumstances, promote this ability? Answers to these questions would provide valuable tools for both prevention and treatment of problematic reactions to stressful and traumatic experiences. Moreover, these same answers would further our understanding of the interaction between thoughts and physiological reactions.

Scientific inquiry regarding factors responsible for success or failure in coping with adversity has followed two tracks: physiology and psychology. Proponents of each of these tracks have approached the issue along parallel paths, often with little communication, or even consideration, for those with alternate views. Each camp has developed its own vocabulary as well as definitions of terms and parameters.

Both of these approaches to the issue of individual variability of resilience will be addressed in greater detail elsewhere below. However, a brief overview here may provide some clarity regarding both the parameters and focus of the present research, and the rich complexity of the issues under consideration.

Background

Physiological implications. The physiological approach to resilience primarily considers reactions to stressful experiences in terms of, and relationship to, anatomical and biochemical processes. This physiological effort has a long and venerable history, arguably beginning with the work of the endocrinologist Hans Selye (1950, 1955, 1956, 1959, and the series 1951-1956), popularly considered the "father" of stress research.

Selye attempted to determine the specific chemical reactions associated with physiologic stressors, but his model of adaptive response was quickly adopted by others who have since worked to clarify and refine this relationship.

This physiological approach to coping with adverse experience has recently spawned a new and distinct discipline: psychoneuroimmunology. The aim of this discipline is nothing less than determining the relationships among psychosocial factors, the central nervous system, the immune system, and diseases—both physical and emotional (Keller et al., 2000). Psychoneuroimmunology offers a bridge between the two traditional camps, finding the relationship between psychological and physiological factors to be bidirectional (Keller et al., 2000; Maier & Watkins, 1998; Maier, Watkins, & Fleshner, 1994). Simply stated: whatever impacts one side of this mind–body equation impacts the other.

Potentially relevant to the focus of the present research, psychoneuroimmunology pursues understanding of how psychological factors such as stress and depression impact physical health and, conversely, how physical health (and its neuroanatomic and biochemical substrates) impact stress and depression (e.g. Goodkin & Visser, 2000). Stated differently, among its many interests, psychoneuroimmunology pursues understanding of both psychological and physiological resilience.

As noted, psychoneuroimmunology aims to bridge the gap between mind and body. The relationship between mind—essentially thoughts—and body, while seeming mostly philosophic, is germane to an appreciation of the present research. This relevance may be seen in the growing body of evidence linking psychological dynamics such as:

learned helplessness with poor health in middle and late adulthood (Peterson, Seligman, & Valliant, 1988); lowered immune function (Kamen, Rodin, & Seligman, 1987); and illness (Peterson, 1988). Others have explored the relationship between health and perceived control (e.g., Shapiro, Schwartz, & Astin, 1996), as well as between causal attributions (including locus of control), and immune decline (Segerstrom et al., 1996). Still others (Segerstrom, 1998; Taylor et al., 2000) have focused on the relationship between psychological resources such as optimism, personal control, meaning, and physical health.

Psychological implications. Psychological research regarding coping under adversity has been mostly failure focused (Seligman & Csikszentmihalyi, 2000). That is, research efforts have generally been attempts to understand what factors leave individuals more vulnerable to adversity: early parenting dynamics and neuroses, paired associations and phobias, learned helplessness and depression, etcetera. While this research approach is not antithetic to a consideration of positive aspects of psychological functioning such as resilience, it does consider psychological dynamics from a different frame of reference: restorative rather than preventative. Such a view may tend to distort—or at least limit—psychology's model of human beings. This distorted or limited view may stultify the pursuit of understanding that which makes life worthwhile (Seligman & Csikszentmihalyi, 2000), including such psychological and emotional dynamics as "hope, wisdom, creativity, future mindedness, courage, spirituality, responsibility, and perseverance . . . ." (Seligman & Csikszentmihalyi, 2000, p. 5).

It is axiomatic that most, if not all, psychological dynamics have their definitive opposite; a psychological *yin* for every *yang*. That is, factors associated with pathology and failure to cope with adversity have embedded opposites, if only in absence. For example, stress has its opposite in absence of stress; lack of control has control; etcetera. However, this may be too simplistic a view. It is possible that at least some of these factors may be additive or subtractive—and not necessarily in a strictly linear manner. A small amount of a variable may promote coping failure, more may promote coping success, and too much, again, may promote failure. Further, variable *A* added to variable *B* may promote pathology, except when in conjunction with variable *C*. Still further, there may be specific psychological, biological, and experiential factors which not only insulate against failure, but promote something more than the absence of failure—excellence.

Numerous psychological factors have been identified as contributory to either failure or success in coping with adversity, and there is a growing body of research regarding associates of thriving and personal excellence. Given the relative recentness of this focus on thriving and excellence, a brief review of their evolution seems warranted.

Posttraumatic stress. Much attention has been paid to the aftereffects of trauma, mostly through the lens of posttraumatic stress disorder. After laying dormant after World War I, and then again after World War II, the scientific interest in psychological and physiological response to trauma reemerged during America's ten year conflict in Vietnam. Most of this early focus, understandably, was on those who experienced combat (e.g., Blank, Jr., & Talbott, Boulanger & Kadushin, 1986; Figley, 1985; Figley &

Leventman, 1980; Milgram, 1986; Sonnenberg, 1985; Van der Kolk, 1984; Williams, 1987; Williams, 1980) though attention was also brought to bear on the effects of traumas such as natural disasters (e.g., Gleser, Green, & Winget, 1981; Tierney & Baisden, 1979) and aircraft accidents (e.g., Frederick, 1981).

Virtually all of these early efforts, and most of the more recent ones, have attempted to determine the factors associated with individuals' failure in coping with adverse circumstances. Almost none of these early efforts, and few of those more recent, considered the qualities of individuals who do not succumb to traumatic events and severe stressors. More pointedly, these research efforts have not contributed much to the understanding of which factors, and in what combinations, best buffer against experiencing post trauma stress or other of life's difficulties.

Much of posttraumatic stress research is representative of the more traditional focus of psychology: the disease model. However, there appears to be growing interest in a more "positive" side of psychology: exploration of qualities and strategies for prevention rather than recovery; success over failure; enhancement instead of repair.

A prime example of this shift in focus is the introduction to a recent, special issue of the *American Psychologist.* In this introduction, Seligman and Csikszentmihalyi (2000) recall psychology's long history of concentrating on the pathology within a disease model. They view the goal of a more *positive psychology* as achieving a change of refocus from repair and recovery, to strengthening and prevention. As they state: "The field of positive psychology at the subjective level is about valued subjective experiences:

wellbeing, contentment, and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present)" (p. 5).

Seligman and Csikszentmihalyi (2000) note the relatively recent emphasis on prevention, and see this as the engenderment of a broader positive focus, stating:

> Prevention researchers have discovered that there are human strengths that act as buffers against mental illness: courage, future mindedness, optimism, interpersonal skill, faith, work ethic, hope, honesty, perseverance, and the capacity for flow and insight to name several . . . [and that] major psychological theories have changed to undergird a new science of strength and resilience. No longer do the dominant theories view the individual as a passive vessel responding to stimuli; rather, individuals are now seen as decision makers, with choices, preferences, and the possibility of becoming masterful, efficacious, or in malignant circumstances, helpless and hopeless. (pp. 7-8)

More to the heart of the present research effort, Seligman and Csikszentmihalyi (2000) also highlight a number of challenges for the future of positive psychology: the development of positivity, neuroscience and heritability, enjoyment versus pleasure, collective wellbeing, authenticity, buffering, descriptive or prescriptive, and realism (pp. 11-13).

Seligman and Csikszentmihalyi (2000) are not the only ones to see the underlying complexity of positive psychology. The National Institute of Mental Health [NIMH] National Advisory Mental Health Council Basic Behavioral Science Task Force (1996) found that research on the nature of, and variations in, personality has begun to reveal the

sources of these differences. It also found support for multiple sources of positive psychology constructs such as resilience or vulnerability. The Task Force found research supporting the involvement of several interacting factors, including genetic predispositions (often expressed as temperament), personality, intelligence, social skills, self esteem, etcetera. These factors, in turn, are influenced and shaped by environmental and experiential influences (NIMH, p. 22).

Before narrowing the focus, this discussion might benefit from noting the potential mental and physical health implications for increased knowledge in the study of a more positive psychology. A growing number of researchers (e.g., Peterson, 2000; Salovey et al., 2000; Schwartz, 2000; Seligman and Csikszentmihalyi, 2000; Sheldon & King, 2001; Taylor et al., 2000; Vaillant, 2000) see the dynamics and dimensions of a positive psychology offering great potential, not only for healing physical and psychological disorders, but for their prevention as well. Collectively, these and other researchers describe positive psychology and its subcomponents as an important paradigm shift, offering dramatic benefits for both individuals and society.

Fredrickson (2001) sees a major role for positive emotions in positive psychology. For Fredrickson, positive emotions are indicators of thriving and optimum wellbeing. Further, and perhaps more importantly, while positive emotions indicate thriving, they also produce thriving—not only for the moment, but over the longer term. Fredrickson posits what she terms as the broaden-and-build theory of positive emotions. In her words: "This theory states that certain discrete positive emotions—including joy, interest, contentment, pride, and love—although phenomenologically distinct, all share

the ability to broaden people's momentary thought-action repertoires and build their enduring personal resources, ranging from physical and intellectual resources to societal and psychological resources" (p. 219).

Essentially, Fredrickson (2001) suggests that narrower thought-action repertoires promote negative states such as anxiety, depression, and failure, while broader repertoires promote more positive states like subjective wellbeing, optimism, and success.

Problem Statement

As noted previously, there is a growing body of evidence supporting the importance of optimism, perceived locus of control, hope, and life experience in the development and sustenance of psychological resilience. However, little is known regarding either the relative importance of each of these vis-à-vis resilience, or possible additive, subtractive, or catalytic interactions between or among them.

The existing research has primarily involved tests of the relationship of one or two of these constructs (optimism, control, hope, and adverse experience) against psychological or physiological resilience. Even these narrowly focused studies, however, have not accounted for possible interaction between the variables, focusing instead upon such issues as shared variance or extent of correlation between constructs.

In addition to the lack of clarity regarding interaction among variables, relatively few studies have addressed the possible impact (direct or mediational) of adverse life experience upon psychological resilience. This is so even though there is support for adverse life experiences—including natural disasters and child sexual abuse—resulting in

perceived benefit by those experiencing them (e.g., McMillen, Fisher, & Smith, 1997; McMillen, Zuravin, & Rideout, 1995).

The problem addressed by the present research, therefore, is threefold: (1) a lack of understanding regarding the relative influence upon psychological resilience of optimism, locus of control, hope, and adverse—or negative—life experiences; (2) a lack of clarity regarding the possibility of additive, subtractive, or catalytic interactions among these variables; and (3) a general disregard in the existing literature to account for the influence of adverse life experiences as a benefit to the development and sustenance of psychological resilience.

Statement of Purpose

The main purpose of this study was to clarify the optimal levels of optimism, perceived locus of control, hope, and degree of adversity experienced in life, in the development and maintenance of psychological resilience. Embedded byproducts of this research effort include illuminating possible additive, subtractive, or catalytic relationships among the variables in question.

Relevant Theoretical Models

Attributional style. There appears to be an inherent drive toward understanding the cause-and-effect relationships of our world. It seems that if the cause is known—the why—then something basic has been satisfied. As described by Baron and Byrne (1997), "the process through which we seek information is known as *attribution*. More formally, attribution refers to our efforts to understand the causes behind others' behavior and, on some occasions, the causes behind our behavior, too" (p. 50).

There are several theories of attribution, though the one most relevant to the focus of the present research is the theory of causal attributions (Kelley, 1972; Kelley & Michela, 1980). According to the tenets of this theory, the question "why" is the primary task in making sense of the social world, made more manageable by attempting to determine whether others' behavior arises primarily from internal causes (their own motives, intentions and traits), external causes (some characteristic of the physical or social environment), or some combination of the two (Baron & Byrne, 1997).

Depression is the most common psychological disorder, with something more than 10% of the population experiencing it to some degree (Baron & Byrne, 1997, p. 59). While many factors come into play in creating and maintaining depression, one has received particular attention recently: a self-defeating pattern of attributions. As posited by the attributional theory, depressed people attribute negative outcomes to lasting, internal causes, while attributing positive outcomes to temporary, external causes (Seligman, 1999; Seligman, 1998b; Peterson, Maier, & Seligman, 1993) The result is that these individuals perceive that they have little or no control over their lives.

While the present research is not focused on depression, per se, it can be argued that depression may be an indicator of a lack of resilience. More pointedly, as will be more fully described later, there is support in the literature for depression and resilience lying on opposite poles of a continuum, and for attributional style being key to where one is on that continuum. In this regard, there are two subtheories of attributional which are pertinent to the present research: learned helplessness/hopelessness; and learned optimism.

Learned helplessness / hopelessness. The principal architects of the learned helplessness/hopelessness theory (Peterson, Maier, & Seligman, 1993) state that they "see the collusion of learned helplessness with social psychology, and in particular attribution theory" (p. 10) and find helplessness as being the basis for depression. However, the construct of learned helplessness/hopelessness comes with some variability in use of terms which variously describe the following:

> Deficits in thoughts, feelings, and actions; to the operations that produce these deficits (i.e., exposure to uncontrollable events); or to the cognitive account of how the operations lead to the deficits. Adding to this richness of meaning is the tendency of some theorists to use learned helplessness as a label for complex failures of adaptation to which the laboratory phenomena may be analogous . . . . (Peterson et al., 1993, p. 99)

Peterson et al. (1993) note research which has explored numerous potential influences upon people which lead to learned helplessness, but most highlight the process by which individuals interpret the causes of uncontrollable events: *causal attribution.* This attribution of cause apparently includes several dynamics: If one believes that some perceived uncontrollability was due to highly general causes, then the tendency is to believe that these same causes would be likely to apply in other times and places, also leading to uncontrollability. However, if an individual sees uncontrollability as due to specific or unique causes, then there is less tendency to generalize beyond the immediate circumstances, thereby reducing the sense of helplessness.

In discussing the benefit of integrating attribution theory to the original learned helplessness modes, Peterson et al. (1993) emphasize the ability to explain individual differences, stating: "Different people offer different causal explanations for the same events, and thus they react in different ways . . . [and] an attributional account of learned helplessness goes beyond social psychology to speak to issues important in personality psychology and psychopathology" (p. 144).

Learned optimism. According to its principal theorist, Martin Seligman (1998), optimism is, like its alter ego, learned helplessness, an *explanatory style*, and is defined by its characteristics. Further, optimism is often somewhat perversely defined by what it is not, its opposite—pessimism. Given that the theory of learned optimism grew directly out of the understanding and experience gained from learned helplessness, it is not surprising that the two constructs rely upon the same attributional dynamics. However, where pessimists (who often feel helpless and hopeless) tend to see negative events as permanent, pervasive, and personal, optimists see the world from the opposite pole. For optimists, untoward events are temporary, specific to the particular circumstances, and not their fault. When experiencing negative events, optimists more often see a challenge (Seligman, 1998, pp. 4-5).

An aspect of the concept of learned optimism worthy of note is that it is part of what appears to be a growing interest in the field: positive psychology. This movement has gained recent emphasis within the American Psychological Association, and has been the focus of numerous articles and commentaries (e.g., Seligman, 1999). In addition, positive psychology—particularly relative to wellness—was the subject of a remarkable

review of the literature by Lightsey (1996) which consumed an entire issue of the *Counseling Psychologist.*

It should be noted that the construct of learned optimism remains under debate, and some contention. Recent criticisms of optimism in the literature include the factor structure of a primary measurement instrument for optimism: the Life Orientation Test (Chang & McBride-Chang, 1996); difficulties in separating optimism from other constructs such as perceived locus of control (Simoni & Adelman, 1991); distinguishing optimism from pessimism (Marshall et al., 1992); and differentiating optimism from denial (Aspinwall & Brunhart, 1996).

Perceived locus of control. The construct of perceived locus of control grew out of Rotter's (1966) social learning theory. As described by the construct's originator:

> Internal versus external control refers to the degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics versus the degree to which persons expect that the reinforcement or outcome is a function of chance, luck, or fate, is under the control of powerful others, or is simply unpredictable. (Rotter, 1990, p. 489)

Rotter (1990) noted the immense popularity of the construct in the literature since its introduction, including such diverse fields as political science and public health. He also found research on locus of control continuing at roughly the same high rate 20 years later. This was not idle boasting on Rotter's part. Lefcourt (1992) commented on the extreme interest shown in the locus of control construct engendered by his 1966

Psychological Bulletin article, "'Internal Versus External Control of Reinforcement: A Review,' had attained the status of a citation classic.'" (Lefcourt, 1992, p. 411).

Rotter (1990) presented four propositions that he believed "account for the heuristic value of internal—external control, propositions that I believe are particularly relevant to the field of personality theory and personality measurement, but also to the study of psychology as a whole" (p. 490). Briefly, Rotter's four propositions are (a) the precision of its definition; (b) the enhancement enjoyed by being integral to broader theory of behavior; (c) the increased predictive value gained by being derived from the same theory as the measured constructs; and (d) that he considers the process by which the construct has been pursued—the research monograph—being critical in the dissemination of understanding in this, and all, scientific knowledge (Rotter, 1990, pp. 490-492).

In her review of the various constructs of control, Skinner (1996) emphasized control being important to psychological functioning, and notes the vast amount of research in sociology and psychology which has identified a sense of control as being a strong indicator of physical and mental wellbeing, as well as longevity (p. 549). She went on to note that experimental and correlational studies had established that individual differences in perceived control are associated with numerous positive outcomes, including "health, achievement, optimism, persistence, motivation, coping, self esteem, personal adjustment, and success and failure in a variety of life domains" (p. 549).

Specific to the present research, Abramson, Seligman, and Teasdale (1978) maintained the emphasis on perceived locus of control when reformulating Seligman's

(1975) theory of learned helplessness. The theory was "reformulated" in that the original helplessness model was revised to include causal explanations. Attribution theory and its research generally differentiates between internal and external causes. While other distinctions are made, the internal-external dynamic has been found to be important (e.g., Brown & Siegel, 1988; Peterson, Maier, & Seligman, 1993).

Hardiness / stress inoculation. The acknowledged creator of the construct, Kobasa (1982), hypothesized hardiness to be a mix of commitment, control, and challenge. As conceived by Kobasa, hardiness serves to reduce the impact of stressful life events which otherwise tend to result in symptoms of illness.

Florian, Mikulincer and Taubman (1995) considered the definition of hardiness to entail "a constellation of personality characteristics that function as a resistance resource in the encounter with stressful life events" (p. 169). As defined, hardiness includes three interrelated elements: commitment, control, and challenge, suggesting that hardy individuals commit to what they are doing, believe they have at least some control over the causes of problems as well as their solution, and see life changes and adaptations as challenges which offer growth opportunities rather than mere threats (Florian, Mikulincer, & Taubman, 1995).

Going further, Florian, Mikulincer, and Taubman (1995) found extensive research support for hardiness being positively related to: physical and mental health, mitigating stress' negative health impacts, and enhancing wellbeing and adjustment. Similarly, they found evidence for hardiness having an inverse correlation with anxiety and depression (p. 687).

Maddi and Hightower (1999) explored the differences between optimism and hardiness. They found hardiness to be more related to coping efforts than did optimism, and that optimism involved more "complacency" than did hardiness. By this, Maddi and Hightower suggested that optimism may be a more passive approach to resilience than does hardiness. Similar to the assumptions in optimism theory, Maddi and Hightower considered that

> Persons strong in control believe they can beneficially influence outcomes through effort, and they are unlikely to feel powerless . . . . Thus, optimism theory emphasizes the general expectation of positive outcomes and the control to participate in bringing them about. Hardiness theory also emphasizes that, whatever is going on (successful or unsuccessful), there is a value in being involved in it and in learning from the experience. (Maddi & Hightower, 1999, p. 95)

Regardless of the relationship between hardiness and optimism, both have research support for being related to resilience, and both theories are relevant to the present research. It is also clear that both hardiness and optimism are impacted by one's sense of control—hardiness as part of the construct itself, and optimism as part of a range of attributional style. Hardiness, as defined above, is not a variable directly assessed in the research at hand. The ultimate outcome of the research, however, will relate to this construct. As for optimism and locus of control, these will be addressed further in the next chapter.

Diathesis / stress. According to some, particularly within the subfield of biopsychology (e.g., Pinel, 1999), "one widely held theory of psychiatric illness is the diathesis—stress model . . .the theory that psychological disorders are caused by the interaction of a genetic propensity (diathesis) and stress . . . ." (p. 484). While the present research does not address the former of these two dynamics, it does address the latter.

Stress has long been identified as a potential causal agent for a wide range of physical and psychological disorders. Perhaps among the first to address the impact of stress upon human physiology, Hans Selye (1951-1956, 1955, 1956, 1959) devised his General Adaptation Syndrome (GAS), which describes and details the adaptive reactions of the body to stressful conditions. However, his theory does not address fundamental questions relevant to the focus of the present research, such as: under what conditions does stress occur?; and what constitutes a stressor of sufficient demand as to elicit it?

Selye, being an endocrinologist, was primarily concerned with the physiological aspects of stress. However, he apparently was frequently quoted as giving the practical advice that "it is not what happens to you that matters but how you take it" (Monat & Lazarus, 1985). In their seminal book on the subject of stress and coping, Monat and Lazarus (1985) saw the need for a need to integrate the physiological and psychological theories of stress. As part of that effort, they created what they termed as a holistic definition of stress, stating: "Stress is a state which arises from an actual or perceived demand-capability imbalance in the organism's vital adjustment actions and which is partially manifested by a nonspecific response" (p. 36). They considered that this definition emphasized the continuity between psychology and physiology.

As noted earlier, the experience of stressful life events is integral to the hardiness theory (Kobasa, 1982). This is so not only because it is these types of events against which the personality characteristics of hardiness are supposed buffer, but also because of the tendency to see such events as a challenge, as described by a number of proponents of hardiness (e.g., 1989 Kobasa,1982; Maddi,1999; Rhodewalt, & Zone).

As will be made clear in the next chapter, the constructs of optimism, control, and hope are each intimately associated with the experience of adverse life experience in the sense that they are often described as either reactions to, or buffers against, such experiences. In addition, these same qualities are often described as being affected by the experience of adversity.

The historical and classic focus of the literature regarding adverse life experiences has been on its negative impacts—everything from neuroses, psychoses, adjustment disorders, delinquency, and posttraumatic stress, to name only a few. More recently, however, there has been some consideration of a positive benefit deriving from adverse experiences, as suggested by a number of researchers (e.g., Affleck & Tennen, 1996; Aldwin, 1994; Park, Cohen, & Murch, 1996; Tedeschi & Calhoun, 1995). These researchers find evidence for the experience of adversity, at least in some cases, promoting the development of qualities that make an individual better off than they were before.

As suggested above, the experience of adverse life experiences is a complex dynamic, and its relative beneficial and detrimental benefits are not well understood.

Particular to the present research, little is known regarding the relative impact of types of adverse experiences upon optimism, hope, and perceived locus of control.

Research Hypotheses

With the preceding in mind, the present research was designed to test the following null and alternative hypotheses which are supported, or suggested, by relevant research in the recent literature:

1. H_O There is no relationship between Optimism, as measured by the Life Orientation Test—Revised (LOT-R), and Hope, as measured by the Hope Scale (Trait).

   H_{A1} There is a positive relationship between Optimism and Hope.

   H_{A2} The positive relationship between Optimism and Hope will be greater in the Low Negative Life Experience condition than the High Negative Life Experience condition, as measured by the Life Experience Scale—Revised (LES).

   H_{A3} The positive relationship between Optimism and Hope will be greater under the High Positive Life Experience condition than in the Low Positive Life Experience condition.

2. H_O There is no relationship between Optimism and Control, as measured by the Internal-External Control Scale (I-E).

   H_{A1} There is a curvilinear relationship between Optimism and Control, such that both extreme low and high levels of Control result in lower Optimism scores, and moderate amounts result in higher Optimism scores.

H_{A2} The curvilinear relationship between Optimism and Control will be more pronounced under the High Negative condition than the Low Negative condition.

H_{A3} The relationship between Optimism and Control will be more positive under the High Positive Life Experience condition than in the Low Positive condition.

3. H_O There is no relationship between Optimism and either Positive or Negative Life Experience.

H_{A1} There is a negative relationship between Optimism and Negative Life Experience.

H_{A2} There is a positive relationship between Optimism and Positive Life Experience.

4. H_O There is no relationship between Hope, and Control.

H_{A1} There is a positive relationship between Hope and Control.

H_{A2} The positive relationship between Hope and Control will be greater in the Low Negative condition than in the High Negative condition.

H_{A3} The positive relationship between Hope and Control will be greater in the High Positive Life Experience condition than the Low Positive Life Experience condition.

5. H_O There is no correlation between Hope and either Positive or Negative Life Experience.

H_{A1} There is a negative relationship between Hope and Negative Life Experience such that low to moderate amounts of Negative Life Experience result in greater Hope, but extreme amounts result in lesser Hope.

H_{A2} There is a positive relationship between hope and Positive Life Experience.

6. H_O There is no relationship between Control and either Positive or Negative Life Experience.

H_{A1} There is a negative relationship between Control and Negative Life Experience

H_{A2} There is a positive relationship between Control and Positive Life Experience.

Significance of the Study

Clarification of the relationships among and between the variables under investigation in this research has important prescriptive and proscriptive implications. As will be clarified in the upcoming review of the literature, three of the variables under investigation in this research (optimism, perceived locus of control, and hope) are, in part, reflective of attributional styles, which are subject to development and/or change. Though with more difficulty, and not without admitted ethical concerns, even the last variable—Negative Life Experience—is open to intentional manipulation. If the relationships between and among these variables can be clarified, and if they can be taught and learned, then more effective preventive and restorative "treatments" can be

developed. The potential for application of the findings of this research includes a wide variety of settings and therapeutic services, including education, psychotherapy, and medicine. In addition, insights gained will have important implications for personality and learning theory.

Operational Definitions

For the purpose of this study, the following terms were operationally defined:

1. Negative Life Experience—Combined – As applied in the present research, Negative Life Experience—Combined is defined as the total score achieved on the *Life Experiences Survey (LES)*. More specifically, the combined score is that number—either positive or negative—determined by summing a participant's responses to both Positive and Negative subscales items on the LES.

2. Positive Life Experience – Positive Life Experience is defined, for the purpose of the present research, as the subscore determined by summing all items indicated by the participant as being between +1 and +3.

3. Negative Life Experience – Negative Life Experience is defined, for the purpose of the present research, as the subscore determined by summing all items indicated by the participant as being between –1 and –3.

4. Optimism – For the purpose of the present research, Optimism is defined as a participant's score on the *Life Orientation Test—Revised (LOT-R)*. More specifically, the Optimism score is determined by the sum of the indicated responses to the six scored answers on the LOT-R, ranging from 0 to 4, with items 3, 7 and 9 reverse coded prior to scoring.

5. Hope – As defined for the present research, Hope is the score achieved by participants on the Hope Scale. The hope score is the sum of responses on 8 scored questions, with weights ranging between 1 and 4.

6. Locus of Control – For the present research, locus of control (Control) is determined by the score achieved on the *Perceived Locus of Control Scale (I-E)*. More specifically, Control is the sum of the scores for 23 items on the scale, with internality or externality determined by participants' selection between two forced choice options on these 23 items.

Assumptions and Limitations

With regard to this study, the following assumptions were made:

1. The Life Orientation Test—Revised (LOT-R) accurately reflects the level of optimism for participants completing the test.

2. The Hope Scale accurately reflects the level of hope for participants completing the scale.

3. The Perceived Locus of Control Scale (I-E) accurately reflects the relative internality or externality of perceived locus of control for participants completing the scale.

4. The Life Experiences Scale (LES) accurately reflects the life experiences, and their perceived positive or negative impact, of participants completing the scale.

5. That the study participants answered the questions on the questionnaire without purposes of evasion or distortion.

Correlational research has inherent limitations. This study attempted to limit the effects of confounding by statistically controlling for the number of both positive and negative life experiences. However, even with this attempt to limit confounding, the following limitations to this study are recognized:

1. This study utilized a questionnaire instrument and is, therefore, subject to potential response bias.

2. This study is limited to questions regarding particular personality and experiential dynamics and, therefore, does not rule out the possibility that other, nonassessed, factors may influenced the participants' responses including, but not limited to, gender and/or socioeconomic status.

3. This study employed a version of the LES which omitted the original's instructions and sampling of two time periods (0 to 6 months, and 7 months to 1 year). Likewise, the present version includes an N/A option. These changes could possibly, though unlikely, have altered the scale's reliability and/or validity.

4. This is a correlational and speculative study, providing tentative insights into the possible relationships among and between variables.

Summary of Introduction

Psychological and physiological resilience is defined, delimited, and described by an apparently complex interplay among an array of cognitive patterns, personality dynamics, behavioral propensities, and biological processes. Research interest in resilience has increased dramatically over the last few years, with a shift—or, at least, rebirth—of what has been loosely termed as *positive psychology.* During this time, a few

variables have enjoyed increasing attention from researchers pursuing understanding of the dynamics of resilience: learned optimism, perceived locus of control, and, to a lesser but emerging extent, hope.

The understanding of resilience and its components has great potential for both psychological and physiological impact. Psychological resilience has been closely associated with a wide range of disorders, including depression, anxiety, coping skills and strategies, and posttraumatic stress disorder. On the physical side, resilience has been associated with disorders and conditions such as stress, immune responsiveness, general health, and others.

While much has been learned about the development and sustenance of resilience, much is still unclear. Among the more interesting puzzles left to solve are: what elements, in what combination, in which circumstances result in the most resilience? While optimism, control, and hope have each been identified as resilience components, their strengths in combination are not yet known. Further, it is not clear how well each, separately or in combination, endure under varying amounts of either positive or Negative Life Experience. This study attempts to add clarity to these unknowns.

Chapter 2 reviews the relevant research exploring the dynamics of resilience in general, and the principal variables of optimism, control, and hope in particular. This body of literature highlights what is known, what is still unknown, and is supportive of the present study's specific research concept and design as presented in chapter 3.

Chapter 2: Review of the Literature

Psychological resilience is a richly complex construct. It is both a process and an outcome, a composite of many elements, a discrete entity, and a whole greater than the sum of its parts. Psychological resilience appears to be a blend of both cognitive processes (e.g., Baron and Byrne,1997; Kelley, 1972; Kelley & Michela, 1980; Peterson, Maier, & Seligman, 1993; Seligman, 1999; Seligman, 1998b), and physiological and/or genetic predispositions (e.g., Goodkin & Visser, 2000; Hans Selye: 1950, 1955, 1956, 1959, and the series 1951-1956; Keller et al., 2000; Maier & Watkins, 1998; Maier, Tiger, 1995; Watkins, & Fleshner, 1994). While exploration of the important physiological or genetic relationships of resilience is outside the scope of the present research, there is much that can be gleaned from better understanding of the psychological dynamics. The following review of the literature, therefore, focuses exclusively upon dynamics of psychological resilience in general, and three key components in particular: optimism, control, and hope.

Introduction to the Literature Review

As highlighted in the previous chapter, there are a number of apparent components of resilience. Optimism and perceived control are two resilience components which have been frequently studied—both individually and, in several cases, in conjunction. The construct of hope, on the other hand, has enjoyed less attention, and almost no research has explored the relationship between it and either optimism or control. There is apparently no existing research comparing, contrasting, or otherwise exploring the relationship between hope and both optimism and control. In addition, as

will be seen, there is little research which explores the relationship between any of these variables and life adversity, less focusing on their relationship with positive life experience, and none that considers both.

The purpose of this chapter is to provide a comprehensive overview of the resilience literature which includes one or more of the target variables for the present research. In addition the literature reviewed will highlight the present gaps in knowledge and understanding of the relationships between and among these variables.

The first section briefly reviews the construct of resilience itself and, by extension, speaks to the theoretical underpinnings of the present research, including: that while resilience appears to be both an outcome and a process, it is the latter which much determines the former; that cognitive, personality, and experiential dynamics are critical to the scientific understanding of resilience; and that, once understood, these dynamics, and their combinations and interactions, may be more effectively engendered or restored in the face of severe life adversity.

Following the overview of resilience, the succeeding sections, in turn, review the constructs of optimism (including health related issues, genetics, and heritability), perceived locus of control, and hope. As will be seen, some studies address one or more of these variables. For the sake of brevity, and to minimize redundancy, these multivariable studies are not repeated in subsequent sections.

Resilience

Psychological resilience is generally described in the literature as an ability to adapt or overcome extreme adversity or stress (e.g., Garmezy, 1991; Masten, 2001;

Masten, Best, & Garmezy, 1990). Under this definition, resilient individuals are seen as those who can either make a rapid recovery to their previous state of functioning following a trauma, or appear to be invulnerable to life's untoward events (Holaday & McPhearson, 1997).

Some (e.g., Holaday & McPhearson,1997; Kaplan, 1999) see that such definitions make resilience an outcome; the end result of an individual having overcome an adversity and adjusting previous functioning. However, these authors emphasize another concept of resilience: a process.

Holaday and McPhearson (1997) provided an example of resilience being a continuing process in an account of patients with severe burns. These authors reported such patients as experiencing a daily battle that never results in a return to life as it had been. For Holaday and McPhearson, resilience was not an end point, but an ongoing effort which became a "normal" part of these patients' lives. As they stated: "Burn survivors described the core of resilience as a kind of internal 'life gift' that is under their personal control to exploit to their benefit or not" (p. 348). Holaday and McPhearson made clear their concept of resilience as being a skill which can be acquired and refined.

Holaday and McPhearson (1997) also identified three major categories of factors that promote and maintain a resilient attitude: social support (e.g., cultural influences, community support, school support, personal support, and familial support); cognitive skills (e.g., intelligence, coping style, self efficacy, and assignment of meaning); and psychological resources (e.g., internal locus of control, empathy and curiosity, a tendency

to seek novel experiences, a high activity level, flexibility in new situations, and a sense of humor) (pp. 348-351).

There are other ways of defining resilience, such as by its suggested components. A number of possible components for resilience have been suggested, and pursued, in the literature. Among these are optimism and its underlying attributions, perceived locus and amount of control, and hope. We continue our exploration of resilience with an introduction to the dynamics of optimism.

Optimism

It is interesting to note that one of the earlier, and better, definitions of optimism comes not from a psychologist, but an anthropologist. Lionel Tiger (1995) defined optimism as "a mood or attitude associated with an expectation about the social or material future—one which the evaluator regards as socially desirable, to his advantage, or for his pleasure" (p. 18). Tiger highlighted the variability and complexity of this mood or attitude, and judged that the definition of optimism in any given circumstance is directly related to what the individual considers a desirable outcome.

While Tiger does suggest that optimism is an innate tendency for all humans, he also sees it as related to cognition. Given that cognition is amenable to intentional control, and assuming that Tiger is correct, then optimism is influenced both by mind and body. That is, one may possess more or less of a biologic influence toward optimism and think in ways that are more or less optimistic.

Others have given the definition and dynamics of optimism a great deal of thought as well. Primary among these is Christopher Peterson at the University of

Michigan. In his recent discourse on the future of optimism, Peterson (2000) described the contemporary view of optimism as

> a cognitive characteristic—a goal, an expectation, or a causal attribution—which is sensible so log as we remember that the belief in question concerns future occurrences about which individuals have strong feelings. Optimism is not simply cold cognition, and if we forget the emotional flavor that pervades optimism, we can make little sense of the fact that optimism is both motivated and motivating. (p. 45)

With this expanded view of optimism, Peterson (2000) adds the construct of attributions to its dynamics. As defined by Baron and Byrne (1997), "attribution refers to our efforts to understand the causes behind others' behavior and, on some occasions, the causes behind our behavior, too" (p. 50). In more simplistic terms, attributions are explanations one provides (or accepts) for an event or outcome. For example, getting stung by a bee while pausing to smell the roses might be attributed to simple chance, an act of fate, punishment for lollygagging, or any number of other "causes."

Peterson (2000) also highlighted another complication associated with any exploration of optimism: Just as "light" cannot be easily discussed without consideration of "dark," it is difficult to discuss optimism without including its opposite—pessimism. However, while this symbiosis may be a sources for confounds, it also reveals a more expansive view of the dynamics involved. In addition, as we shall see, these associates of optimism may include both range and additive/subtractive qualities.

Certainly, any serious consideration of the construct of optimism requires careful attention to the views of its principle architect, Martin E. P. Seligman. Seligman began his career with the then radical concept of learned helplessness: essentially a belief or conclusion that no control over a noxious situation is possible, leading to cessation of efforts to escape or change it, resulting in heightened anxiety and depression (Peterson, 1993; Seligman, 1998a). Having discovered how to produce helplessness, however, Seligman wondered if it could be cured (Seligman, 1998a, p. 28). The result of that question was the theoretic converse of learned helplessness: learned optimism.

In the process of exploring means of curing or preventing learned helplessness, Seligman and his research partner, Steven Maier, discovered what they termed immunization (Seligman, 1998a, p. 28). This immunization was achieved by learning, before a stressful event, that responding matters. Embedded in this insight are two implications pertinent to the present research: First, if helplessness is learned, then it may be unlearned and its opposite, optimism, learned in its place. Secondly, if it is possible to immunize against helplessness (and its concomitant anxiety and depression) by increasing a sense of capability, then it follows that this increased sense of capacity is a key component of optimism. The path to this increased sense of capacity, according to Seligman (1998a), is one's explanatory style—a habitual attribution of the causes of misfortunes as permanent, pervasive, and personal (Seligman, 1998a , pp. 43-52).

As Seligman (1998a) conceives it, when one considers the causes of untoward events to be permanent, there is little perceived reason to make any effort to change—or escape—the situation (though, for good events, permanence is preferred). The same is

true of pervasiveness. If the bad event is considered likely to occur across many situations, then one may consider the problem overwhelmingly large, and beyond ability to address. The last dimension—personalization—is about to whom we attribute "blame" for bad experiences or problems, and is directly associated with the construct of Internal vs. External Control (Rotter, 1990, 1966). For Seligman (1998a), an internal style of attribution promotes low self esteem—and helplessness—by encouraging self blame. This negative impact of an internal locus of control is somewhat surprising and some (e.g., Peterson, 2000) see only weak empiric support for this relationship, and consider it likely to be a confusion between self blame and self efficacy.

Optimism, as described by Seligman (1998a), is merely the reverse of the these helplessness inducing patterns: attributing life's difficulties as being temporary (and good events being permanent), specific to the particular circumstances, and not of one's own making. However, Peterson (2000) emphasizes that, while optimism and pessimism are generally regarded in the literature as mutually exclusive, there is evidence that they are not. Peterson notes that the optimism and pessimism items on the Life Orientation Test—Revised (Scheier & Carver, 1895) are only weakly correlated. While he acknowledges the methodological problems this independence engenders, Peterson suggests that "it is worth considering the possibility that some people expect both good things *and* bad things to be plentiful" (p. 49).

Of particular interest to the focus of the present research, Seligman (1998[a]) addresses the concept of hope, stating:

> Whether or not we have hope depends on two dimensions of our explanatory style: pervasiveness and permanence. Finding temporary and specific causes for misfortune is the art of hope: Temporary causes limit helplessness in time, and specific causes limit helplessness to the original situation. On the other hand, permanent causes produce helplessness far into the future, and universal causes spread helplessness through all your endeavors. Finding permanent and universal causes for misfortune is the practice of despair. (p. 48)

Seligman (1998a) created a self report questionnaire, the Life Orientation Test, to assess the explanatory style components of permanence, pervasiveness, and personalization. In addition to subscores for each of these three components, Seligman offers a hope score, determined by adding the negative and positive scores for permanence—essentially a determination of how much, in balance, one considers problems to be temporary, and good events permanent. The Life Orientation Test—Revised is discussed in depth elsewhere below.

In their introduction to a special issue of the *American Psychologist*, Seligman and Csikszentmihalyi (2000) considered the focus of the issue—positive psychology—and found: "The field of positive psychology at the subject level is about valued subjective experiences: wellbeing, contentment, and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present)" (p. 5).

In this same issue of the *American Psychologist*, Peterson (2000), a principal in the creation of the Learned Helplessness construct, explored the future of optimism. Citing Lionel Tiger's (1979) definition of optimism as being "a mood or attitude

associated with an expectation about the social or material future . . . ." (p. 18), Peterson noted that a single or objective optimism is not possible, due to optimism being dependent upon what is judged desirable by the individual experiencing it.

Peterson (2000) considered optimism to be something more than "cold cognition" because of its inherent emotionality, reminding that it is at the same time "motivated and motivating," and may include both defensive and ego enhancing aspects (p. 45). He also speculated as to whether it is possible to be what he terms "generically optimistic," which he characterized as being "hopeful without specific expectations" (p. 45).

Peterson highlighted the evolution and dimensions of optimism: originally considered inherent to human nature, and then as an individual difference. While both may be true, the present research approaches optimism more as the latter. In concert with this view, Peterson (2000) noted the work of Scheier and Carver (1992), who established *dispositional optimism* as a personality variable, defined as: "the global expectation that good things will be plentiful in the future and bad things, scarce" (Peterson, 2000, p. 47).

In highlighting Seligman's (1998[a]) reframing of explanatory style, Peterson (2000) suggested that "research on helplessness was transformed into an interest in what Seligman called optimism, although he could have called it mastery, effectance, or control" (p. 48). Peterson also cited his own collaboration with Seligman regarding learned helplessness (Peterson, Maier, & Seligman, 1993), which emphasized that optimism is more than merely the absence of helplessness. He also saw a close relationship between the reformulated view of optimism which includes *expectation* and *agency*, and Snyder's (1994) concept of hope, which has been correlated with other

resilience related constructs, including: "goal expectancies, perceived control, self esteem, positive emotions, coping and achievement" (Peterson, 2000, p. 45).

Peterson (2000) also addressed current and future issues regarding optimism, including the developing concept of Little versus Big optimism. As Peterson described, Little Optimism is that which entails specific expectations regarding positive events, while Big Optimism is about less specific and grander expectations (p. 49). Peterson considered this differentiation, indicating that

> optimism may function differently depending on the level. Big optimism may be a biologically given tendency filled in by culture with a socially acceptable content; it leads to desirable outcomes because it produces a general state of vigor and *resilience* [emphasis added]. In contrast, little optimism may be the product of an idiosyncratic learning history; it leads to desirable outcomes because it predisposes specific actions that are adaptive in concrete situations. (p. 49)

This Big *vs.* Little distinction is particularly relevant to the present research in that, as Peterson (2000) noted, both the LOT-R (Seligman, 1998a) and the Hope Scale (Snyder et al. 1996) appear to be measures of Big optimism, due to asking about their generalizations for the future. An additional point relevant to the present research is, as Peterson (2000) stated

> Attributions about bad events (presumably linked to expectations about such events) are identified as optimistic or pessimistic, whereas attributions about good events are not. One would think it should be just the opposite, a point made by Snyder (1995) when he described explanatory style as a strategy of excuse

making. This criticism is blunted—but only somewhat—when internality-externality is removed from the meaning of the construct. (p. 50)

Citing his previous work regarding learned helplessness (Peterson, Maier, & Seligman, 1993), Peterson (2000) also highlighted the impact of previous adverse experience. In this research, he and his colleagues determined that prior experience with controllable events provided no inoculation against future adversity, suggesting that it may be easy to be optimistic when life is good, but more difficult when confronted by some of life's nastier surprises. On the other hand, Peterson cited research support for the benefit of prior experience with controllable events, including those of "learned hopefulness, learned industriousness, learned mastery, learned relevance, and learned resourcefulness" (p. 50).

Peterson (2000) also emphasized the need to take into account the impact of external situations to avoid what he terms "unrealistic optimism," to avoid the toll from attempting to control events without the realistic ability to do so. Peterson saw the appropriate balance lying in being "optimistic when the future can be changed by positive thinking but not otherwise . . . . a psychological strategy to be exercised when appropriate as opposed to reflex or habit over which we have no control . . . . [and] when there is room for doubt, people should fill the gap with hope" (p. 51). As Peterson stated, however, a question to be determined is "what other psychological characteristics need to be in place for an individual to be flexible in the use of his or her optimism? (p. 51).

Continuing with his discussion of optimism in the face of adversity, Peterson (2000) noted that stress and trauma lessen optimism. In addition, while he saw life

without challenge as undesirable, he considered that adversity which cannot be overcome equally disagreeable. The impact of adversity upon other resilience measures will be revisited in regard to the other variables for the present research as we proceed. For now, however, we move forward with our review of optimism itself.

In his extensive review of four major personality traits and psychological resources associated with wellness (positive thoughts, hardiness, generalized self efficacy, and optimism), Lightsey Jr. (1996) highlighted the work of Scheier and Carver (1985, 1992) that added *dispositional optimism* to the resilience research lexicon.

Lightsey Jr. (1996) proposes a framework for the diverse constructs which he terms *process theory*. Within this theory, he hypothesized that

> thoughts and beliefs about self (e.g., generalized self-efficacy) and outcomes (e.g., optimism) are central to human appraisal and hence to successful adaptation; that such beliefs act in many situations as a single resource but that each may account for unique outcome variance in particular situations; that persistent thoughts form beliefs, which in time form schemata; that thoughts and beliefs about self and outcomes—which vary in generality and valence—comprise our conscious information-processing system; that self-schemata and outcome schemata—which are preconscious and closely wedded to affect—constitute our preconscious information-processing system; and that these two systems jointly regulate affect and hence behavior and, to some degree, events. (p. 590).

Summarizing Scheier and Carver (1985), Lightsey (1996) found generalized optimism as originating either internally (e.g., considering one's self as blessed by luck)

or externally (e.g., someone "up there" is looking out for us). In his review of the optimism literature at the time, Lightsey found dispositional optimism to be a better predictor than what he terms "domain-specific" optimism.

From his review of the optimism research, Lightsey (1996) made several conclusions: "Optimism has strong, direct, and unique effects on varied outcomes . . . . has been positively correlated with active coping planning and goal setting, complexity of coping, and with efforts to obtain social support . . . . [and] effects of optimism are sometimes mediated by variables other than coping" (p. 593). Further, Lightsey noted that "optimism does not appear to buffer the impact of stressful events, but this hypothesis should be examined further" (p. 594).

Also relevant to the present research, Lightsey (1996) compared optimism to hardiness. Lightsey noted that the precise relationship between hardiness and optimism is still unclear; though some (e.g., Scheier & Carver, 1985) considered the two to be overlapping constructs. Further, he found it possible that hardiness may provide a buffer to stress because it overlaps optimism—though other evidence found that neither optimism nor hardiness mediate stress. Perhaps more to the point, Lightsey found research support suggesting that "optimism has empirical and theoretical merit and hardiness does not" (p. 595).

In addition to comparing optimism to stress, it is also often associated with coping and coping strategies. Carver, Scheier, and Weintraub (1989) explored this relationship to both optimism and stress by developing a multidimensional coping inventory (the COPE). In the second study of their series, they attempted to gain additional information

regarding coping tendencies measured by their scale by determining its association with select personality dimensions, including optimism vs. pessimism. From their view, "because optimists have favorable expectations for their future, optimism should be associated with active coping efforts and with making the best of whatever is encountered" (p. 272). Carver, Scheier, and Weintraub went further to note another variable linked to variations in coping: controllability of the stressor. Here, they found that active coping strategies were associated with situations that were controllable, and other strategies when not. They surmised that this same association might apply in regard to perceived control.

With this possible association between active coping strategies and control in mind, Carver, Scheier, and Weintraub (1989) included Rotter's (1996) locus of control as a personality dimension in their study. They hypothesized that those with an internal locus of control orientation would be more likely to engage in planning and active coping than those more externally oriented.

The third personality dimension they included was hardiness (Kobasa, 1979), which includes three dimensions: commitment, control, and challenge. The Hardiness construct claims that individuals become hardy by making the best of situations in which they find themselves, and minimizing denial or disengagement. Carver, Scheier and Weintraub (1989) noted that the hardiness construct has locus of control as part of its conceptual and empirical base.

Correlating scores on the COPE, LOT, Personal Views Survey (for hardiness), and a measure of trait anxiety via the State—Trait Anxiety Inventory (Spielberger et al.,

1970), Carver, Scheier, and Weintraub (1989) found active coping and planning to be positively correlated with optimism, as well as feeling some control in stressful situations, positive self esteem, and hardiness. Lastly, they noted the possibility that "personality traits and coping dispositions both play roles in situational coping, roles that may be somewhat complementary rather than competing" (p. 275).

Coping has been associated with optimism in a number of studies over the last few years. Chang (1998) explored dispositional optimism and appraisals in regard to coping and psychological and physical adjustment. In noting the large volume of research over a number of years which have focused upon optimism and pessimism, Chang highlighted the studies which tie optimism to better psychological and physical wellbeing—in general, adjustment to various forms of life difficulty. Among these life difficulties, Chang found support for optimism influencing better adjustment to such adversities as stressful medical procedures, even after controlling for initial adjustment levels (p. 1109). He also found firm support for a relationship between optimism and better psychological and physical adjustment (p. 1110).

Chang's (1998) interests lay in determining whether—and how—the effects of dispositional optimism might be mediated by different coping styles. Chang noted research support for the tendency of optimists to employ active problem solving which, in turn, promotes successful resolution of whatever stressful situation arises. Citing his and others' research, he found a direct link between optimism and coping, including that "dispositional optimism as measured by the Life Orientation Test (LOT) was significantly associated with a number of different coping activities . . . .[including] the

use of engaged coping strategies (e.g., problem focused coping, positive reinterpretation)" (p. 1111).

In the end, Chang (1998) found that, while "both an optimist and a pessimist might appraise the same stressor as highly significant and relevant, only the highly optimistic individual will begin to consider his or her coping options and resources . . . whereas the overly pessimistic individual might simply stop at this stage in the coping process" (p. 1114). He also found that, while both optimists and pessimists tended to use engaged coping strategies (problem solving, expression of emotions, and social support), pessimists tended to use more wishful thinking, self criticism, and social withdrawal. Lastly, Chang found that the LOT-R scores were predictive of life satisfaction as well as depressive and physical symptoms after controlling for appraisals and coping (p. 1116).

Segerstrom and Taylor (1998) expanded upon the relationship between optimism, coping, and responses to stress—in their case adding the impact of mood, and with a more narrow focus on immune change. Segerstrom and Taylor acknowledge the research associating psychosocial factors—particularly optimism—and better physical health. The question for them, however, concerned the specific pathways by which optimism might exert this influence. They considered the most likely route for this influence being via effects upon the immune system. Their research was intended to explore optimism in regard to a major stressor (the first year of law school), determining the relationships among immune changes, mood, and optimism.

Because of optimism's association with more positive mood, Segerstrom and Taylor (1998) considered mood as a primary means of effecting immune changes under

conditions of stress, and found research support for this relationship. They cited studies which found associations between depression, anxiety, and posttraumatic stress as being associated with, among other effects, fewer lymphocytes and poorer lymphocyte function, as well as slower immune failure and longer survival among HIV patients (p. 1646).

Segerstrom and Taylor (1998) took blood samples and provided optimism (via the LOT: Scheier & Carver, 1985) and a 10-item scale assessing situation optimism (created for the study), measuring three aspects of specific optimism: perceived risk of failure; optimistic bias; and confident emotions. They were also given a measure of coping (the Coping Operations Preference Enquire [COPE], Carver, Scheier, & Weintraub, 1989), and asked about their health behavior.

Segerstrom and Taylor (1998) found support for their hypothesis that appraisal of stressful events impacts immune changes. Specifically, they found immune changes associated with optimism that are associated with health benefits, particularly more helper T cells and higher natural killer cell count. Further, the found situational optimism to be a stronger predictor of mood than dispositional optimism, and the latter predicted immune changes more so than dispositional optimism. They concluded that

> Situation specific appraisals may predict reactions to specific situations better than more general measures and provides converging evidence that these effects extend to immune changes as well. Moreover, the present results add credence to the more general methodological and measurement concern regarding the need to

match the level at which cognitions are assessed to the context in which they occur, whether general or specific. (p. 1652)

In pursuit of a clearer understanding of this relationship between optimism and coping, Major et al. (1998) explored whether self esteem, control, and optimism might be mediated by the combination of prestressor cognitive appraisals and poststressor coping. They further predicted that more positive appraisals would determine more active and effective coping.

Major et al. (1998) acknowledge their theoretical perspective as being rooted in both Lazarus and Folkman's (1984) transactional model of stress and coping, and Bandura's (1977, 1982) theory of self efficacy. From Lazarus and Folkman, Major et al. highlight two processes which they considered critical mediators: cognitive appraisals (both primary and secondary) and coping (p. 736). Bandura's theory was seen by Major et al. as having significant overlap with Lazarus and Folkman's, particularly in regard to the importance of cognitive appraisals as mediators of affect, thought, and action.

The overlap perceived by Major et al. (1998) led them to operationalize cognitive appraisals in two ways—each consistent with either Lazarus and Folkman's, or Bandura's theory—and expected to find them to be similar in regard to the outcome of their research. The first, and primary, appraisal entailed an assessment as to whether or not one has a personal investment in the outcome; the second was where a judgment was made as to the potential for control and, importantly, whether anything might be done to determine the outcome. Major et al. highlighted that Bandura's theory predicts that the two forms of appraisal "converge to determine whether an event is appraised as stressful:

An event is appraised as stressful when primary appraisals of threat exceed secondary appraisals of coping abilities" (p. 736).

As for the second mediator, drawn from Lazarus and Folkman's model, Major et al. (1998) emphasized the "process-oriented" and "context-specific" qualities of coping efforts, which are substantially different from the "more stable or dispositional coping resources (e.g., self esteem, social support) and from the outcomes of coping efforts (i.e., whether they are successful)" (p. 736). These stable resources, according to Major et al., also include locus of control.

Major et al. (1998) described Bandura's theory of self efficacy as identifying appraisals as key mediators of affect, thought, and action. They also noted that Bandura found that "it is mainly perceived inefficacy in coping with potentially adverse events that makes these events anxietyprovoking [sic]" (p. 736).

In designing their own research, Major et al. (1998) noted that "an important point frequently overlooked in coping research, however, is that the efficacy of a particular coping strategy is likely to depend on the nature of the stressful situation" (p. 737). In addition, they found evidence for those with higher self esteem, optimism, and perceived control as employing more active problem solving efforts in coping with life's more stressful experiences. Further, they determined that these same personality elements are associated with more positive views of stressful life experiences, as well as confidence that these experiences can be successfully handled.

With these theoretical bases, Major et al. (1998) tested whether the experience of abortion, and its impact on specific personality elements (self esteem, control, and

optimism), would be mediated by cognitive appraisals. As hypothesized, they found, in part, that women struggling to adjust to the personal impact of abortion differed according to the resources they brought to the experience, in that: "the more resilient personality resources women had to draw upon (self-esteem, perceived control, and optimism), the less likely they were to appraise their upcoming abortions as stressful" (p. 741).

Others have investigated the relationship between optimism and stressful life events. Robinson-Whelen et al. (1997) explored this relationship, as well as the distinction between optimism and pessimism, with a population of individuals who were caregivers of family members with progressive, dementing illnesses. Of added interest to the present research, the authors utilized the Life Orientation Test (LOT; Scheier & Carver, 1985) as the measure of optimism.

Robinson-Whelen et al. (1997) took note of research supporting a linkage between optimism and psychological and physical wellbeing, including "success in an aftercare alcohol treatment program . . . adjustment to college . . . resistance to postpartum depression . . . protection from distress following a failed attempt at *in vitro* fertilization . . . and adjustment following surgery for breast cancer" (p. 1345). They noted that each of these studies utilized the Life Orientation Test (LOT) (Scheier & Carver, 1985) in a one dimensional manner—meaning that it was treated as a measure of optimism only, and not as a measure of optimism or pessimism. Robinson-Whelen et al. found more recent support for value in considering the two subscales within the LOT

separately, including the recent acknowledgement (Scheier, Carver, & Bridges, 1994) that there might, in fact, be some value gained in considering the two individually.

Robinson-Whelen et al. (1997) also emphasized the research suggesting the importance of optimism (and pessimism) under conditions of stressful or threatening events, limited sense of control, or situations which evolve slowly over time (p. 1346). This last point is noteworthy in that, for most of the existing research, optimism is tested against acutely stressful—or life threatening—events (Robinson-Whalen et al., 1997). Relevant to the present research, Robinson-Whalen et al. found a need for research regarding how those who are, and are not, experiencing stressors differ regarding optimism or pessimism (p. 1347). The authors saw this research focus as being a test of Scheier and Carver's (1993) contention that "the LOT taps an enduring personality characteristic that 'changes little with the vagaries of life'" (Robinson-Whalen et al., 1997, p. 1347).

At the conclusion of their study, Robinson-Whalen et. al. (1997) found support for optimism and pessimism being separate constructs which operate independently in response to the stressful experience of caregiving. Perhaps predictably, they also found that optimism and pessimism were less independent for those who were stressed, compared to those who were not. However, their interest was most piqued upon finding that: "pessimism, not optimism, was a prospective predictor of psychological and physical health outcomes a year later. In addition, we found that optimism and pessimism were equally predictive among individuals experiencing an extreme stressor and those who were not" (p. 1350).

Mining a similar vein, Taylor et al. (2000) explored the relationship among psychological resources, positive illusions, and health. The particular resources and illusions included optimism, sense of personal control, and life meaning, and these were tested against HIV progression among a sample of men. The authors noted that, while the independent variables in question had been established as important psychological resources associated with mental health, relatively little had been determined regarding their relationship to physical health.

Taylor et al. (2000) stated that they came to their interest following the formulation of their cognitive adaptation theory (Taylor, 1983), which had grown out of an earlier study with breast cancer patients (Taylor, Lichtman, & Wood, 1984). In the process of this research, they discovered not only that optimism, control, and life meaning were important to recovery from challenging or threatening events, but that some patients indicated that their lives had actually improved; that they had gained "a new sense of themselves as being strong and resilient" (Taylor et al., 2000, p. 99). Even more surprising to these authors was the finding that some of the women in the breast cancer study employed beliefs that they could, somehow, exert personal control over the cancer and, thereby, prevent its recurrence. Other patients formed strong beliefs that they were cured of the disease, even though the medical evidence proved otherwise. While such beliefs might easily be considered delusional, and usually associated with psychological disorder, Taylor et al. found these patients' mental health to be good.

Taylor et al. (2000) admitted being intrigued by the value of these illusory beliefs, especially as they found little precedent for it in the literature, which generally considered

firm contact with reality synonymous for good mental health. They did, however, find support for the value of illusory beliefs among the social cognition literature, where "self-enhancement, unrealistic optimism, and an exaggerated perception of personal control often characterize normal thought . . . . [and] positive illusions appear to have protective psychological effects generally that may become especially important in the context of severely threatening events" (p. 100).

Taylor et al. (2000) considered that positive beliefs, including those illusory, might impact emotional state which, in turn, could somehow effect changes in the physiology and neuroendocrinology of physical diseases. They found recent research support for this concept, some of which is reviewed later in the present literature review.

The Taylor et al. (2000) review of the pertinent literature yielded several insights, including unrealistically optimistic HIV-seropositive gay men were better adjusted and employed more active coping than those who were less optimistic; and men with AIDS who espoused realistic acceptance of their impending death tended to die 9 months sooner than those who held more illusorily optimistic beliefs (pp. 101-103).

As Taylor et al. (2000) noted, there has been relatively recent focus on the relationship between psychological and personality variables, and various aspects of physical health. While an exhaustive review of this literature is beyond the scope of the present paper, a sampling my further an understanding of the impact and import of optimism beyond the more usual focus on psychological health.

Optimism and health. Among the earlier efforts, Scheier et al. (1989) explored the relationship between dispositional optimism and recovery from coronary artery

bypass surgery. Citing previous research suggesting the importance of optimism in regard to the manner in which individuals deal with life stressors, Scheier et al. suggested that beliefs regarding the likely outcome of stressful or traumatic events influence actions taken to deal with them.

Using a sample of 51 coronary bypass patients, Scheier et al. (1989) assessed optimism (via the LOT), a number of context specific expectancies, perceived quality of life, coping strategies, mood, and post surgery recovery over a 6 month period. Their expectations were that dispositional optimism would exert a generally positive effect on recovery. Their research confirmed this expectation, finding that "optimism exerted a pervasive effect on the patient's physical well-being and rate of recovery, both during and following surgery" (p. 1035).

In another study focusing on cardiovascular impact, Williams and Riels (1990) explored the relationships among optimism, hostility, and distraction in regard to cardiovascular reactivity. Noting previous research finding a negative correlation between optimism and hostility, Williams and Riels stated the purpose of their research as both an attempt to replicate and extend this line of research (i.e., Scheier and Carver, 1987), and to elucidate the relationships among optimism/pessimism, hypervigilance, and hostility as related to disease in general, and cardiovascular reactivity in particular.

Williams and Riels (1990) measured optimism and hostility as well as heart rate and systolic and diastolic blood pressure, in a sample of 56 undergraduate students. The participants were then randomly assigned to distraction and non distraction treatment conditions—with the distraction being sound effects consisting of such things as rain,

thunder, and horses. All participants were exposed to a stressful challenge, which consisted of a mental arithmetic task and an electronic version of the Simon Says game.

As predicted, Williams and Riels (1990) found an association between increased hostility and pessimism, thereby replicating previous research. They found partial support for their hypothesis that pessimists would react more to stressful experiences than optimists, suggesting that "excessive responsivity to stress is one mechanism responsible for the association between negative health consequences and pessimism" (p. 454), and that pessimism may be associated with hypervigilance. They did not find support for their hypothesis that pessimism would result in greater cardiovascular reactivity when under conditions of high distractibility, leaving open the question of a relationship between the process of vigilance and optimism/pessimism. Lastly the authors found support for their hypothesis that pessimists would experience more fatigue and anxiety after the stressful experience than optimists. For Williams and Riels, this suggested the possibility that "optimism generates a strong sense of perceived control or 'illusion of invulnerability' which results in diminished anxiety with its resultant health benefits" (p. 455).

The relationship between optimism and stressful experience was explored further by Hooker, Monahan, Shifren, and Hutchinson (1992). They examined the association between the personality traits of neuroticism and optimism, and both mental and physical health. In noting the growing body of research associating positive emotional states with protection against illness, they hypothesized that the selected personality variables would exert both direct and indirect impacts upon health status.

For the stressful experience, Hooker et al. (1992) focused on spousal caregiving to patients with Alzheimer disease or other dementias. They included 51 such caregivers, each of whom were assessed for: neuroticism (NEO) (Costa & McCrae, 1985, 1989); optimism (LOT) (Scheier & Carver, 1985); perceived stress (Perceived Stress Scale) (Cohen, Karmarck, & Mermelstein, 1983); as well as mental and physical health.

At the conclusion of their research, Hooker et al. (1992) found support for the need to take into account the personality of caregivers when attempting to determine why some caregivers succumb to mental health problems. This relationship vis-à-vis optimism appeared to them to be through its association with perceived stress. Interestingly, they found no relationship between optimism and physical health, even with the established negative association with perceived stress.

This interest in the possible mechanism and pathways by which optimism (or other personality variables) may influence physical health has received increasing attention in recent years. While it is not possible to do justice to this research in the present review, a recent study by Segerstrom and Taylor (1998) may serve as an example. In their study, Segerstrom and Taylor explored the effects of dispositional and situational optimism on both mood and immune changes among a sample of law students.

Segerstrom and Taylor (1998) noted the recent gains in understanding the relationship between social and psychological factors—particularly optimism—and physical health. They also found that the means by which optimism might effect better health was still unclear, though one likely rout was through impacts on the immune system. However, because there is no apparent direct pathway between an expectation

(i.e., optimism) and the immune system, they proposed that mood might be a possible linkage. This linkage between mood and physical health was suggested to be by way of the impact of major depression and anxiety on lymphocyte circulation and production. Another possibility for optimism's impact, according to Segerstrom and Taylor, might be through better health habits.

Segerstrom and Taylor (1998) provided several measures to a sample of first year law students, at two time periods (during orientation, and again at midsemester), including: dispositional optimism (LOT; Scheier & Carver, 1985); situational optimism (via a 10-item scale designed for the study); coping (Coping Operations Preference Enquiry: Carver, Scheier, & Weintraub, 1989); health behavior and stressful experiences questionnaires, and blood samples to measure lymphocyte circulation and production.

In discussion of their results, Segerstrom and Taylor (1998) found support for their prediction that optimism would be associated with better mood and higher lymphocyte numbers and function under conditions of high stress. More specifically, they found:

> Optimism, and in particular situational optimism was related to higher lymphocyte subset numbers and function. Dispositional optimism was positively associated, though not significantly, with higher numbers of cytotoxic T (CD3+ CD8+) cells. Situational optimism was similarly related to number of cytotoxic T cells. In addition, situational optimism was significantly positively correlated with number of helper T (CD4+) cells and with a NKCC [natural killer cell count] at the 12.5:1 and 25:1 effector-target rations. (p. 1650)

As for correlates of optimism, Segerstrom and Taylor (1998) found that both dispositional and situational optimism were correlated with less avoidance coping, and that situational optimism to be correlated with less perceived stress (p. 1651). Overall, they found support in their research for both beliefs and appraisals regarding events, and the associated changes in affect, being important influences upon immune change associated with stress.

This positive health impact of optimism and other positive personality variables is not universally accepted. In their review of several studies of psychotherapeutic intervention with cancer patients, Stein and Spiegel (2000) found that expressive therapy (i.e., open expressions of negative thoughts such as fear of dying, anger, and hopelessness) was positively correlated with both improved psychological and physical status. However, they not only did not find a positive correlation between positive personality variables, but the contrary, stating "optimism and an optimistic explanatory style seem to negatively affect immune function, leading to decreased cutaneous responses to delayed hypersensitivity testing and diminished lymphoproliferative response to mitogenic challenge" (p. 136).

Stein and Speigel's (2000) findings, however, are in contrast to others who do find a positive relationship between positive personality variables and health. Feaster et al. (2000), for example, found that

> to the extent that an individual is overly respectful and cooperative, socially alienated, unexpressive of emotions, pessimistic, hopeless, fearful about somatic status, and reliant on a passive coping style, the deleterious impact of life stressors

> is potentially enhanced in three outcome spheres: psychological wellbeing, immune function, and physical health. Conversely, availability of sufficient and satisfactory social support, utilization of active coping strategies (e.g., taking constructive action, planning a strategy), and positive attitudes (optimism, hopefulness, lack of undue somatic preoccupation, social connectedness, adequate emotional expression) will lessen the potential deleterious impact of external factors and may have direct, salutary effects in the three outcome domains. (pp. 157-158)

While this one study regarding the association between personality variables and measures of physiological immunity is not sufficient to convey the rich complexity of this research, it is representative of the general thrust and findings. The interested reader is referred to the larger body of research in this area, particularly that associated with the relatively new field of psychoneuroimmunology. For now, however, the discussion shifts to another possible dimension of optimism which might add to a greater understanding of its origins and influences: genetics and heritability.

Genetics and heritability. Seligman, Reivich, Jaycox, and Gillham (1995) addressed the issue of optimism's (and pessimism's) heritability. Much of their view regarding the possibility of optimism being an inherited trait was influenced by the results of research involving twins that focused on other traits, such as: depression, job satisfaction, religiosity, liberalism, authoritarianism, and exuberance (Seligman et al., 1995, p. 96). They noted that this research indicated that between 25 and 50 percent of these personality traits is likely inherited from one's parents.

Regarding the heritability of optimism, Seligman et al. (1995) noted earlier research (Schulman, Keith, & Seligman, 1993) with identical and fraternal twins who completed the adult version of the LOT. As expected, the identical twins were closer in their explanatory style than fraternal twins—both for optimism and pessimism. Notably, one fraternal twin's score only had a little less than 50% correlation to the other's score (Seligman et al., 1995, pp. 96-97).

Seligman et al. (1995) acknowledged that the relatively greater correlation between identical versus fraternal twins' optimism might be due to a more similar treatment for the former. However, they highlighted the results of "the yeoman Swedish Adoption/Twin Study of Aging" (Pedersen et al., 1991; Plomin et al., 1992) which produced results much like their own, with even less of the optimism scores being heritable—approximately 25 percent. Seligman et al. suggested that the difference between their estimate of 50% and the Swedish study's 25% may be reflective of the fact that the twins they tested were all raised together, whereas some of the Swedish twins (identical and fraternal) were raised apart.

While these results support the view of many that optimism is partly due to genetics, Seligman et al. (1996) were not convinced, seeing a distinction "between a trait being 'heritable' and a trait being directly caused 'genetically'" (p. 97). Essentially, Seligman et al. suggested that heritable traits (e.g., beauty, intelligence, athleticism, etc.) which may engender success or failure which, in turn, promote either optimism or pessimism. Said differently, optimism and pessimism grow out of particular experiences rather than being genetically predisposed. Seligman et al. also, however, acknowledged a

heritable component of optimism, and consider likely a "gene-environment covariation" (p. 309) which influences outcome. Still, they saw the environment as primarily causal, and went so far as to predict, perhaps somewhat tongue-in-cheek, the emergence of a field of psychology called "Breaking Gene-Environment Covariation" (p. 309).

Summary of optimism. The preceding review of the literature on optimism has highlighted several issues which are particularly pertinent to the present research, including (1) optimism is an attributional style, implying that it is at least partially under control of each individual—something accessible to choice and change, (2) optimism is associated with several other personality constructs and behaviors which are demonstrably important mediators in reaction to stress and adverse life circumstances, including: coping styles, hardiness, perceived control, and health behaviors, (3) optimism appears to exert its influence upon physical (and, perhaps, psychological) health via mediating impacts upon the perceived stressfulness of negative life experiences, and (4) optimism may well have some genetic basis for heritability.

With this overview of optimism, the present review turns to other personality dynamics at the heart of the present research. One of the personality factors most often associated with optimism in the literature is perceived locus of control, which is an outgrowth of Julian Rotter's (1966) social learning theory and itself an attributional dynamic.

Perceived Locus of Control

Overviews of several research efforts that included control as a variable were presented during the previous review of the optimism literature and, for the sake of

brevity, will not be repeated here. The literature review of locus of control is intended to enhance and augment understanding of the power and importance of this attributional construct. In addition, the shear volume of literature regarding locus of control prohibits a complete accounting. Therefore, only that research most relevant to the thrust of the present research effort is included.

The issue of personal control emerged as important to psychological wellbeing in the late 1950's, and was a key element to Rotter's contributions to social learning theory (Shapiro, Schwartz, & Austin, 1996). Rotter (1990), himself, described locus of control as being among "the most studied variables in psychology and the other social sciences" (p. 489), a sentiment shared by others (e.g., Lefcourt, 1992). As Rotter defined

> Internal versus external control refers to the degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics versus the degree to which persons expect that the reinforcement or outcome is a function of chance, luck, or fate, is under the control of powerful others, or is simply unpredictable. (p. 489)

Rotter (1990) considered the popularity and utility of the control construct to be due to three, primary reasons: its precise definition; the fact that it is imbedded in a broader theory; and that its measurement is derived from that theory.

In her self described "guide to constructs of control," Skinner (1996) organized the numerous constructs associated with control, dividing them into two distinct categories: "(a) objective, subjective, and experiences of control; and (b) agents, means, and ends of control" (p. 549). Skinner considered a major difficulty with research on

control to be the terminology associated with the various control constructs. This led her to conclude that "there is little consensus on the kinds of control that are beneficial or harmful and how these may interact with individual or situational characteristics to influence the consequences of control. Of course, some of the ambiguity in this area reflects the complex workings of control in situations of high stress, great trauma, and objective uncontrollability" (p. 551). This question regarding the universal benefit of control is echoed by others, such as Lachman and Weaver (1998), who determined that a belief in control that is very strong may be a detriment in stressful life circumstances, as those seeing their world as being predictable and controllable may be especially vulnerable when confronted with a life event which is not.

As for Skinner (1996), at the conclusion of her review she emphasizes an important point

> Many important processes of motivation, engagement, coping, and adaptation are not connected to control per se. Stressful circumstances, such as life-threatening illness, victimization, and aging, are stressful for reasons in addition to the loss of control they entail . . . . It is essential that researchers stop defining all adaptive processes as aspects of control; some may be related to control and others may not (p. 565).

In their comprehensive review of the construct of control, Shapiro, Schwartz, and Austin (1996) reviewed the research support for the importance of control regarding both mental and physical health, including a negative correlation with psychopathology, a

positive association with normal, or nonclinical, populations, and a negative association with morbidity and mortality associated with a wide range of diseases (pp. 1214-1215).

In general, Shapiro et al. (1996) summarized the value of control as "(a) Having active, instrumental control is positive, and (b) the more control you have (or believe you have), the better." (p. 1215). However they also presented research which suggested that the benefits of control may be dependent upon what they termed "control mismatches," which are described as a disconnect between the amount of control available and certain personal variables such as: skill and ability, self efficacy and responsibility, and desire for control.

In addition to the negatives associated with mismatch, Shapiro et al. (1996) also noted that Rotter (1966) considered very high internal locus of control as potentially indicating psychological dysfunction (Shapiro et al., p. 1215). Presumably, this could be so because of the mismatch between the reality of a situation and the personal variables mentioned above which translate into: behavioral competencies; control cognitions; and control motivation (Shapiro et al., p. 1215).

Shapiro et al. (1996) also summarized the literature which found relationships between control and other constructs. Most pertinent to the present research, they found control to be a key component to several other constructs, including learned helplessness and optimism (p. 1215). Brown and Siegel (1988), in their review of the extant literature, noted that the emphasis on perceived control had been retained when Abramson, Seligman, and Teasdale (1978) reformulated Seligman's (1975) theory by adding attribution to the mix (Brown & Siegel, 1988, p. 316). Brown and Siegel's research had

the goal of clarifying the role of perceived control in regard to attributions and the development of depression.

In the end, Brown and Siegel (1988) found support for "the importance of considering judgments of control when relating attributions for naturally occurring life events to depression" (p. 319). They also noted that negative events were not always considered uncontrollable; that a majority of participants considered that they had at least some control over a stressful life event. In fact, there was evidence of a positive coping value for considering negative events as being under self control. They suggested that this may be so because, if a stressful life event might have been controlled, there is at least some comfort in knowing that it might be prevented next time, and not something totally beyond one's ability to influence.

Ferguson and Cox (1996) also considered the relationship between control and attributions, stating that: "Perceived control has been conceptualized at two levels: beliefs and attributions" (p. 271). They also found two main conceptualizations of perceived control in the literature: unidimensional, on a continuum from internal to external; and orthogonally, with one dimension generally described as ability (i.e., I can, or cannot, do something in this circumstance) and the other as contingency (i.e., the way things turn out are, or are not, determined by what I do).

In considering what they called an "implicit theory of perceived control," Ferguson and Cox (1996) found sufficient evidence for control being a critical variable in psychological health and wellbeing, including a positive relationship with normalcy, and negative relationships with psychopathology, physical disease, and mortality.

Ferguson and Cox (1996) acknowledged the importance of control in regard to both physical and mental health. However they also found evidence for the physical and psychological health benefits of control being curvilinear rather than linear. That is, too little is unhealthy, too much is unhealthy, and somewhere in the middle is most effective.

Focusing on the tails of the range of control, Ferguson and Cox (1996) found evidence for what they termed "control mismatches." They suggested that some individuals have a mismatch between the amount of available control, and a number of potential personal variables, including "(a) behavioral competencies (skill and ability), (b) control cognitions (self-efficacy and responsibility), and (c) control motivation (desire for control)" (p. 1215).

The focus of Ferguson and Cox's (1996) interest regarding control was to match an individual's control profile to therapeutic intervention approaches. Their stated goal was to design therapeutic approaches which eliminate or reduce the mismatch between the individual's particular personal control variables, and the particular control related problem.

In addition to perceived control exerting an apparent influence upon health and "normalcy" directly, it has been determined to have close, perhaps even inseparable, relationships with other factors related to psychological and physiological resiliency. As examples, there is evidence of a relationship between coping strategies and perceived control (e.g., Jensen & Karoly, 1991; Macrodimitris & Endler, 2001), health practices (e.g., Christensen, Moran, & Wiebe, 1999), a host of health related issues (e.g., Bennett et al., 1997; Bundek, Marks, & Richardson, 1993; Christensen et al., 1991; Johansson et al.,

2001; Lachman, M.E., & Weaver, S.L., 1998; Lewis & Rook, 1999; Manne & Glassman, 2000; Marshal, 1991) and depression associated with diabetes (e.g., Connell et al., 1994; Talbot et al., 1999).

More specific to the focus of the present paper, a number of researchers have determined a strong relationship between perceived control and other resilience factors including: learned helplessness/hopelessness (Peterson, Maier, & Seligman, 1993; Seligman, 1998a); optimism (Seligman, 1998a; Seligman, 1993; Taylor et al, 2000); and resilience itself (e.g., Chorpita & Barlow, 1998; Hart, Hoffman, Edelstein, & Keller, 1997).

A brief review of several of these may help to further clarify the apparent core influence of control to these various resilience related constructs. For example, Chorpita and Barlow (1998) explored the relationship of control and a wide range of dynamics, including: depression, helplessness, explanatory style, animal learning, biology, parenting, attachment theory, childhood stress, and resilience—all in regard to early environmental influences on the development of anxiety.

While their findings are much too extensive to adequately review here, Chorpita and Barlow (1998) touched upon areas which are relevant to the present research. Firstly, while supporting the possibility that an overly strong sense of control might be detrimental in some circumstances, they also saw that, particularly early in life, experience with insufficient control "can foster psychological diathesis that may eventually give rise to increased anxiety (and perhaps depression) in children and adults" (p. 3).

Chorpita and Barlow (1998) also highlighted that control is at the heart of attributional style, with its emphasis on internal vs. external personalizations (as described further elsewhere below), as well as being part of a mutual interaction among attributional style and adversity. Chorpita and Barlow are apparently among those that see exposure to stressors as not necessarily harmful and, under the right circumstances, fostering a sense of control. As they state: "The negative impact of stressors appears to be closely tied to their interpretation . . . and to one's ability to control these stressors" (p. 13). In addition, they saw much evidence in the literature for an immunization effect of experience to manageable stress, making any subsequent exposures less corrosive to one's sense of control. Overall, they considered the sense of control as mediating adverse experience and anxiety.

As highlighted by Chorpita and Barlow (1998) above, the reformulated theory of attributional style contains a core dimension of control. Seligman (1998b) acknowledged this relationship in his description of one of the three aspects of explanatory style: *personalization* (the other two being: *permanence* and *pervasiveness*). Essentially, Seligman saw a strong association between low self esteem and an attributional style that is internal for bad events. That is, those who ascribe to self characterizations such as "I'm inept in relationships" is more likely to have low self esteem than those with an alternate belief such as "I'm unlucky in love." It should be noted that this more positive attributional style ascribes the cause of one's problems to a force that is external and due to luck. This is exactly converse to the primary tenets of

locus of control which generally considers an internal and chance-rejecting view to be more resilient.

The determination of control as being a core element in resilience has been established through a wide and extensive body of research, focusing on such diverse relationships as smoking (e.g., Bennett et al., 1997), adolescent behavior and development (e.g., Hart et al., 1997), adolescent substance abuse (e.g., Wills, 1994; Adalbjarnardottir & Rafnsson, F.D., 2001), dental treatment (e.g., Law, Logan & Baron, 1994), childhood homesickness (e.g., Thurber & Weisz, 1997), Type 2 diabetes (Macrodimitris & Ender, 2001); and recurrent cancer (Newsom, Knapp, & Schulz, 1996).

In addition to investigations of the role of control in these specific relationships, there is a large and growing body of research which explores the impact upon health and disease more generally. Labeled *health locus of control*, this line of research attempts to elucidate the relationship between not only the onset and progression of disease, but in control attitudes and beliefs which impact health practices and other health related behaviors. As might be guessed, the exploration of health locus of control has some overlap with other health and resiliency promoting qualities, including optimism.

In their research regarding resources important to health, Taylor et al. (2000) noted the established relationship between optimism, personal control, and life meaning to psychological health, and wished to determine if these might also be important to physical health. Not only did they find such a relationship, but they determined that positive illusions of controllability was also helpful.

Taylor et al. (2000) reached several other conclusions important to the focus of the present research. One of these conclusions was that exposure to stressful life events, including trauma, does not inexorably lead to despair or depression, or to apparent physical detriment. More pointedly, such experiences may serve to an array of positive gains, including: "finding meaning in life, developing better coping skills, enhancing one's social resources, establishing important personal priorities, and recognizing the value of social relationships" (p. 104). They also asked the question "what determines whether one has the ability to respond to stressful or traumatic events not with despair, depression, and purposelessness but with resilience and a renewed sense of purpose?" (p. 104).

While acknowledging that the answer to their question was unknown, Taylor et al. (2000) suggested that such normal perceptions as positive self concept, sense of control, and an optimistic expectation for the future—even unrealistically so—appeared to be reserve resources to be used in both day-to-day life, and especially during highly stressful life events. Particular to health and disease, Taylor et al. saw support for these same resources providing a buffer even against advancing life threatening disease or death. Lastly, Taylor et al. saw the relationships between positive and negative psychological states as remaining unclear, noting that, while they were generally found to be negatively correlated, the strength of this correlation suggested that they were not simply redundant. Rather, this relationship suggested that they may be, in part, independent influences rather than merely opposite poles. Clearly, this possibility might apply not only to the apparent polarity of internal and external control, but to optimism and pessimism as well.

The benefits of the illusion of control—even if an overestimation—was also explored by Thompson, Armstrong, and Thomas (1998), who identified five conditions they found to influence control judgments, "skill-related factors, success or failure emphasis, need for the outcome, mood, and the intrusion of reality" (p. 143). They found the dynamics underlying the illusion of control of interest not only because of the potential for gained insight into human judgment, but also for the practical implications for risky behaviors and coping with illness.

Thompson, Armstrong, and Thomas (1998) suggested that individuals employ a *control heuristic* in making judgments about the extent of their control of a situation. They defined heuristic as "a shortcut or simple rule that can be used to reach a judgment, in this case, an estimate of one's control over achieving an outcome" (p. 148). For them, the heuristic used is a two stage process: an intention to achieve a particular outcome; and a perceived relationship between action and outcome. As will be discussed later, this heuristic seems much like that identified as core elements of hope.

Other researchers have considered the dynamics of control. In a comprehensive theoretical analysis of the control construct, Heckhausen and Schulz (1995) presented a lifespan theory of its development, based upon their concept of *primary* and *secondary* control (also see Weisz, McCabe, & Dennig, 1994). As they defined, primary control is related to those behaviors meant to change the external environment in a way that addresses the needs and wants of the individual. Secondary control was defined as internal processes which attempt to minimize decrements of primary control, or to maintain or enlarge upon it. Further, Heckhausen and Schulz proposed that primary

control, rather than secondary, was the main concern of individuals. Lastly, they considered the changes in needs—and types—of control over the human lifespan.

In Heckhausen and Schulz's (1995) view,

> our distinction between primary and secondary control emphasizes that primary control targets the external world and attempts to achieve effects in the immediate environment external to the individual, whereas secondary control targets the self and attempts to achieve changes directly within the individual. Both primary and secondary control may involve cognition and action, although primary control is almost always characterized in terms of active behavior engaging the external world, whereas secondary control is predominantly characterized in terms of cognitive processes localized within the individual. (p. 286)

Heckhausen and Schulz (1995) bolstered their taxonomy of control with distinctions regarding individuals' validity of perceptions regarding the links between their behavior and its results. For these distinctions, they chose the terms: *veridical—illusory*, and *functional—dysfunctional*. The veridical—illusory dimension related to the validity of both the individual's representation of the world, and the relationship between his actions and results. As for the functional—dysfunctional dimension, Heckhausen and Schulz considered that the veridacity of ones view of the world may also be tested against whether such a view is functional or dysfunctional in achieving a good result.

With these four dynamics of control, one can construct a two-by-two grid, resulting in four possible combinations: veridical and functional (effective in achieving both short and long term primary control); veridical but dysfunctional (resulting in short

term gain, less positive long term); illusory and dysfunctional (which they see as the most harmful due to its inability to achieve external goals, and offering nothing for long term gain); and, illusory and functional (which they describe as akin to doing something right, but without good reasoning behind it).

While both primary and secondary control are pertinent to the present research, it is the secondary form which appears to be the most relevant as it relates most directly to the internal processes: thoughts and beliefs. This view is supported by Heckhausen and Schulz (1995) who stated that

> three aspects of action regulation are the major targets of secondary control strategies: (a) *expectancy* of goal attainment, (b) *value* of goal attainment, and (c) *causal attribution* of action outcome. These three aspects correspond to the following three types of secondary control strategies: (a) expectation bias such as optimism, defensive pessimism, adjustment of aspiration level, and strategic selection of social reference group, (b) shifts in goal values as the "sour grapes" effect, disengagement, and changes in goal hierarchy; and (c) biased attributions of outcomes such as egotistic attributions of success and failure. (p. 287)

Further relating the control dynamics to optimism, Heckhausen and Schulz (1995) believed behavior that is positively biased regarding outcome can be both illusory and functional. They saw this as possible in such situations as when primary control is attainable but not yet achieved. Here, before competency can be accomplished, "an optimistic expectancy for success-although currently unrealistic-can motivate effort and foster competency or primary control in the long run" (p. 287).

Heckhausen and Schulz (1995) also saw secondary control strategies as being helpful by promoting causal attributions for either success or failure which are valuable to self esteem and self concept. The ideal, as they saw it, is for accuracy and functionality to meet, resulting in accurate attributions—creating accurate templates for future behavior. However, they found that if an individual makes attributions which are pessimistic for failures, and external for successes, he or she may be accurate but may become hopeless and depressed. On the other hand, someone who may have a positive attributional bias (believing he has control for good outcomes, but not for bad) may be inaccurate but happier and healthier. Lastly, they considered that seeing oneself as in control (and, therefore responsible) for uncontrollable negative events is dysfunctional as it is out of sync with reality, detrimental to self esteem, and tends to subvert effective behavior in the future.

Finally, Heckhausen and Schulz (1995) highlighted the relationship between causal attribution and hope. They saw hope for success as associated with "internal and stable attributions for success, and external and variable attributions for failure, whereas fear of failure is associated with external and variable attributions for success and internal and stable attributions for failure" (p. 294). Further, they saw a failure of control as relating, notably, to the learned helplessness model—apparently "designed to provide a control-based explanation for the occurrence of depression" (p. 287).

From Heckhausen and Schulz's (1995) contributions, it appears that control is intimately associated with optimism, not only because both are attributional styles, but because of optimism's attributional emphases: internal for good, external for bad. In

addition, control, like optimism, is reactionary. That is, both represent attempts at adaptation to external events through internal mechanisms. Lastly, they suggest that control is associated to hope by the same dynamics.

Eizenman, Nesselroade, Featherman, and Rowe (1997) also found research support for a relationship between control and optimism, as well as one's ability to effect desired outcomes through such things as efficacy expectancies, agency beliefs, and perceived competence—all of which appear to be somewhat independent of locus of control attributions. In general, they found that the research literature supports that high internal locus of control "contributes to happiness and positive outlook on the future . . . makes one more willing to face challenges . . . and leads one to be more persistent in coping with stress and loss . . . [and that] increasing an individual's perceptions of control over the environment tends to better physical health, psychological status, and cognitive functions . . . and may affect an increase in longevity" (p. 491).

The relationship between control and efficacy is a frequently explored relationship. Phillips and Gully (1997), for example, explored goal orientation, ability, need for achievement, and locus of control in regard to both self efficacy and the process of goal setting. While they found that personality factors impacting upon self efficacy were mostly undetermined, they considered it reasonable that such personality variables as locus of control might be a significant factor.

Phillips and Gully (1997) highlighted the research support for a relationship between locus of control, passivity, and learned helplessness, as well as perceptions of control of the environment ant self efficacy. With these relationships in mind, they

proposed that those having an internal locus of control would also have higher self efficacy. Upon testing their theory with undergraduate students, they found "strong support for a model linking individual personality traits, ability, self efficacy, and goal processes into a common framework that explains and predicts individual performance . . . . [and that] the individual difference components of learning goal orientation and locus of control had positive effects on self-efficacy in addition to ability" (p. 798).

In addition to efficacy, the sense of control has been linked to a variety of indices of psychological well being. Daniels and Guppy (1997) found locus of control to be associated with psychological symptoms in general, and depression in specific. Of additional interest to the present research, they also found that participants experienced a decrease in stress with repeated adversity of the same type. Also focusing on depression, Weisz, Southam-Gerow, and McCarty (2001) explored the contingency—competence—control model of depression in regard to preadolescent participants. Upon conclusion, they found a "robust relation between young people's control-related beliefs and their subjective experience of depression" (p. 104). However, this relationship appeared to be somewhat dependent upon the developmental stage. In this regard, they stated that

> depression in childhood may be largely a matter of beliefs about self (how competent I am in various skill domains, how much control I have over outcomes) rather than beliefs about the world (how contingent various outcomes are for kids in general. In adolescence, by contrast, beliefs about self and beliefs about contingencies in the world may both have significant implications for mood and other depressive symptoms. (p. 105)

What Weisz, Southam-Gerow, and McCarty (2001) appear to be saying is something akin to the earlier point made by Heckhausen and Schulz's (1995) regarding primary vs. secondary control. That is: younger children appear to focus more on the primary, or external, control issues, while adolescents (and, by extension, adults) add the dynamics of self and beliefs to the mix.

Most relevant to the present research, Peterson, Maier, and Seligman (1993, pp. 144-155) emphasized the integral relationship between control, helplessness/hopelessness, and depression throughout their formulation (and reformulation: Abramson, Seligman, & Teasdale, 1978) of the learned helplessness theory, as does Gillham, Reivich, & Shatté (2001, pp. 302-303), and Seligman (e.g., 1998a, pp. 66-67), and hopefulness and optimism (Kumpfer, 1999).

Summary of Perceived Locus of Control

The preceding overview of the control literature has made clear that this construct has become a mainstay in research efforts exploring both psychological and physiological resilience. Locus of control, in short, refers to the attributions which individuals employ to account for events—either positive or negative—in their experience; either predominantly internal, or external. Those with internal locus of control tend to see themselves and their actions more as the determinants for outcomes, while those espousing the external view tend more to see forces outside themselves as determining outcomes. Whether one tends to be internal, or external, has been found to have impacts upon expectations, actions and, more recently, biochemical responses, all of which impact psychological and physical health status.

In addition to its apparent direct influence upon psychological and physiological resilience, locus of control has been found to be closely related to other resilience constructs, including optimism, hardiness and, as will be discussed in the following section, hope. The relationship between control and these other variables appears to be a close one—perhaps incestuously so. As reviewed above, control is an integral part of the reformulated theory of learned optimism (and learned helplessness/hopelessness), and a central dynamic of hardiness. However, while control is an integral component of optimism, the research literature reveals it to be only moderately correlated with it. This moderate correlation between control and optimism suggests that they each exert their own, separate influence.

The control literature is generally supportive of the psychological and physiological benefits of an internal locus of control over one that is external. However, recent research also supports extreme internality being detrimental to physical and mental health, thereby suggesting a curvilinear relationship for the range of control from high externality through high internality. While even unrealistically high optimism has been demonstrated to be generally beneficial, the same, apparently, cannot be said of control.

Lastly, the literature reviewed generally supports a relationship between control and adversity such that greater, and more prolonged, adversity results in decreasing attributions of internal control. However, there was also research presented which suggests that there may be an inoculating effect produced by exposure to more gradual and manageable amounts of life adversity.

With this summary of control, the review of literature proceeds to the final construct and variable addressed in the present research—hope.

Hope

As defined by Snyder (1994), one of the construct's primary architects, hope is: "the sum of the mental willpower and waypower that you have for your goals" (p. 4). As thus defined, hope is comprised of three components: *goals*, *willpower*, and *waypower*.

Snyder (1994) defined goals as those objects, experiences and outcomes that we imagine and desire—something we wish to obtain or attain (p. 5). He suggested that only important goals are relevant in regard to hope, but that having a significant goal is key. He also suggested that a hopeful goal must be neither one without a chance of being obtained, nor one sure to be achieved—falling between impossibility and certainty.

Snyder (1994) saw willpower as "the driving force in hopeful thinking . . . .a reservoir of determination and commitment that we can call on to help move us in the direction of the goal to which we are attending at any given moment . . . .[and] taps our perception that we can initiate and sustain actions directed at a desired goal" (pp. 6-7). He also highlighted that willpower is not likely to be acquired without the experience of adversity. In this regard, he considered willpower to be "based on our tacit knowledge that, even during stressful times when we run into blockages on the way to our goals, we have been able to generate the mental efforts required to overcome them" (p. 7).

As for the last component, Snyder (1994) saw waypower as being akin to mental maps guiding hopeful thought. More specifically, Snyder described waypower as "a mental capacity we can call on to find one or more effective ways to reach our goals.

That is to say, the perception that one can engage in planful thought is essential for waypower thinking" (p. 8). As with willpower, waypower was based on previous successes in obtaining one's goals and is exemplified by the motto, "If you can't do it one way, do it another way" (Snyder, p. 9).

In sum, Snyder (1994) considered hope as a mental set where one perceives the willpower and waypower to obtain a critical goal. Those having both willpower and waypower for goals are highly hopeful, and this high hope mind set is an advantage during times of adversity. As he saw it, high hope individuals have the necessary mindset and practice to consider alternatives and, equally importantly, pursue these alternatives in pursuit of their goals. Snyder reduced these dynamics to a formula stated as "hope = mental willpower + waypower for goals" (p. 11), and he emphasized that hope is a continuing process which is much determined by how we think about ourselves relative to our goals. More specifically, Snyder stated: "*how we think about and interpret our external environment is the key to understanding hope*" (p. 12, emphasis his).

Snyder (1994) also differentiated hope from what he terms "Pollyanna Optimism," or unrealistic optimism. For that matter, Snyder highlighted a distinction between hope and learned optimism. Whereas Snyder saw that learned optimism involves an explanatory style which distances oneself from failures, he saw hope being "the essential process of linking oneself to potential success" (p. 18). Hope, for Snyder, is a way of thinking that motivates us toward our desired consequences and, in so doing, buffers us from those not desired.

While Snyder (1994) differentiated between hope and learned optimism, he also saw the two—and other personal qualities—as being characteristic of high hope individuals, stating

> In summary, the prototypical high-hope person appears to exhibit optimism, perceptions of control over one's life, perceived problem-solving ability, a preference for competition (but not winning itself), high self-esteem, and positive affectivity. Additionally, compared to low-hope individuals, high-hope persons are not as likely to manifest negative affectivity (including hostility, fear, and guilt), anxiety, and depression. (p. 50)

Somewhat later, Snyder, Cheavens, and Sympson (1997) refined the concepts of willpower and waypower as *agency* and *pathways*, but the process remained unchanged. One possible reason for this change in terminology might have been to create more language friendly adjectives: allowing such terms as *agentic* and *pathways thinking.*

Especially because Snyder (1994) discriminates between hope and learned optimism, we might consider what the primary proponent of that construct, Martin Seligman, has to say about hope. While only mentioning hope in passing, Seligman (1998) highlighted the common belief that "hope is by itself life-sustaining and hopelessness life-destroying" (p. 168). While he noted the possibilities of other reasons for a good outcome, such as a highly functioning immune system, it is clear that he subscribed to an association between hope and optimism. This association, if for no other reason, lies in the relationship between hopelessness and optimism—with the latter being

the antithesis of the former. If hopelessness is an antagonant of optimism, then, logically, hopefulness should be its protagonant.

Supportive of the relationship between and/or among hope, optimism, and locus of control, Glantz and Johnson (1999) posited that resilient individuals "have more internal locus of control . . . . and are more hopeful about their ability to create positive outcomes for themselves and others . . . . [and] the ability to give up attempts to control that which is not controllable is also characteristic of resilient individuals" (p. 200).

This relationship between hope and health was also highlighted by Rolland (1994). In discussing the positive impacts upon health provided by a positive attributional style, Rolland stated: "In contrast to denial, in which new information is blocked out, exaggerated hope can allow a family to learn and incorporate new and difficult information (for instance, about a treatment complication) and take appropriate action without becoming overwhelmed" (p. 142).

In their review of both the optimism and hope constructs, Snyder, Sympson, Michael, and Cheavens (2001) found long standing support in the literature for the positive health and psychological benefits of hope. Snyder et al. (2001) considered a cognitive model of hope to be an alternative explanation for the positive style of thinking more frequently attributed to optimism. Further, they stated: "Although most people may think of an optimist as 'being hopeful,' the two concepts . . . have similarities, as well as some differences" (p. 102).

Snyder et al.(2001) reviewed a number of studies which found a positive relationship between hope and components of good psychological adjustment, including

achievement, problem solving, and health. While a complete review of these relationships might be too tedious, highlights of each may be helpful to clarifying hope's impact upon them.

Hope and psychological adjustment were found to be related in several ways, including a positive relationship between hope and belief in one's self worth and capabilities, scholastic competence, social acceptance, athletic ability, and physical appearance—in sum, a heightened belief in one's ability to achieve specific goals, and a greater tendency to act out on those expectations (Snyder et al., 2001, pp. 114-115).

As for achievement, Snyder et al. (2001) described research supporting positive correlation to achievement in children, even when controlling for self worth, increased academic success among college students, even taking into account their high school grades, and a positive relationship with athletic achievement.

Snyder et al. (2001) found research support for hope being positively correlated with problem solving, which they found unsurprising given hope theory's integral pathways component. Among the relationships with problem solving, they found hope (as measured by the Hope Scale) to be both a predictor of problem focused coping, and predictive of both active coping and planning.

As for health concerns, Snyder et al. (2001) cited support in the literature for those with more hope coping better with illnesses. Included in the research in this regard, Snyder et al. (2001) found support for hope being related to better coping and less depression among patients with spinal cord injuries, decreased burnout among nurses, and less counterproductive behavior among adolescent burn patients.

In conclusion of their comparison of hope and optimism, Snyder et al. (2001) summarized their view by stating that "the major difference in the models of optimism and hope is that the former emphasizes agentic goal related thinking, whereas the latter emphasizes the mutual contribution of agentic and pathways goal directed thoughts. Although we point out some differences in the optimism and hope theories, there are many important shared aspects of these two theories." (p. 118).

The primary proponent of optimism, Seligman (1999a ,1998b) discussed the development of optimism in young children (Seligman, 1998a) and highlighted the influence of both hopelessness, and hope, stating that "nature has buffered our children not only physically—prepubescent children have the lowest death rate from all causes—but psychologically as well, by endowing them with hope, abundant and irrational" (p. 126). Elsewhere, he waxed somewhat poetic in saying that "finding temporary and specific causes for misfortune is the art of hope." (p. 48). Mostly, however, he seemed to leave discourse on hope to others.

In addition to Seligman's views regarding a relationship between optimism and hope, Peterson, Maier, and Seligman (1993) also saw a relationship, although it was somewhat indirect. In elaboration of Abramson, Metalsky, and Alloy's (1989) reformulation of learned helplessness to learned helplessness/hopelessness, Peterson, Maier, and Seligman described depression as being the "proximal cause of depression" (p. 213). The differentiation between helplessness and hopelessness, from Peterson, Maier, and Seligman's viewpoint, was that: "*Hopelessness* entails an expectation of helplessness (response-outcome independence) coupled with the belief that bad events

will occur frequently in the future. By Abramson et al.'s hopelessness account, "a belief in helplessness per se need not lead to depression so long as the individual does not expect bad events to occur" (p. 213).

What these proponents of optimism and the learned helplessness/hopelessness theories appear to be saying is that there is something more than helplessness that leads to depression, and more than its opposite (optimism) that buffers against it. If hopelessness is also a key precursor to depression, then, logically, hopefulness should be a buffer. This logic seems supported by Peterson (2000) who, in his discourse on the future of optimism, includes hope among the approaches to optimism which define it as an individual difference—specifically an explanatory style. This conclusion is supported by Seligman and Csikszentmihalyi (2000) who, in their introduction to a special issue of the *American Psychologist* focusing entirely upon the "new" positive psychology movement, stated that "the field of positive psychology at the subjective level is about valued subjective experiences: well-being, contentment, and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present)" (p. 5).

Elliott and Sherwin (1997) looked at hope from a developmental model, and in relation to motive, meaning and identity. They approached the issue of hope from a therapeutic perspective, and noted that most clinicians consider hope to be critical to the effectiveness of, for example, group therapy. However, they found that there remains lack of understanding of how hope develops and might be nurtured effectively. Their understanding of the hope theory led them to state that the hope model "stipulates that goal-oriented beliefs and behaviors are modeled by significant others in the individual's

early interpersonal environment. These beliefs are then internalized, and the behaviors are emulated" (p. 119). However, they considered the possibility that hope might be developed in early cognitive stages, influenced by familial dynamics and culture.

Elliott and Sherwin's (1997) observations remind of the complexities of the development and sustenance of hope, and reinforce its cognitive basis while emphasizing that no cognitions, hope included, operate outside the influences of culture and experience—most notably that encountered within the immediate family. The emphasis on cognitive process, in addition, leads back to individual differences and, specifically, attributional style.

Snyder, Cheavens, and Sympson (1997) also considered the developmental process associated with hope, specifically in regard to what they term "hopeful thinking." They saw that the development of pathway and agentic thought process which is part and parcel of hope is begun shortly after birth, and most certainly by the time an infant reaches the toddler stage of development. Snyder et al. (1997) considered that

> pathway thoughts are related to (a) the sensing and perceiving of external stimuli, (b) the learning of temporal linkages between events, and (c) the forming of goals. In pathways thinking, infants form perceptions of 'what is out there,' and they learn that certain events co-occur temporally . . . . On the one hand, by perceiving linkages to goals, the infant acquires the basic processes necessary for pathway thinking. Agentic thinking, on the other hand, is composed of (a) self-recognition, (b) the perception of one's self as the originator of actions, and (c) the forming of goals. (p. 108)

Snyder et al.'s (1997) concept suggests that hope is a natural part of human development and, by extension, evolution. From their description, hope is not only naturally occurring, but an integral part of the human psyche. Also from their view, hope is closely tied to cognition, perception, and a sense of both one's self, and power to control the environment.

This importance to hope of a perception of ability to control one's environment and event outcomes is emphasized further by Snyder et al. (1997) in their statement that: "Barriers play a particularly important role in the development of dispositional differences in hope . . . . [and that] barriers produce negative emotions, especially when a child encounters profound blockages. However, the successful pursuit of goals tends to produce positive emotions, especially when barriers are overcome" (p. 108). They saw, then, that hope is nurtured not by the absence of life adversities, but by successfully overcoming them. Snyder et al. considered that children with high levels of hope may actually acquire some protections or immunization-like benefits from the experience of future adversities, if exposed to manageable doses earlier.

Finally, as with resilience, optimism, and locus of control, hope has been associated with a variety of desirable and resilient outcomes, including decreased depression in children and adolescents (Cicchetti & Toth, 1998), less depression following acquiring a disability (Elliott et al., 1991), being instrumental in recovery from depression (Needles & Abramson, 1990), predicting recurrence of major depression (Hart, Craighead, & Craighead, 2001), a resilience factor for mothers caring for children with chronic physical conditions (Horton & Wallander, 2001), improved psychological

and physical adjustment to breast cancer (Stanton et al., 2000), improved immunologic reactivity among HIV-1 patients (Feaster et al., 2000), hopelessness as a mediator between social support and depressive symptoms in HIV positive men (Johnson, Alloy, Panzarella, Metalsky, Robkin, Williams, & Abramson, 2001), and academic and sport achievement (Curry et al., 1997).

Summary of hope. The theoretical and research literature presented regarding hope supports several conclusions which are relevant to the present research, including that it is a key dynamic of both psychological and physiological resilience, it is closely—perhaps integrally—related to both optimism and locus of control, but not so much as to make it redundant of either, and its development and maintenance is related to the experience of life adversity such that too much, or too little, adversity may result in lesser hopefulness.

The literature also makes clear that the construct of hope carries important theoretical and practical import. Consideration of hope in the mix of personality, cognitive, and behavioral dynamics may add clarity to our understanding of both the promotion and restoration of resilience.

Summary of Literature Review

Chapter 1 began with two questions: Why do some people succumb to life's stresses and traumas when others do not? and, what factors, in what combination, and in what circumstances, promote this ability? Over the course of the preceding review of the relevant literature, several concepts and constructs have been explored and defined which purport to address these questions: resilience, optimism, locus of control, and hope.

A growing body of research evidence supports that these constructs do buffer against, and promote recovery from, the effects of adverse experiences, psychological disorders, and physical disease. In addition, there is research evidence for these constructs acting in concert, if not symbiosis.

In addition, literature has been reviewed which supports both that these constructs are discrete and separate, and that they may overlap to some degree. Further, particularly in the case of control, we found evidence that beneficial effects may not be linear. Rather, the benefit of perceived internal control may be curvilinear, with too little and too much being counterproductive. As resilience, optimism, and hope also appear to lie on a continuous scale, it is possible that this same curvilinear relationship may be true for some, or all, of them as well.

Lastly, while these constructs are seen as in some ways interactive, there has been no focused research to determine specifically how, or to what degree. More specifically, there is no research which addresses what an optimal level of optimism, perceived control, and hope would be for maximizing resilience. The results of such research might not only enhance an understanding of these dynamics and their relationships with each other, but suggest more efficient and effective approaches to therapeutic intervention.

Chapter 3: Methodology

Purpose Statement

The purpose of this study is to clarify the optimal levels of optimism, perceived locus of control, hope, and experience of adverse life events, in the development and maintenance of psychological resilience. Further, the research attempts to illuminate possible additive, subtractive, or catalytic relationships among these variables.

Research Hypotheses

The present research was designed to test the following null and alternative hypotheses which are supported, or suggested, by relevant research in the recent literature:

1. H_O There is no relationship between Optimism, as measured by the Life Orientation Test—Revised (LOT-R), and Hope, as measured by the Hope Scale (Trait).

   H_{A1} There is a positive relationship between Optimism and Hope.

   H_{A2} The positive relationship between Optimism and Hope will be greater in the Low Negative Life Experience condition than the High Negative condition, as measured by the Life Experience Survey (LES).

   H_{A3} The positive relationship between Optimism and Hope will be greater under the High Positive Life Experience condition than the Low Positive Life Experience condition.

2. H_O There is no relationship between Optimism and Control, as measured by the Internal-External Control Scale (I-E).

H_{A1} There is a curvilinear relationship between Optimism and Control, such that both extreme low and high levels of Control result in lower Optimism scores, and moderate amounts result in higher Optimism scores.

H_{A2} The curvilinear relationship between Optimism and Control will be more pronounced under the High Negative condition than the Low Negative condition.

H_{A3} The relationship between Optimism and Control will be positive under the High Positive Life Experience condition than in the Low Positive condition.

3. H_O There is no relationship between Optimism and either Positive or Negative Life Experience.

H_{A1} There is a negative relationship between Optimism and Negative Life Experience.

H_{A2} There is a positive relationship between Optimism and Positive Life Experience.

4. H_O There is no relationship between Hope, and Control.

H_{A1} There is a positive relationship between Hope and Control.

H_{A2} The positive relationship between Hope and Control will be greater in the Low Negative condition than in the High Negative condition.

H_{A3} The positive relationship between Hope and Control will be greater in the High Positive Life Experience condition than the Low Positive Life Experience condition.

5. H_O There is no correlation between Hope and either Positive or Negative life experience.

   H_{A1} There is a negative relationship between Hope and Negative Life Experience, such that low to moderate amounts of Negative Life Experience result in greater Hope, but extreme amounts result in lesser Hope.

   H_{A2} There is a positive relationship between Hope and Positive Life Experience.

6. H_O There is no relationship between Control and either Positive or Negative Life Experience.

   H_{A1} There is a negative relationship between Control and Negative Life Experience.

   H_{A2} There is a positive relationship between Control and Positive Life Experience.

Design Methodology

This section describes the methodology of the present study in examination of the hypotheses. Specifically, the study examined the relationship between "positive" and "negative" life experiences upon students' self reported hope, optimism and control.

Positive and Negative Life Experiences Survey (LES) scores were used as predictors of Hope, Optimism and Control. Consistent with the proposed hypotheses, Positive and Negative LES scores were entered as predictors in series of two step

hierarchical regression analyses that used Hope, Optimism, and Control scores as criterion variables.

Method

Participants. Participants for these studies were both male and female students from two universities: Washington State University, and Walden University. Arrangements were made with administration and faculty members in the above named universities to help secure access to participants from their institutions. Approval from the Institutional Review Boards from each university was obtained prior to solicitation of participants.

A power analysis indicated that, for a medium effect size ($R^2 = .15$; Cohen, 1992) with a power of at least .80, 61 participants must be sampled for each of the 6 levels of variables, resulting in a total sample size of 366 participants. Due to limitations in access to participants imposed by both universities, this ideal number of participants was not realized. The total number of participants obtained was 328. While not achieving the ideal number of participants for a power of at least .80, the shortfall was not judged to be problematic.

Measures

Survey questionnaire. A questionnaire was used for gathering the data in the present research, and was developed specifically for it. Both paper copies and an online version of the research questionnaire were employed. The online version of the questionnaire was made available through a web site hosted by Survey Monkey (http//www.surveymonkey.com), an online company which specializes in hosting

research surveys. The online survey was created utilizing templates available through Survey Monkey.

The questionnaire—both paper and online versions—consisted of (a) a statement that participation in the study is entirely voluntary, assurances of confidentiality, and that lack of either risk, or reward, for participation; (b) questions regarding age and gender; (c) overall instructions for the questionnaire; and (d) four sets of questions—along with their individual instructions—which addressed the primary variables under consideration: Optimism, Hope, Control, and Positive and Negative Life Experiences. A copy of the questionnaire is provided in Appendix B.

The four sets of questions following the general questionnaire instructions were comprised of the standardized questionnaires of each of the four variables under consideration: optimism (Life Orientation Test-Revised [LOT-R]), hope (Hope Scale), locus of control (Internal-External Control Scale [I-E Scale]), and life experience (Life Experiences Survey [LES]). Each of the scales included in the instrument included instructions specific to that scale. A list of the survey instruments, along with their instructions and scoring criteria, is included in Appendix A). Overviews of the individual scales' reliability, validity, and norms are presented in the following sections.

Life Experiences Survey. Life experiences was assessed with the Life Experiences Survey (LES) (Saranson, Johnson, & Siege, 1978). The LES contains 60 items (including three blank spaces to allow those responding to include other, unique experiences) assessing participants' experiences with both negative (e.g., death of close family member) and positive (e.g., gaining a new family member) life events. Forty-

seven of the questions sample for general events, and ten with academic stresses. It should be noted that respondents may rate any item, regardless of its typically positive or negative value, as either a positive or negative experience, dependent upon the respondent's point of view. The items on the LES are presented to respondents using a 7-point response scale ranging from extremely negative (–3) to extremely positive (+3). A subscale score for each type of experience—positive or negative—is computed by summing the impact ratings of those events designated as positive/negative by the participant.

As noted by Lightsey (1994), the questions include a set which are particularly pertinent to students, making this instrument especially applicable for that population. However, these student oriented questions may be omitted when applied to nonstudent populations, with no apparent detriment to the scale or the scores (Sarason, Johnson, & Siegel, 1978). The questionnaire used in the present study included the questions pertinent to students.

Sarason, Johnson, and Siegel (1978) reported reliability and validity data for the LES with a student population. They determined test-retest reliability over a period of five to six weeks for a group of undergraduates to be .19 and .53 for positive stress, and .56 and .88 for negative stress. The fact that the scale attempts to measure ongoing, recent events would reasonably result in lower test-retest reliability estimates, and achieved high test-retest correlations would be somewhat counter to the attempt to sample immediacy. Sarason, Johnson, and Siegel determined the mean negative score for male college students to be 6.22 (SD = 6.28) for males, and 7.04 (SD = 7.90) for females

over a one year time frame. Other researchers (Barnett & Gotlib, 1990) reported male score ranges over a one month period were between 0 and 36, and between 0 and 22 for females.

In regard to validity, Sarason, Johnson, and Siegel (1978) determined the negative stress score to be correlated at .4 ($p < .001$) with state anxiety, and .29 ($p < .01$) with trait anxiety, and that positive stress was not correlated with anxiety at all (Sarason, Johnson, & Siegel, p. 937). Further, the negative stress score was found to be correlated with the Beck Depression Inventory (BDI) (Beck, Rush, Shaw, & Emery, 1979) at a .64 ($p < .001$); and .42 ($p < .001$), and predicted subsequent BDI scores even better than the existence of prior depression (Sarason, Johnson, & Siegel, p. 938). Even more pertinent to the present research, Sarason, Johnson, and Siegel determined a correlation between their scale and the Internal—External Control Scale (I-E) (Rotter, 1966). For a group of 64 (34 male, and 30 female) undergraduate college students, they found correlations with the IE to be –.05 (p = ns) for positive stress, .32 ($p < .02$) for negative stress, and .17 (p = ns) for total scale (p. 938).

In addition to the validity data just noted, several researchers have found an association between negative change scores and both psychological and physical illnesses (e.g., Sarason, Sarason, Potter, & Antoni, 1985; Vinokur & Selzer, 1975). It would seem, on the basis of its reliability and validity, that the LES is an appropriate choice for a measure of life stress. Specific to the present research, the LES offers opportunity for gaining unique insights regarding positive as well as negative life stresses.

Optimism. Optimism was assessed with the Life Orientation Test—Revised (LOT-R) (Scheier, Carver, & Bridges, 1994). The LOT-R is a 10 item self-report measure—six scored and four filler—that assesses "a unidimensional construct of dispositional optimism" (Chang & McBride-Chang, 1996) and, more broadly, one's attributional style regarding expectations for good versus bad outcomes or one's own actions and life events. These items are expressed in both positively— (e.g., In uncertain times, I usually expect the best), and negatively—worded (e.g., If something can go wrong for me, it will) ways.

Participants are asked to indicate their agreement with each of the items, choosing among five forced choice responses: 0 = strongly disagree; 1 = disagree; 2 = neutral; 3 = agree; and 4 = strongly agree. The respondents are further encouraged to be honest and accurate when answering the questions, and to attempt to answer each question independently of their responses to previous questions. In addition, participants are told that there are no correct or incorrect answers. Those items that are worded negatively (items 3, 7, and 9) are reverse coded before scoring, and then summed with items 1, 4, and 10. The possible range of scores is from 0 to 24 (Scheier, Carver, & Bridges, 1994, p. 1071). The LOT-R is one of the most widely used measures of optimism and has strong psychometric properties (Scheier, Carver, & Bridges, 1994).

Scheier, Carver, and Bridges (1994) determined the internal consistency and test–retest reliability for the LOT-R with a total of 4,309 undergraduate participants (1846 women, 2,417 men, and 46 who did not indicate their gender). Data were collected during groups sessions over a period from 1988 to 1990. Item–scale correlations ranged

from .43 to .63, suggestive of all items measuring the same construct, but not to the extent of being redundant. Scheier, Carver, and Bridges found that each item added nearly equally to Cronbach's alpha, meaning that as each item was removed from the scale, the drop in alpha was comparable. They also found a Cronbach's alpha of .78 for the six items combined, which they saw suggestive of the LOT-R having an acceptable level of internal consistency (p. 1072).

To determine the test–retest reliability, Scheier, Carver, and Bridges (1994) examined the scores of different participants who completed the scale twice, and at different time intervals: 4, 12, 24, and 28 months. They found test–retest correlations for these groups to be .68, .60, .56, and .79 respectively, suggesting a fair amount of stability over time (p. 1072).

Scheier, Carver, and Bridges (1994) also explored the LOT-R's convergent and discriminant validity. They compared the LOT-R to several related scales, including neuroticism, self-mastery, self-esteem, trait anxiety, and the original LOT, and emphasize several points: (1) all the correlations (with the exception of the original LOT) are of modest size, ranging from -.52 for men with trait anxiety, to -.36 for men with neuroticism. They found the range to be similar for women: .54 with self-esteem, to -.36 with neuroticism; (2) differences between the correlations for men and women were negligible; and (3) the correlation between the original and revised LOT was high for both men and women, suggesting to them that the two versions of the scale were assessing very similar characteristics (p. 1073).

Scheier, Carver, and Bridges (1994) computed means and standard deviations separately for men and women, including samples of college students and patients awaiting coronary artery bypass surgery. The surgery patients ranged from 36 to 82 years of age ($M = 64.3$ years). Approximately 33% the entire group (college and patient) had some education beyond high school, and 80% were married.

Finally, Scheier, Carver, and Bridges (1994) conducted a factor structure analysis of the LOT-R. They noted that a similar analysis for the original LOT yielded two separate factors—one for positively worded, and one for negatively worded items—which had generally been labeled as optimism and pessimism respectively. However, the analysis for the LOT-R indicated a one-factor structure, though not very strongly, and some variations of the analysis again indicated a two-factor model. Given this mixed result, Scheier, Carver, and Bridges suggest that the overall score be used for primary analyses, but that subanalyses of the positively and negatively worded items (i.e., optimism and pessimism) may be done separately (p. 1074).

The LOT and LOT-R have been used extensively in recent research as reported in the literature review provided in the preceding chapter. For the sake of brevity, these studies are not repeated here.

Hope. Hope was assessed with the Hope Scale (Snyder et al., 1991). The Hope Scale is a 12 item self report measure that assesses both Agency and Pathways components of the construct which, together, are "cognitive appraisals of goal related capabilities" (Snyder et al., 1991, p. 571). In the *trait* version of the scale used in the present research, the authors of the scale assume that hope is consistent across situations

and time, although they suggest that unique influences upon one's hope may be exerted by particular situations (Snyder et al., 1991, p. 571). Items on the scale are all expressed positively (e.g. I can think of many ways to get out of a jam), and contains items which are intended to sample Agency (i.e., one's capacity to begin and continue movement toward a goal) and Pathways (i.e., one's perception that he or she can find one or more ways to achieve a goal) (Snyder, Cheavens, & Sympson, 1997, p. 107). The Hope Scale is the only measure of the construct of hope, with acceptable levels of determined reliability and validity, currently available. The Hope Scale has been used numerous times in research reported and reviewed in the literature and has been found to have acceptably strong psychometric properties (Snyder et al., 1991; Snyder et al., 1996). For example, Snyder et al. (1991) found support among their, and others,' studies which indicated acceptable internal consistency, test–retest reliability, and the two-factor (agency and pathways) components (p. 570).

As Snyder et al. (1991) describe, the first stage of their scale development was accomplished by Harris (1988), who created 45 items to sample a hypothesized bases of hope. Harris administered these 45 items to 187 male and 197 female introductory psychology students. Participants were instructed to read each item and rate the extent that the item applied to them, using a four point scale: 1 = definitely false; 2 = mostly false; 3 = mostly true; and 4 = definitely true. Harris discarded items with low item remainder coefficients, resulting in 14 items, and then further reduced these to the four items that most strongly sampled the pathways, and four that sampled the agency components. Snyder et al. state that the agency items assess "the sense of successful

determination in relation to the person's goals generally," while the four pathways items are related to "people's cognitive appraisals of their ability to generate means for surmounting goal related obstacles and reaching goals" (p. 572).

Snyder et al. (1991) administered the Hope Scale to six separate groups of introductory psychology students, and two groups of individuals undergoing psychological treatment (one inpatient and one outpatient). Not surprisingly, they found that those undergoing psychological treatment to have lower Hope Scale scores than those of the psychology students. They found no discernable difference between males and females for either population group.

As for reliability, Snyder et al. (1991) determined Cronbach's alphas for the whole scale to range from .74 to .84, with item remainder coefficients of .23 to .63 (p. 572). The Agency subscale produced Cronbach's alphas ranging from .71 to .76, with item remainder coefficients of .40 to .72. The Pathways subscale produced Cronbach's alphas ranging from .63 to .80, and item remainder coefficients of .36 to .63. Snyder et al. cited support (i.e., Nunnally, 1978, p. 245) for internal reliabilities of .70 to .80 being acceptable for scales used for research purposes "because correlations with such scales are not attenuated to any great degree by measurement error" (Snyder et al., 1991, p. 472).

Snyder et al. (1991) determined the test-retest reliability of the Hope Scale through the examination of four samples of undergraduate college students. They found the test-retest correlations to be .85, $p < .001$, over a 3-week interval ($N = 130$); .73,

$p < .001$ for a 8-week period ($N = 115$); and, in two samples, .76 and .82 (both $p < .001$) for a 10-week interval (N of 205 and 133, respectively) (pp. 572-573).

Snyder et al. (1991) cited research supporting the scale's convergent reliability. In a three studies (Gibb, 1990; Holleran and Snyder, 1990; and Irving et al., 1990), the Hope Scale, and other scales hypothesized to correlate with hope, were administered to two sets of introductory psychology students ($N = 241$, 158 respectively), and one sample of inpatients at a state mental health facility ($N = 109$). The measures correlated with the Hope Scale included the LOT (Scheier & Carver, 1985), a measure of perceived control, via the Burger-Cooper Life Experiences Survey (Burger & Cooper, 1979); the Rosenberg (1965) Self-Esteem Scale); the Beck Depression Inventory (Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961; the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & McKinley, 1951); and the Rotter Incomplete Sentences Blank (Rotter & Rafferty, 1950).

Of particular relevance to the present research, Gibb (1990) found correlations with the Hope Scale of .60 ($p < .005$), and Holleran and Snyder (1990) a correlation of .50 ($p < .005$). Also relevant, Gibb (1990) determined a correlation between the Hope Scale and control, as measured by the Burger-Cooper Life Experiences Survey (Burger & Cooper, 1979), to be .54 ($p < .005$). In general, the correlations for the compared scales and the Hope Scale suggested to Snyder et al. (1990) that there were "predictable relationships involving the shared nomological network of the Hope Scale and its underlying construct and several related existent measures and their underlying constructs" (p. 575).

Finally, regarding discriminant validity, Snyder et al. (1990) reported correlations between the Hope Scale and two subscales of the Self-Consciousness Scale (Fenigstein, Scheier, and Buss, 1975) correlated insignificantly (r = .06 and -.03) which suggested to them that the two scales shared almost no variance, and less than the .30 to .60 correlations reported earlier in regard to convergent validity.

Control. Control was assessed with the Internal–External Locus of Control Scale (I-E) (Rotter, Liverant, and Crowne 1966). The I-E Scale is a 29-item (including 6 filler items) self report measure that assesses the "degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics versus the degree to which persons expect that the reinforcement or outcome is a function of chance, luck, or fate, is under the control of powerful others, or is simply unpredictable" (Rotter, 1990, p. 489). The authors of the scale (James, 1957; Phares, 1957; Rotter, 1966; Rotter, Liverant, & Crowne, 1961) consider the measure to sample one's attributions as to the origin, or locus, of controls of outcomes in life. Scored items on the scale (i.e., nonfiller items) are intended to sample for perceived external locus of control (e.g., Many of the unhappy things in people's lives are partly due to bad luck), or perceived external locus of control (e.g., People's misfortunes result from the mistakes they make). Locus of Control Scale is among "the most studied variables in psychology and the other social sciences" (Rotter, 1990), and the I-E scale has been the primary measure of choice for this construct over this time. As will be later in this section, the I-E scale has been found to have more than adequate reliability and validity (e.g., Rotter, 1966; Rotter, Chance & Phares, 1972).

According to its primary author, J. B. Rotter, the Internal–External Locus of Control Scale (I-E) (Rotter, 1966) evolved out of his social learning theory (Rotter, 1954) which proposes that "a reinforcement acts to strengthen an expectancy that a particular behavior or event will be followed by that reinforcement in the future. Once an expectancy for such a behavior-reinforcement sequence is built up the failure of the reinforcement to occur will reduce or extinguish the expectancy" (Rotter, Chance, & Phares, 1972, p. 261). Rotter and his colleagues consider that it follows that when one sees reinforcement as not contingent on his or her own behavior or actions, that the occurrence of that reinforcement will not increase expectancy as much as when it is seen as contingent. Similarly, the nonoccurrence of a reinforcer will not be reduced as much when seen as noncontingent as when seen as contingent. Further, there is a tendency to generalize from specific situations to those that are perceived to be similar or related (Rotter, Chance, & Phares, 1972).

Rotter, Chance, and Phares (1972) summarized their construct of perceived locus of control by stating

> In its simplest form, our basic hypothesis is that if a person perceives a reinforcement as contingent upon his own behavior, then the occurrence of either a positive or negative reinforcement will strengthen or weaken potential for that behavior to recur in the same or similar situation. If he sees the reinforcement as being outside his own control or not contingent, that is depending upon chance, fate, powerful others, or unpredictable, then the preceding behavior is less likely to be strengthened or weakened. (p. 265)

Their hypothesis was tested in a series of studies, perhaps most notably that of Phares (1957). Phares found that increments and decrements in chips bet were dependent upon whether participants were given instructions where it was suggested that the outcome was due to skill (internal control), as opposed to when the outcome was due to chance (external control). Essentially, when the participants believed (perceived) that the reinforcement received was due to skill, there was a greater effect in raising or lowering expectations for future winnings. In addition Phares found that participants were more likely to modify or change their expectations under the skill condition. Lastly, participants were more likely to employ illogical shifts in strategy (e.g., increasing the bet after losing, or decreasing after winning) under the chance, or external control, condition. As part of this research, Phares developed a Likert type scale which included 13 items which were stated as external attitudes, and 13 as internal attitudes.

Phares's (1957) effort was followed by that of James (1957), who revised Phares's test with another Likert format, resulting in a 26-item measure which included the items that seemed to be the best in the Phares study. James's research was then followed by the dissertation of Liverant, Rotter, and Seamon (as cited in Rotter, Chance, & Phares, 1972, p. 271; no source provided) who revised Phares's measure, developing several subscales (e.g., achievement, affection, and general social and political attitudes), and applying a forced choice approach to control for social desirability. The first version included a hundred of these forced choice items which was ultimately reduced to 60 items on the basis of internal consistency data.

Rotter, Liverant, and Crowne (1961) reduced the 60-item Liverant, Rotter, and Seamon scale by discarding items which had either (a) a high correlation with the *Marlow-Crowne Social Desirability Scale* (Crowne & Marlow, 1964), (b) a proportional split such that one of the two alternative choices was chosen more than 85% of the time, (c) nonsignificance with other items, or (d) a correlation close to zero with their set validation criteria. By these means, the scale was reduce to 23 items. The scale utilized in the present research includes these 23 items and 6 filler items.

Internal consistency estimates for the I-E Scale were established in a series of research efforts, yielding: a split half *r* of .65 (N = 50; introductory psychology students); a Spearman-Brown of .79 (N = 50; introductory psychology students); and three Kuder-Richardson analyses yielding .73 (N = 100; introductory psychology students), .70 (N = 100; introductory psychology students), and .69 (N = 1000; stratified national sample) respectively (Rotter, Chance, & Phares, 1972, p. 277). Test-retest reliability, also determined over a series of studies, was found to range from .49 (two month interval; N = 63; university students) to .83 (one month interval; N = 30; introductory psychology students). Rotter, Chance, and Phares (1972) considered these test-retest results to be consistent across different samples, and that the somewhat lower reliabilities obtained for the two month time lapse to be partly a function of the first test being given under group conditions, while the second was administered individually (p. 276).

Rotter, Chance, and Phares (1972) found minimal gender differences, and similar minimal differences for African-American participants compared to Caucasians. In addition, they reported on two factor analyses, one of which indicated one general factor,

and a few items loading on a few other factors. These other factors, however, did not reliably suggest clear-cut subscales. The second factor analysis found similar results, producing one general factor which accounted for 53% of the variance. Discriminant validity was reported by Rotter, Chance, and Phares in relation to the Rotter Incomplete Sentence Blank (Rotter & Rafferty, 1950), resulting in a nonsignificant linear relationship; and the Taylor Manifest Anxiety Scale (Taylor, 1953), with an obtained correlation of .00 (Rotter, Chance, & Phares, p. 282).

These internal consistency, reliability and validity data have been supported by a very large amount of research utilizing the construct of perceived locus of control, and the Internal—External Locus of Control Scale. As noted in her review of the control construct, former APA President Bonnie R. Strickland stated: "Beliefs about causality and control impact on behavior in significant and important ways. One of the most powerful of these is the expectancy for internal versus external locus of control of reinforcement (IE)" (Strickland, p. 1). While Strickland proposed other, more expanded measures of the construct of control, she clearly supports the original scale's usefulness, and use.

Procedures

Selection of study participants. College students were selected as the target population for the research for five primary reasons: (a) they were accessible; (b) they were judged likely to possess the necessary reading and comprehension skills; (c) at least one of the research instruments (the LES) was specifically validated with university participants; (d) they were judged as having lived sufficiently long (particularly those

from Walden University) as to have likely been exposed to many of the experiences—both positive and negative—sampled by the LES; and (e) they were of an age that allows informed consent.

It was anticipated that the sample drawn from the larger population of university students and other adults, though not random, would be diverse. Participants were drawn from Walden University and Washington State University. The student bodies of these universities encompass a wide range of ethnicity, socioeconomic, cultural, and regional backgrounds. Some effort was made to include roughly equal numbers of males and females, though that did not turn out to be the case. However, gender was not a primary variable under consideration. Essentially, this sample represented what is often referred to as *availability sampling*. It was expected that many of the student participants would be recruited through their professors, and other adult participants through the students themselves.

Potential respondents were solicited for participation in the research differently at the two universities. Walden University provided a sample of students who were selected randomly from among the entire graduate student body. Those students selected were sent an email introducing the study, asked for voluntary participation, and provided a web address link to the survey.

Access to students at Washington State University was gained rather differently. Students were solicited directly by the investigator, both during presentations to several classes of undergraduate psychology students, and by manning a table in the University's student union building. Students at both venues were offered the choice of completing

either a paper version of the survey or the electronic version via the internet. A brief description of the project was given to the participants orally indicating that no credit would be offered for participation in the study.

Participants who volunteered for participation in the study were provided a brief explanation of the purpose of the study. They were then told that participation in the study was voluntary and that they might withdraw from the study without any consequences. Participants were told that their responses would remain confidential and that only the research team would have access to the completed questionnaires. The participants who elected to complete the paper version of the survey were provided a questionnaire containing all measures. Participants were told not to write their name or any other identifying information on the survey itself. After completion of the survey, the participants placed their surveys in a box so that anonymity would be maintained.

The vast majority of participants completed the survey in its online form. These participants were primarily from Walden University, though an unknown number from Washington State University chose the online method of responding. Those who elected to complete the online version of the survey were initially directed to a web page that explained the purpose of the study, its judged lack of risk to the participant. The participant was then required to indicate whether they understood what they had read and would be continuing voluntarily. Only those who answered "yes" were permitted to continue with the survey. Any who answered "no" were provided a message thanking them for their consideration to participate, and then automatically redirected to another web page.

Participants who indicated their agreement to the conditions for participation were automatically transferred to the survey proper. Participants were asked to indicate their gender and age. After answering these questions, participants were able to move on to the main body of the survey. The online version of the survey was designed such that every question required a response before allowing the participant to move on to the next question. This procedure prevented incomplete or partial answers to any part of the survey. All questionnaires that were not completed in entirety were discarded.

Analyses conducted. This study employed a combination correlational and multiple regression research design. This approach makes possible both clarification of bivariate relationships, as well as a determination of the degree of relationship between and among variables (Wood, 1974). While this approach does not allow conclusions as to cause and effect, its ability to specify the extent of relationship between, or among, variables makes prediction possible (Wood, p. 39). Perhaps more to the point, a multiple regression approach allows simultaneous consideration of multiple predictor variables for a criterion variable (Heiman, 2000, p. 216). Moreover, the use of a multiple regression approach, as employed in the present research, allowed a closer approximation to a causal statement (Wood, p. 41).

An inherent risk for a correlational approach is that some variable or variables other than those under consideration may be responsible for the obtained relationship (Wood, 1974, p. 41). Even with this risk, the correlational approach, like observation, may reveal possible causal relationships which may be clarified by further experimental

investigation (Wood, p. 42). With the foregoing in mind, the results of the present research may best be considered a prospective study.

The present study utilized a nonexperimental research design in that it neither manipulated the variables, nor assigned participants randomly, both of which are necessary for experimental designs. The selection of a nonexperimental research design was made for several reasons, including (a) while it may be possible to select, control, and manipulate participants according to the variables under question (or, vice versa), doing so was neither necessary nor desirable for a speculative study; (b) control of all but a single independent variable was both unrealistic and artificial, more likely obscuring the "true" relationships between and among the variables; and (c) inclusion of laboratory controls, or manipulation of the variables in question, would have been costly, highly impractical, and, perhaps, ethically problematic.

Two sets of analyses were performed on the data utilizing SPSS version 10.0 (1999). The analyses of the hypotheses examined the relationship among the constructs via correlational analyses. Bivariate correlations were computed to examine the magnitude of the relationships among LES experience (Positive and Negative Experiences), Hope, Optimism, and Control. Additional correlations were determined for High and Low Negative as well as High and Low Positive Experience conditions. A final investigation of nonhypothesized relationships among the variables was made through a series of independent regression analyses examining the unique effects of positive and Negative LES scores on Hope, Optimism, and Control. These analyses used both positive and Negative LES scores to predict participants' level of Hope, Optimism, and

Control in the presence of the demographic variables of Age, Gender, and Number of Experiences.

A power analysis indicated that, for a medium effect (e.g., approximate value of $r = .15$) with a power of at least .80 and alpha set at .05, a minimum of 61 cases should be sampled to test each of the proposed hypotheses, yielding a total sample size of 366 participants. Restrictions on access to participants from both Walden University and Washington State University, as well as the necessity of eliminating incomplete survey responses, resulted in less participants than this goal. However, a total of 328 participants completed the survey instrument, placing the obtained power slightly below the ideal.

Summary of Methods and Procedure

The selection of the research design and statistical analyses for the preset research are specifically tailored to address the research question in general, and the research hypotheses in particular. The use of a regression approach offers the most comprehensive examination of the research variables and is most appropriate for a speculative study such as the one at hand.

Each of the measures utilized—Life Orientation Test–Revised, Hope Scale, Internal—External Control Scale, and Life Experiences Survey—have been demonstrated by the research literature to possess acceptable levels of reliability, validity, and consistency. Two of these scales, the Life Orientation Test–Revised and the Internal–External Control Scale, have been utilized extensively. The Hope Scale has only been available for a little more than ten years, but has seen increasing use as the construct of

hope has gained in popularity. The Life Experiences Survey has been in existence for more than twenty years, and has been applied extensively primarily with research focusing on post trauma stress. Among its strengths, in relation to other available scales, is that it not only samples for positive life experience stressors, but also allows for participants to indicate their perception of impact of each life experience, thereby refining the information gleaned.

It is arguable that no research design is perfect; each has its weaknesses. The design and methodology of the present study were judged to be the best approaches given the inherent costs and restrictions associated with the research, including the ethical requirements in regard to research with human participants, the tools available to measure the chosen variables, and the complexity of the constructs under consideration.

Chapter 4: Results

Sample Characteristics

The participants in this study were anonymous and consisted of adult (18 years of age or older) males and females drawn from two universities: Walden University, a distance learning institution with students located across the United States and elsewhere in the world; and Washington State University, a public state institution with students primarily drawn from homes in the northwest United States as well as numerous countries abroad. However, as the bulk of the responses were obtained via an electronic version of the research questionnaire available on an online web site, "Survey Monkey," it is entirely possible that some respondents were from neither university, perhaps by word of mouth from the university students. No information was collected identifying the university affiliation of the respondents. Rather than an oversight, this omission in identifying information was an intentional safeguard of anonymity for the respondents.

A total of 328 participants completed the research questionnaire. This total was achieved after discarding all questionnaires not completed in entirety, and elimination of online version duplicates which were identified through comparison of key identifiers, including gender, age, internet protocol (I.P.) address, time in and out, and scores on the four variables under question. Each suspected duplicate was examined for scoring accuracy and compared for matching patterns of answers. Where one or more duplicates were identified, one questionnaire was retained and the other, or others, discarded. In this manner, the number of completed electronic version questionnaires was reduced from the initial total of 603 to the final 328. No clear reason was apparent for this large number of

duplicates, though it seemed to be associated with a batching process—uploading completed surveys in batches and, in some way, saving the same batches more than once. Numerous attempts to contact the Survey Monkey designers to gain some clarification were unsuccessful.

The sample of participants had an overrepresentation of females who totaled 228 (69.5%) as compared to 100 males (30.5%). Age of participants ranged from 19 to 73, with a mean of 40.71 and a standard deviation of 10.92. The frequency and distribution of ages for the participants was likely influenced by the fact that the student body of Walden University, the source of many of the online respondents, is generally older than what might be expected at other universities.

Description of Survey Variables

A preliminary analysis was conducted on the data for each of the 6 variables of interest—Optimism, Hope, Control, Positive Life Experience (POS_LES), Negative Life Experience (NEG_LES), and Number of Life Experiences (NUM_LES). This analysis (Table 1) revealed a level of skewness for each of these six variables that reflects nonnormal distributions. Subsequent Kolmogorov-Smirnov analyses of normality, with Lilliefors Significance Correction (used when the mean and variance is not known and sample estimates are used), were applied to the data (Table 2), which confirmed the initial impression that all six variable distributions were significantly discrepant from normal.

Table 1

Frequencies and Distributions of the Study Participants and Research Variables

	n	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
AGE	328	19	73	40.71	10.916	.134	-.603
OPTIMISM	328	-12	12	6.03	4.943	-.934	.637
HOPE	328	-19	32	21.87	8.493	-1.423	2.585
CONTROL	328	-21	21	5.14	8.174	-.343	.151
POS_LES	328	1	82	28.92	12.464	.809	.929
NEG_LES	328	-104	0	-29.77	19.067	-1.284	2.064
NUM_LES	328	11	68	35.12	11.150	.552	.292

Table 2

Kolmogorov-Smirnov[a] *Test of Normality for all Research Variables*

	Statistic	df	Sig.
HOPE	.130	328	.000
OPTIMISM	.116	328	.000
CONTROL	.067	328	.001
POS_LES	.101	328	.000
NEG_LES	.128	328	.000
NUM_LES	.081	328	.000

a. Lilliefors Significance Correction

While a normal distribution of data is not necessary for correlational analyses, nonnormal distributions create uncertainties with regard to determination of statistical significance. The commonly accepted procedure for dealing with significantly skewed

distributions is to transform the data. No attempt was made to transform Control due to its closely normal distribution determined by inspection of its histogram.

Several transformations were attempted with regard to Hope and Optimism, including raising the data by the second, third, fourth, and fifth power, as well as applying the square root and log. Of these transformations, raising Hope to the fourth power (QA_HOPE) was most effective in approximating normality, though it remained significantly nonnormal. However, raising the data for Hope to the fourth power did reduce its skewness from the original -1.423 to .017, and kurtosis from 2.585 to –1.030. A test of normality of these transformed data resulted in a change from the original Kolmogorov-Smirnov statistic of .130 to .078. The distribution of Optimism was not brought closer to normality by any of the transformations and, therefore, was left in its raw data state for all subsequent analyses.

The third variable furthest from a normal distribution was Positive Life Experience (POS_LES). As with Hope, several approaches to transformation were applied to the data, including raising it to the second power as well as applying the log and the square root. Of these, the square root (RT_POSLE) produced the most reduction in skewness, going from the original .809 to .026 while the Kolmogorov-Smirnov statistic was reduced from .101 to .062 which remained significantly nonnormal.

The fourth variable furthest from a normal distribution was Negative Life Experience (NEG_LES). As with Hope and Positive Life Experience, several approaches to transformation were applied to the data, including raising it to the second power as well as the log and the square root. Surprisingly and unfortunately, none of these transformations produced an appreciable improvement in skewness and, instead,

worsened it. Given this lack of improvement through transformation, analyses involving Negative Life Experience (NEG_LES) were made with original data.

While the remaining variables, Control, and Number of Life Experiences (NUM_LES), were also significantly nonnormal in their distributions, attempts to transform them did not result in appreciable improvement. This being the case, they were left untransformed and analyses involving them were made with original data.

With the preceding overview of the descriptive statistics, analyses of normality, and transformations applied, the discussion now moves forward to a presentation of the data analyses relevant to each of the research hypotheses. Given the nonnormal distributions of each of the research variables, parallel analyses were conducted utilizing both parametric and nonparametric approaches. The following sections present the analyses for each hypothesis in turn.

Hypothesis 1: Optimism and Hope

H_O There is no relationship between Optimism, as measured by the Life Orientation Test—Revised (LOT-R), and Hope, as measured by the Hope Scale (Trait).

H_{A1} There is a positive relationship between Optimism and Hope.

H_{A2} The positive relationship between Optimism and Hope will be greater in the Low Negative Life Experience condition than the High Negative condition, as measured by the Life Experience Survey (LES).

H_{A3} The positive relationship between Optimism and Hope will be greater under the High Positive Life Experience condition than the Low Positive Life Experience condition.

The first step in determining the relationship between Optimism and Hope (QA_HOPE) was to apply a bivariate correlational analysis to the two variables. The correlation obtained through this analysis was .540 which was significant at $p < .01$ (Table 3). This positive correlation effectively rejects the null hypothesis and supports the first alternate hypothesis (H_{A1}). Figure 1 provides a graphic representation of this relationship. Due to the significant nonnormality of the distributions of both Optimism and transformed Hope, a parallel analysis (Table 4) was also conducted utilizing Spearman's rho. This nonparametric analysis yielded a correlation of .545 ($p < .01$).

Table 3

Pearson Correlation Between Optimism and Hope

		OPTIMISM	QA_HOPE
OPTIMISM	Pearson Correlation	1.000	.540**
	Sig. (2-tailed)	.	.000
	N	328	328
QA_HOPE	Pearson Correlation	.540**	1.000
	Sig. (2-tailed)	.000	.
	N	328	328

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

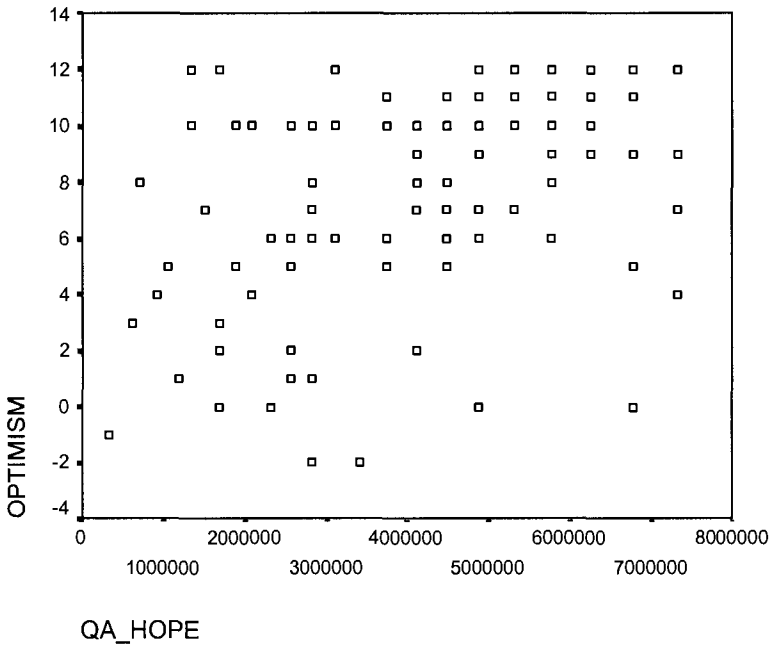

Figure 1. Scatterplot of correlation between optimism and hope.

Table 4

Spearman's rho Correlation Between Optimism and Hope

		OPTIMISM	QA_HOPE
OPTIMISM	Correlation Coefficient	1.000	.545**
	Sig. (2-tailed)	.	.000
	N	328	328
QA_HOPE	Correlation Coefficient	.545**	1.000
	Sig. (2-tailed)	.000	.
	N	328	328

** Correlation is significant at the .01 level (2-tailed).

In order to test the alternate hypothesis (H_{A2}) that the positive relationship between Optimism and Hope is greater in the Low Negative Life Experience condition than the High Negative condition it was necessary to operationally define "high life adversity" and "low life adversity" conditions. For the purposes of the present research, and to maximize the differentiation between the two groups being compared, high life adversity was defined as the upper third of the distribution of the combined positive LES and negative LES scores. This combination and high-low determination was achieved by first multiplying positive and negative LES scores, and then selecting out the top (score > 2444) and bottom thirds (score < 1596) of the obtained distribution (n = 109 each) so that the new variable (ADVERSE) had a value 1 = Low Adversity and 2 = High Adversity.

With High and Low Negative (ADVERSE) conditions established, a two stage correlational analysis was conducted on Optimism and Hope under both the High Negative and Low Negative conditions. The first of these analyses (Table 5) revealed a correlation of .575 ($p < .01$) between Optimism and Hope under the High Negative condition. As before, a parallel nonparametric analysis (Table 6) was conducted with Optimism and Hope in the High Negative condition, yielding a slightly stronger correlation of .586 ($p < .01$). Figure 2 presents this relationship graphically.

Table 5

Pearson Correlation Between Optimism and Hope in the High Negative Condition

		OPTIMISM	QA_HOPE
OPTIMISM	Pearson Correlation	1.000	.575**
	Sig. (2-tailed)	.	.000
	N	109	109
QA_HOPE	Pearson Correlation	.575**	1.000
	Sig. (2-tailed)	.000	.
	N	109	109

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

Table 6

Spearman's rho Correlation Between Optimism and Hope in the High Negative Condition

		OPTIMISM	QA_HOPE
OPTIMISM	Correlation Coefficient	1.000	.586**
	Sig. (2-tailed)	.	.000
	N	109	109
QA_HOPE	Correlation Coefficient	.586**	1.000
	Sig. (2-tailed)	.000	.
	N	109	109

** Correlation is significant at the .01 level (2-tailed).

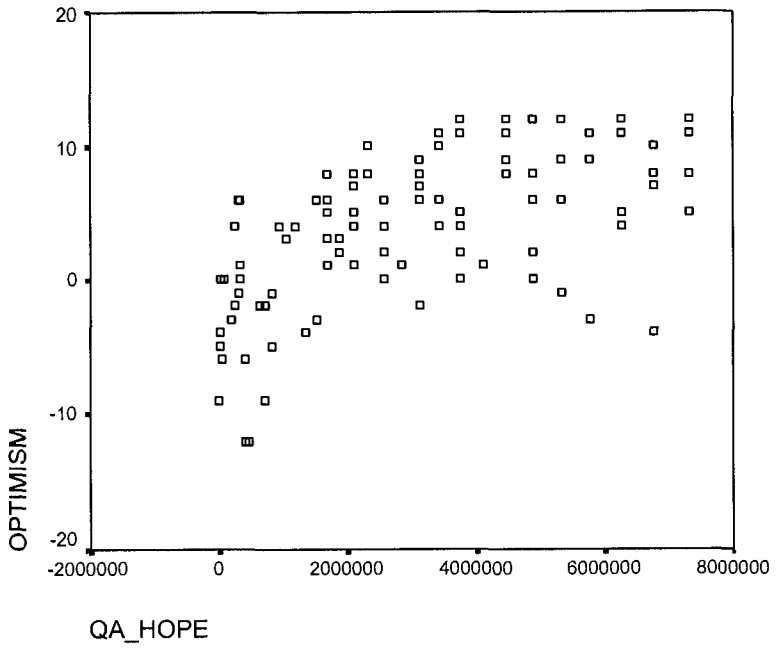

Figure 2. Scatterplot of optimism and hope in the high negative condition.

The second analysis (Table 7) of the relationship between Optimism and Hope was conducted under the Low Negative condition and produced a correlation of .469 ($p < .01$). A parallel nonparametric analysis (Table 8) produced similar results, resulting in a correlation of .477 ($p < .01$). Figure 3 presents a graphic representation of this relationship.

This result for the Low Negative condition, compared with that under the previous High Negative condition, reveals that Optimism and Hope are more strongly correlated in the High Negative condition than in the Low Negative condition. This outcome is contrary to the hypothesis that predicted the opposite relationship (H_{A2}).

Table 7

Pearson Correlation Between Optimism and Hope in the Low Negative Condition

		OPTIMISM	QA_HOPE
OPTIMISM	Pearson Correlation	1.000	.469**
	Sig. (2-tailed)	.	.000
	N	109	109
QA_HOPE	Pearson Correlation	.469**	1.000
	Sig. (2-tailed)	.000	.
	N	109	109

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

Table 8

Spearman's rho Correlation Between Optimism and Hope in the Low Negative Condition

		OPTIMISM	QA_HOPE
OPTIMISM	Correlation Coefficient	1.000	.477**
	Sig. (2-tailed)	.	.000
	N	109	109
QA_HOPE	Correlation Coefficient	.477**	1.000
	Sig. (2-tailed)	.000	.
	N	109	109

** Correlation is significant at the .01 level (2-tailed).

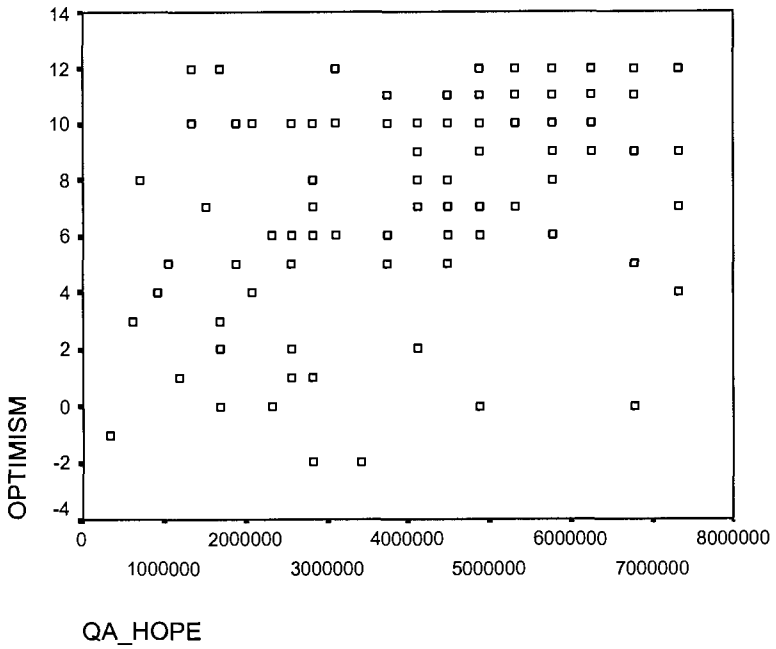

Figure 3. Scatterplot of optimism and hope in the low negative condition.

The next series of analyses investigated the relationship between Optimism and Hope in low and high positive conditions. Low Positive condition was operationally defined as the approximate lower third of the distribution of Positive Life Experience (POS-LES) scores (i.e., a score of 22 or lower; $n = 108$). High Positive condition was operationally defined in the same manner, but restricting the range of scores to the approximate upper third of the distribution (i.e., a score of 31 or higher; $n = 81$). These cut points were established based on determining natural groupings from the frequency distribution. The first of these analyses addressed Optimism and Hope in the Low Positive condition (Table 9) and resulted in a correlation of .488 ($p < .01$). Figure 4

presents this relationship graphically. A parallel nonparametric analysis (Table 10) produced a similar correlation of .494 ($p < .01$).

Table 9

Pearson Correlation Between Optimism and Hope in the Low Positive Condition

		OPTIMISM	QA_HOPE
OPTIMISM	Pearson Correlation	1.000	.488**
	Sig. (2-tailed)	.	.000
	N	108	108
QA_HOPE	Pearson Correlation	.488**	1.000
	Sig. (2-tailed)	.000	.
	N	108	108

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

Table 10

Spearman's rho Correlation Between Optimism and Hope in the Low Positive Condition

		OPTIMISM	QA_HOPE
OPTIMISM	Correlation Coefficient	1.000	.494**
	Sig. (2-tailed)	.	.000
	N	108	108
QA_HOPE	Correlation Coefficient	.494**	1.000
	Sig. (2-tailed)	.000	.
	N	108	108

** Correlation is significant at the .01 level (2-tailed).

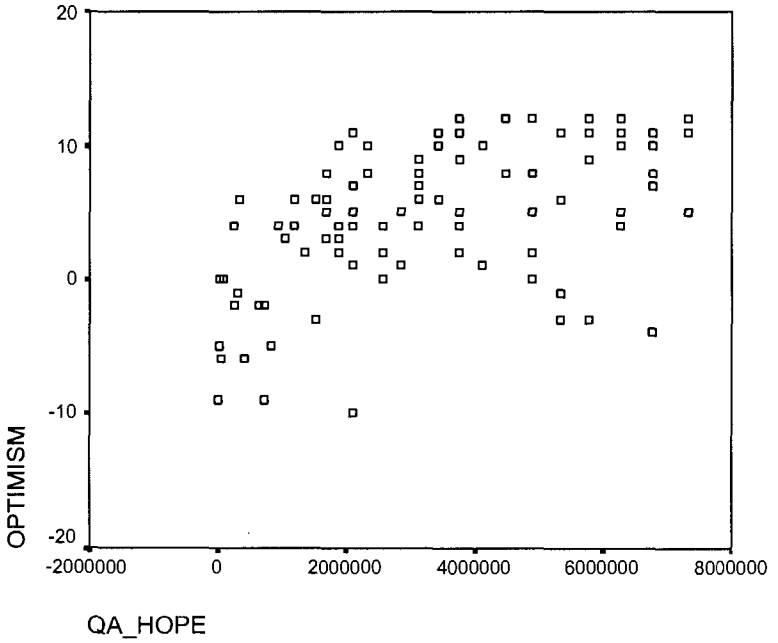

Figure 4. Scatterplot of the correlation between optimism and hope in the low positive condition.

The second analysis in this series (Table 11) explored the relationship between Optimism and Hope in the High Positive condition and determined a correlation of .494 (p <.01). The parallel nonparametric analysis (Table 12) produced a similar correlation of .484 (p < .01). Figure 5 provides a graphic representation of this relationship.

Both parametric and nonparametric tests of correlation between Optimism and Hope were virtually the same in High and Low Positive conditions. Therefore, support for the hypothesis that Optimism and Hope would be greater under High Positive than Low Positive conditions did not exist and H_{A3} is rejected.

Table 11

Pearson correlation between optimism and hope in the high positive condition

		OPTIMISM	QA_HOPE
OPTIMISM	Pearson Correlation	1.000	.494**
	Sig. (2-tailed)	.	.000
	N	87	87
QA_HOPE	Pearson Correlation	.494**	1.000
	Sig. (2-tailed)	.000	.
	N	87	87

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

Table 12

Spearman's rho Correlation Between Optimism and Hope in the High Positive Condition

		OPTIMISM	QA_HOPE
OPTIMISM	Correlation Coefficient	1.000	.484**
	Sig. (2-tailed)	.	.000
	N	87	87
QA_HOPE	Correlation Coefficient	.484**	1.000
	Sig. (2-tailed)	.000	.
	N	87	87

** Correlation is significant at the .01 level (2-tailed).

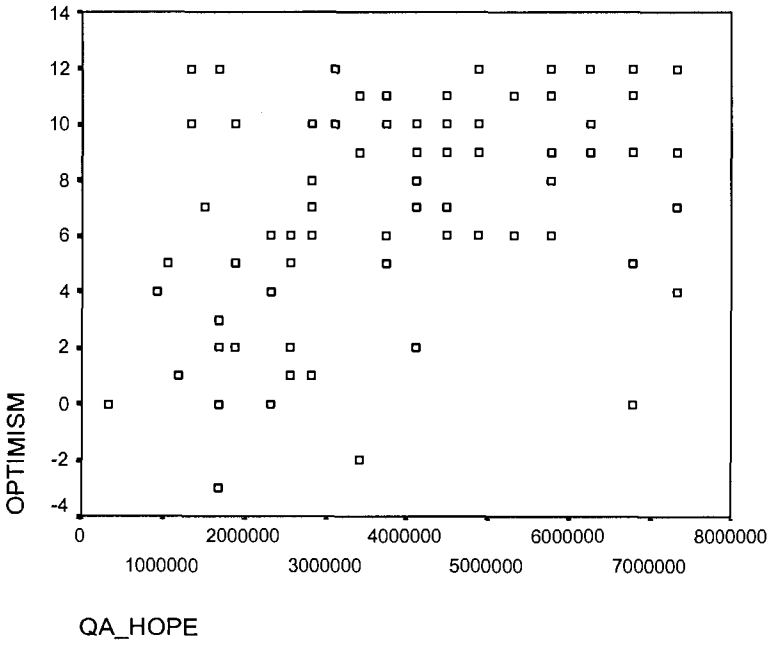

Figure 5. Scatterplot of the correlation between optimism and hope in the high positive condition.

Hypothesis 2: Optimism and Locus of Control

H_O There is no relationship between Optimism and Control, as measured by the Internal-External Control Scale (I-E).

H_{A1} There is a curvilinear relationship between Optimism and Control, such that both extreme low and high levels of Control result in lower Optimism scores, and moderate amounts result in higher Optimism scores.

H_{A2} The curvilinear relationship between Optimism and Control will be more pronounced under the High Negative condition.

H_{A3} The relationship between Optimism and Control will be more positive under the High Positive Life Experiences condition than in the Low Positive condition.

A parametric (Table 13) bivariate analyses of the relationship between Optimism and Control resulted in a significant, positive correlations of .365 ($p < .01$).

Table 13

Pearson Correlation Between Optimism and Control

		OPTIMISM	CONTROL
OPTIMISM	Pearson Correlation	1.000	.365**
	Sig. (2-tailed)	.	.000
	N	328	328
CONTROL	Pearson Correlation	.365**	1.000
	Sig. (2-tailed)	.000	.
	N	328	328

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

The parallel nonparametric (Table 14) correlation was .323 ($p < .01$). These results lead to a rejection of the null hypothesis (H_O) that there would be no relationship between Optimism and Control. A scatterplot of the relationship (Figure 6) provides a visual

Table 14

Spearman's rho Correlation Between Optimism and Control

		OPTIMISM	CONTROL
OPTIMISM	Correlation Coefficient	1.000	.323**
	Sig. (2-tailed)	.	.000
	N	328	328
CONTROL	Correlation Coefficient	.323**	1.000
	Sig. (2-tailed)	.000	.
	N	328	328

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

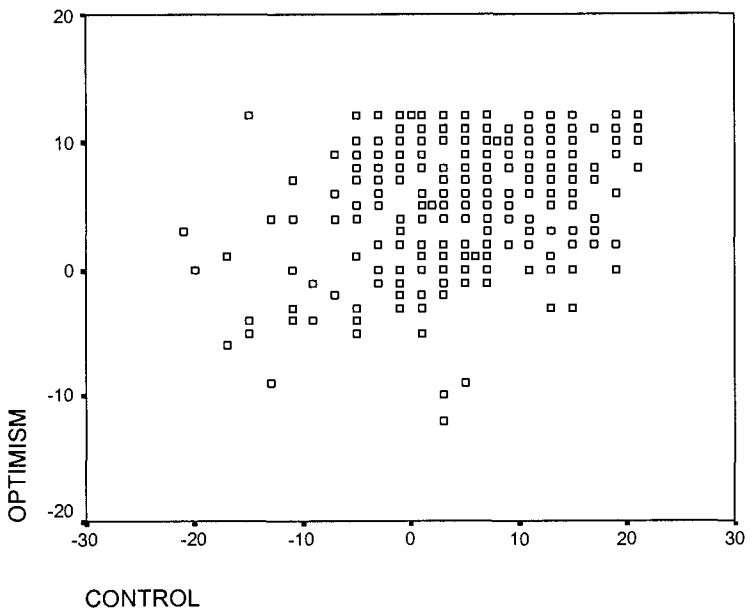

Figure 6. Scatterplot of interaction between optimism and control raw scores.

confirmation of this relationship. A cubic curve fitting estimation was conducted on the data per the hypothesized relationship. The resulting correlation of .372 was not significantly higher than the linear correlation of .365. It is quite possible that the restricted range of both variables (at the upper limits of positive Optimism and internal Control) may have masked some of the true relationship. The lack of a curvilinear relationship is in opposition to the first alternate hypothesis (H_{A1}) and, therefore, it was rejected.

The question still remained, however, as to whether a curvilinear relationship might exist under different levels of negative life experience as predicted in the second alternate hypothesis (H_{A2}). Curvilinearity under differing levels of life adversity was determined by inspection of scatterplots of Optimism and Control in both High Negative

and Low Negative conditions. A scatterplot of Optimism and Control in conditions of High Negative (Figure 7) did not yield a conclusion of curvilinearity.

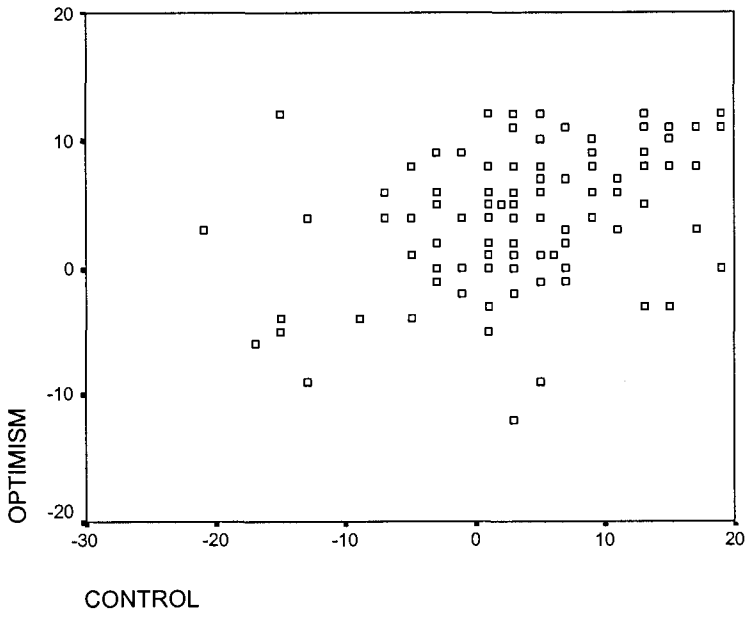

Figure 7. Scatterplot of interaction between optimism and control in high negative condition.

A similar inspection of the scatterplot of the relationship between Optimism and Control under Low Negative conditions (Figure 8) was less suggestive of a possible curvilinear relationship or, for that matter, any relationship at all. Since the overall relationship between Optimism and Control was not shown to be curvilinear and the scatterplots in the High and Low Negative conditions did not show curvilinear trends, this alternative hypothesis (H_{A2}) was not supported.

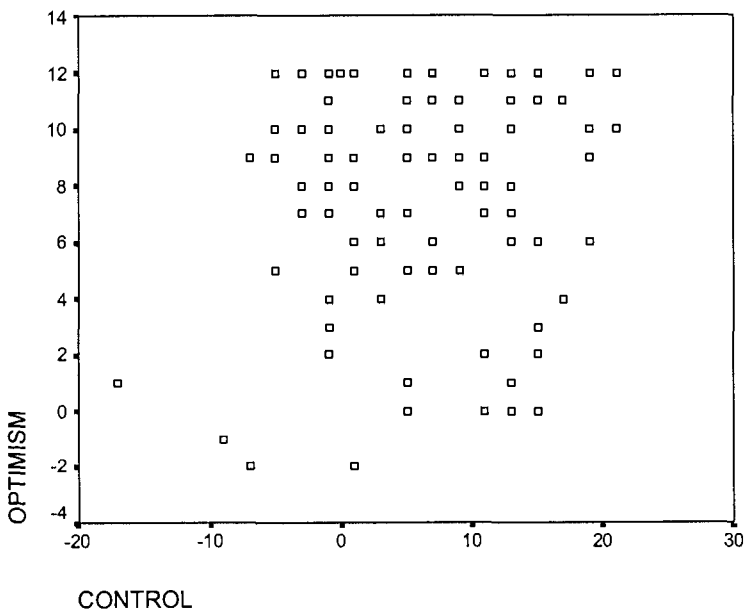

Figure 8. Scatterplot of interaction between optimism and control in low negative condition.

While the original hypotheses did not call for such an analysis, correlations between Optimism and Control under conditions of both High and Low Negative were determined. The obtained correlations (Tables 15 & 16) for Optimism and Control under High Negative conditions were found to be .410 ($p < .01$) utilizing a parametric approach to the data , and .421 ($p < .01$) with a parallel nonparametric approach. These analyses make clear that, while the relationship between Optimism and Control may not be curvilinear under High Negative Life conditions as hypothesized, it is strongly positive.

Table 15

Pearson Correlation Between Optimism and Control in High Negative Condition

		OPTIMISM	CONTROL
OPTIMISM	Pearson Correlation	1.000	.410**
	Sig. (2-tailed)	.	.000
	N	109	109
CONTROL	Pearson Correlation	.410**	1.000
	Sig. (2-tailed)	.000	.
	N	109	109

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

Table 16

Spearman's rho Correlation Between Optimism and Control in High Negative Condition

		OPTIMISM	CONTROL
OPTIMISM	Correlation Coefficient	1.000	.421**
	Sig. (2-tailed)	.	.000
	N	109	109
CONTROL	Correlation Coefficient	.421**	1.000
	Sig. (2-tailed)	.000	.
	N	109	109

** Correlation is significant at the .01 level (2-tailed).

Similar parametric and nonparametric correlational analyses were conducted to clarify the relationship between Optimism and Control under conditions of Low Negative. The parametric and nonparametric approaches (Tables 17 & 18) yielded correlations of .148 ($p > .05$) and .108 ($p > .05$) respectively. In contrast to the

relationship between the variables under the High Negative condition, Optimism and Control appear not to be correlated under conditions of Low Negative.

Table 17

Pearson Correlation Between Optimism and Control in Low Negative Condition

		OPTIMISM	CONTROL
OPTIMISM	Pearson Correlation	1.000	.148
	Sig. (2-tailed)	.	.123
	N	109	109
CONTROL	Pearson Correlation	.148	1.000
	Sig. (2-tailed)	.123	.
	N	109	109

Table 18

Spearman's rho Correlation Between Optimism and Control in Low Negative Condition

		OPTIMISM	CONTROL
OPTIMISM	Correlation Coefficient	1.000	.108
	Sig. (2-tailed)	.	.265
	N	109	109
CONTROL	Correlation Coefficient	.108	1.000
	Sig. (2-tailed)	.265	.
	N	109	109

A second set of analyses were made of Optimism and Control with regard to their relationship under conditions of High and Low Positive Life Experience (H_{A3}). The first of these addressed Optimism and Control under the High Positive condition. Parallel parametric and nonparametric bivariate analyses (Table 19 & 20) were applied to the data yielding correlations of .097 ($p > .05$) and .053 ($p > .05$) respectively. Figure 9 presents this relationship graphically. This result suggests that Optimism and Control are not significantly correlated for participants who report a preponderance of highly positive life experiences.

Table 19

Pearson Correlation Between Optimism and Control in High Positive Condition

		OPTIMISM	CONTROL
OPTIMISM	Pearson Correlation	1.000	.097
	Sig. (2-tailed)	.	.373
	N	87	87
CONTROL	Pearson Correlation	.097	1.000
	Sig. (2-tailed)	.373	.
	N	87	87

Table 20

Spearman rho Correlation Between Optimism and Control in High Positive Condition

		OPTIMISM	CONTROL
OPTIMISM	Correlation Coefficient	1.000	.053
	Sig. (2-tailed)	.	.623
	N	87	87
CONTROL	Correlation Coefficient	.053	1.000
	Sig. (2-tailed)	.623	.
	N	87	87

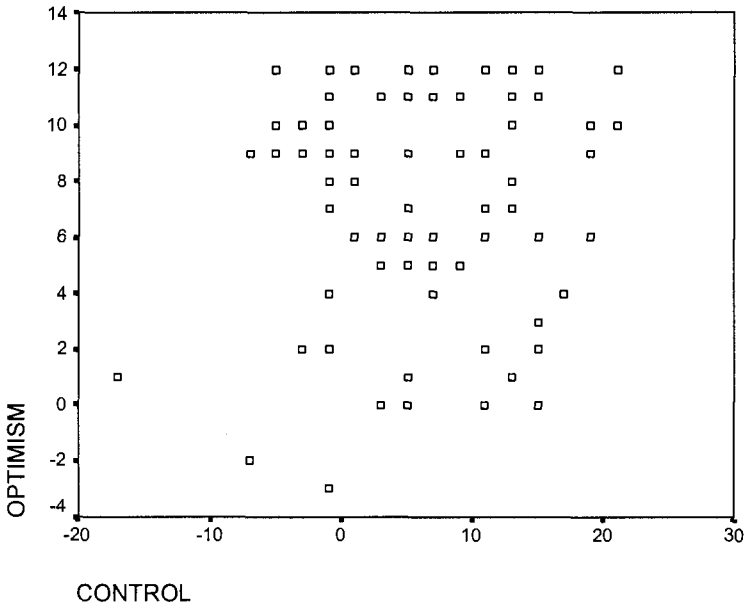

Figure 9. Scatterplot of relationship between optimism and control in high positive condition.

A final set of analyses were applied to Optimism and Control to determine their relationship under the low positive life condition. As before, parallel parametric and nonparametric analyses were made of the data. The parametric analysis (Table 21) yielded a correlation of .421 ($p < .01$), and the parallel nonparametric analysis (Table 22) resulted in a correlation of .427 ($p < .01$). Figure 10 provides the scatterplot of this relationship. This result suggests a strong relationship between Optimism and Control in the Low Positive condition, in contrast to the High Positive condition.

Table 21

Pearson Correlation Between Optimism and Control in Low Positive Condition

		OPTIMISM	CONTROL
OPTIMISM	Pearson Correlation	1.000	.421**
	Sig. (2-tailed)	.	.000
	N	108	108
CONTROL	Pearson Correlation	.421**	1.000
	Sig. (2-tailed)	.000	.
	N	108	108

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

Table 22

Spearman's rho Correlation Between Optimism and Control in Low Positive Condition

		OPTIMISM	CONTROL
OPTIMISM	Correlation Coefficient	1.000	.427**
	Sig. (2-tailed)	.	.000
	N	108	108
CONTROL	Correlation Coefficient	.427**	1.000
	Sig. (2-tailed)	.000	.
	N	108	108

** Correlation is significant at the .01 level (2-tailed).

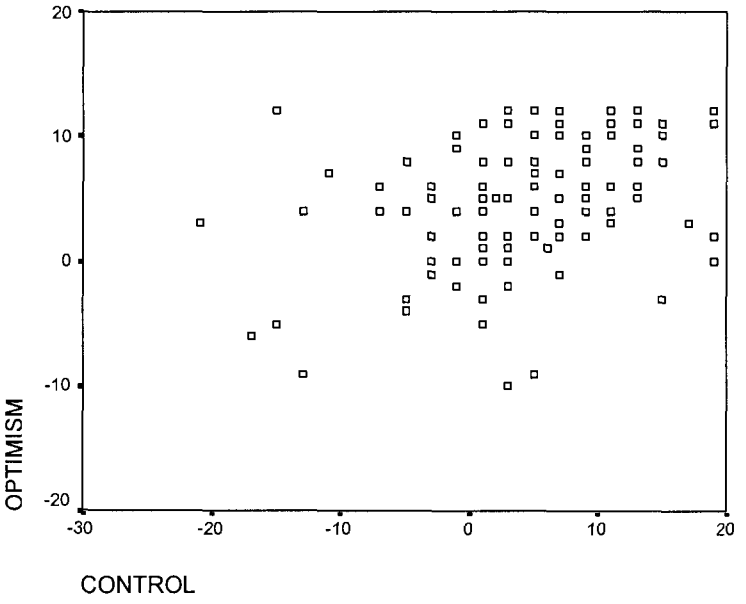

Figure 10. Scatterplot of the correlation between optimism and control in low positive condition.

Hypothesis 3: Optimism and Positive and Negative Life Experience

H_O There is no relationship between Optimism and either Positive or Negative life experience.

H_{A1} There is a negative relationship between Optimism and Negative Life Experience.

H_{A2} There is a positive relationship between Optimism and Positive Life Experience.

The first step in addressing the relationship between Optimism and Positive and Negative Life Experience was to determine the best transformation of Positive and Negative Life Experience. This was accomplished by comparing various approaches to transformation for each, applying Kolmogorov-Smirnov test for normality of distribution for these transformations (Table 23), and determining which produced the smallest statistic (i.e., that closest to 0 or normal distribution).

Table 23

Kolmogorov-Smirnov [a] Tests of Normality for Transformations of Positive and Negative Life Experience

	Statistic	df	Sig.
POS_LES	.101	328	.000
SQ_POSLE	.183	328	.000
CU_POSLE	.244	328	.000
LOG_POS	.071	328	.000
RT_POSLE	.062	328	.004
QA_POSLE	.320	328	.000
NEG_LES	.128	328	.000
SQ_NEGLE	.233	328	.000
CU_NEGLE	.327	328	.000
QA_NEGLE	.378	328	.000
RT_NEGLE	.171	328	.000

a Lilliefors Significance Correction

These analyses indicated that a square root transformation produced the best option for Positive Life Experience (RT_POSLE), and no transformation produced a distribution of Negative Life Experience which was closer to a normal distribution than that original data.

These variables (the transformed POS_LES and NEG_LES) were subjected to parametric and nonparametric bivariate correlational analyses with Optimism (Tables 24 & 25). The obtained correlations were significant between both Optimism and Positive

Table 24

Pearson Correlation of Relationships Between Optimism, Positive Life Experience and Negative Life Experience

		OPTIMISM	RT_POSLE	NEG_LES
OPTIMISM	Pearson Correlation	1.000	.213**	- 198**
	Sig. (2-tailed)	.	.000	.000
	N	328	328	328
RT_POSLE	Pearson Correlation	.213**	1.000	-.004
	Sig. (2-tailed)	.000	.	.946
	N	328	328	328
NEG_LES	Pearson Correlation	-.198**	-.004	1.000
	Sig. (2-tailed)	.000	.946	.
	N	328	328	328

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

Table 25

Spearman's rho Correlation of Relationships Between Optimism, Positive Life Experience and Negative Life Experience

		OPTIMISM	RT_POSLE	NEG_LES
OPTIMISM	Correlation Coefficient	1.000	.228**	-.212**
	Sig. (2-tailed)	.	.000	.000
	N	328	328	328
RT_POSLE	Correlation Coefficient	.228**	1.000	-.022
	Sig. (2-tailed)	.000	.	.697
	N	328	328	328
NEG_LES	Correlation Coefficient	-.212**	-.022	1.000
	Sig. (2-tailed)	.000	.697	.
	N	328	328	328

** Correlation is significant at the .01 level (2-tailed).

Life Experience (RT_POSLE) of .213 ($p < .01$), as well as Optimism and Negative Life Experience (NEG_LES) of -.198 ($p < .01$). The parallel nonparametric approach produced similar correlations of .228 ($p < .01$) between Optimism and Positive Life Experience (RT_POSLE), and .212 ($p < .01$) between Optimism and Negative Life Experience (NEG_LES). These results lead to a rejection of the null hypothesis of no relationship between Optimism and either Positive or Negative Life Experience. However, they do lend support for both alternate hypotheses, H_{A1} and H_{A2}, that there is a positive relationship between Optimism and POS_LES and a negative relationship between Optimism and NEG_LES. Figures 11 and 12 provide visual representations of

the relationships between Optimism and Positive Life Experience and Optimism and Negative Life Experience respectively.

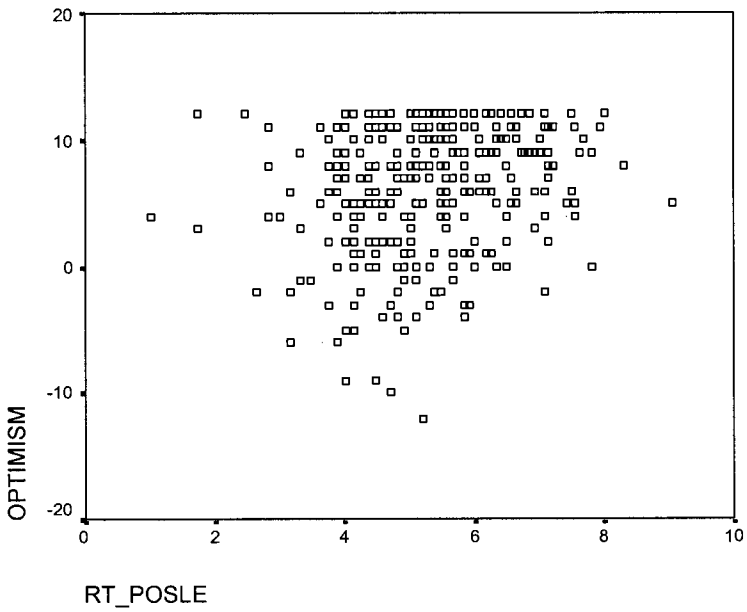

Figure 11. Scatterplot of the interaction between optimism and positive life experience.

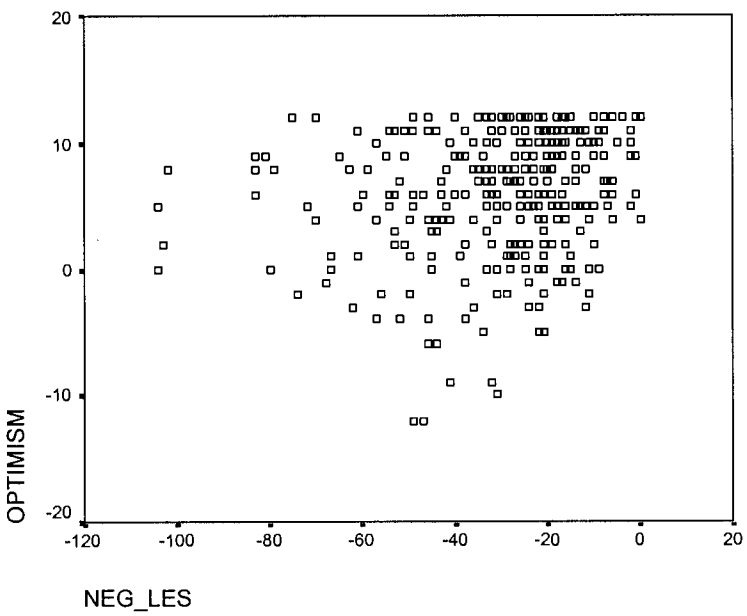

Figure 12. Scatterplot of the interaction between optimism and negative life experience.

Hypothesis 4: Hope and Control

H_O There is no relationship between Hope and Control.

H_{A1} There is a positive relationship between Hope and Control.

H_{A2} The positive relationship between Hope and Control will be greater in the Low Negative condition than in the High Negative condition.

H_{A3} The positive relationship between Hope and Control will be greater in the High Positive Life Experience condition than in the Low Positive Life Experience condition.

Parametric and nonparametric analyses of the relationship between Hope and Control were accomplished using original raw data for Control and the transformed data for Hope (QA_HOPE) described earlier. The parametric analysis (Table 26) resulted in

a correlation of .306 ($p < .01$) and the nonparametric approach (Table 27) produced a slightly smaller correlation of .263 ($p < .01$). Figure 13 provides a visual representation of this relationship. This result yields a conclusion to reject the null hypothesis predicting no relationship between Hope and Control, and supports the first alternative hypothesis (H_{A1}) predicting a positive relationship between the two.

Table 26

Pearson Correlation Between Control and Hope

		CONTROL	QA_HOPE
CONTROL	Pearson Correlation	1.000	.306**
	Sig. (2-tailed)	.	.000
	N	328	328
QA_HOPE	Pearson Correlation	.306**	1.000
	Sig. (2-tailed)	.000	.
	N	328	328

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

Table 27

Spearman's rho Correlation Between Control and Hope

		CONTROL	QA_HOPE
CONTROL	Correlation Coefficient	1.000	.263**
	Sig. (2-tailed)	.	.000
	N	328	328
QA_HOPE	Correlation Coefficient	.263**	1.000
	Sig. (2-tailed)	.000	.
	N	328	328

** Correlation is significant at the .01 level (2-tailed).

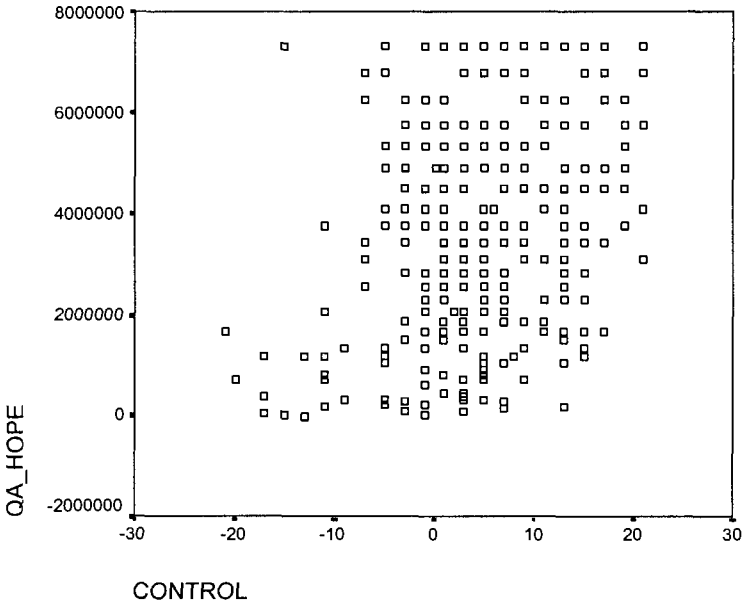

Figure 13. Scatterplot of the interaction between control and hope.

The second alternate hypothesis (H_{A2}) called for a relationship between Control and Hope that would be greater in the Low Negative condition than the High Negative

condition. The first stage of this analysis was conducted utilizing the previously established Low Negative subset of the sample based on a combination of positive and negative experience scores.

The parametric analysis (Table 28) of the relationship between Control and Hope in the low adverse condition produced a correlation of .205 ($p < .05$). In slight contrast, the parallel nonparametric analysis (Table 29) resulted in a lesser and nonsignificant correlation of .164 ($p > .05$). This result is demonstrated graphically in the scatterplot of Control and Hope in Figure 14.

Table 28

Pearson Correlation Between Control and Hope in Low Negative Condition

		CONTROL	QA_HOPE
CONTROL	Pearson Correlation	1.000	.205*
	Sig. (2-tailed)	.	.032
	N	109	109
QA_HOPE	Pearson Correlation	.205*	1.000
	Sig. (2-tailed)	.032	.
	N	109	109

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

Table 29

Spearman's rho *Correlation Between Control and Hope in Low Negative Condition*

		CONTROL	QA_HOPE
CONTROL	Correlation Coefficient	1.000	.164
	Sig. (2-tailed)	.	.089
	N	109	109
QA_HOPE	Correlation Coefficient	.164	1.000
	Sig. (2-tailed)	.089	.
	N	109	109

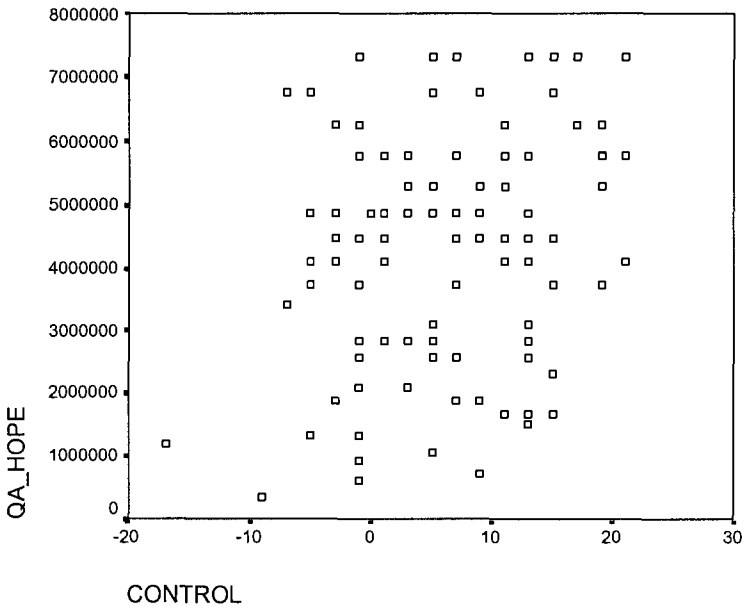

Figure 14. Scatterplot of interaction between control and hope in low negative condition.

The second stage of the analysis of the relationship between Hope and Control employed the previously established High Negative subset of the sample. The parametric

bivariate analysis (Table 30) resulted in a correlation of .355 ($p < .01$). The parallel nonparametric analysis (Table 31) resulted in a nearly identical correlation of .346 ($p < .01$). Figure 15 presents the graphic representation of this obtained relationship. These two analyses lead to a rejection of hypothesis H_{A2}, as the correlations are reversed from what was hypothesized.

Table 30

Pearson Correlation Between Control and Hope in High Negative Condition

		CONTROL	QA_HOPE
CONTROL	Pearson Correlation	1.000	.355**
	Sig. (2-tailed)	.	.000
	N	109	109
QA_HOPE	Pearson Correlation	.355**	1.000
	Sig. (2-tailed)	.000	.
	N	109	109

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

Table 31

Spearman's rho Correlation Between Control and Hope in High Negative Condition

		CONTROL	QA_HOPE
CONTROL	Correlation Coefficient	1.000	.346**
	Sig. (2-tailed)	.	.000
	N	109	109
QA_HOPE	Correlation Coefficient	.346**	1.000
	Sig. (2-tailed)	.000	.
	N	109	109

** Correlation is significant at the .01 level (2-tailed).

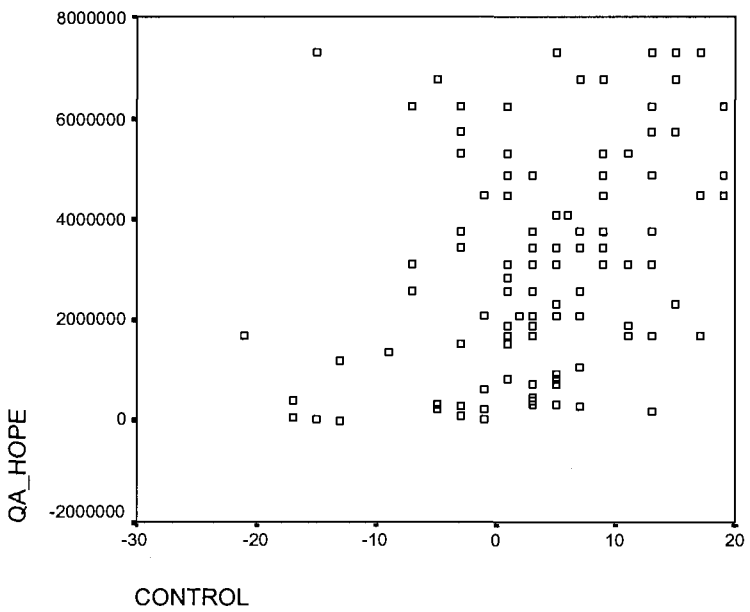

Figure 15. Scatterplot of the interaction between hope and control in high negative condition.

The third alternate hypothesis (H_{A3}) regarding Hope and Control predicted that the correlation between Hope and Control would be greater in the High Positive Life Experience condition than the Low Positive Life Experience condition. This analysis was performed utilizing the transformed version of Hope (QA_HOPE), the raw version of Control, and the previously established High Positive subset of the distribution of Positive scores. The first stage of this analysis addressed Hope and Control in the High Positive Life Experience condition. The parametric analysis of these data (Table 32) produced a correlation of .202 ($p > .05$) which was a nonsignificant result. The parallel nonparametric analysis (Table 33) resulted in an even weaker and nonsignificant correlation of .173 ($p > .05$). The accompanying scatterplot (Figure 16) of the relationship between Hope and Control in the high positive condition makes visually clear the lack of a relationship between the two variables.

Table 32

Pearson Correlation Between Hope and Control in High Positive Condition

		CONTROL	QA_HOPE
CONTROL	Pearson Correlation	1.000	.202
	Sig. (2-tailed)	.	.060
	N	87	87
QA_HOPE	Pearson Correlation	.202	1.000
	Sig. (2-tailed)	.060	.
	N	87	87

Table 33

Spearman's rho Correlation Between Hope and Control in High Positive Condition

		CONTROL	QA_HOPE
CONTROL	Correlation Coefficient	1.000	.173
	Sig. (2-tailed)	.	.109
	N	87	87
QA_HOPE	Correlation Coefficient	.173	1.000
	Sig. (2-tailed)	.109	.
	N	87	87

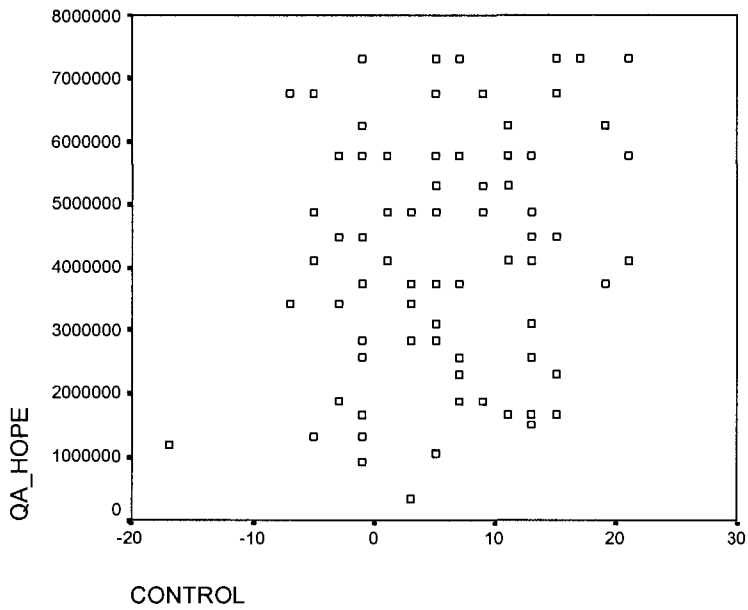

Figure 16. Scatterplot of the interaction between hope and control in high positive condition.

The second stage of the analysis of Hope and Control addressed their relationship in the condition of Low Positive Life Experience. The parametric analysis of this relationship (Table 34) produced a correlation of .293 ($p < .01$). The parallel nonparametric analysis (Table 35) produced a similar correlation of .270 ($p < .01$). The accompanying scatterplot (Figure 17) makes visually clear this relationship. Hence, hypothesis H_{A3} is rejected, as the correlation between Hope and Control is actually stronger in the Low Positive than the High Positive Life Experience condition.

Table 34

Pearson Correlation Between Control and Hope in Low Positive Condition.

		CONTROL	QA_HOPE
CONTROL	Pearson Correlation	1.000	.293**
	Sig. (2-tailed)	.	.002
	N	108	108
QA_HOPE	Pearson Correlation	.293**	1.000
	Sig. (2-tailed)	.002	.
	N	108	108

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

Table 35

Spearman's rho Correlation Between Control and Hope in Low Positive Condition

		CONTROL	QA_HOPE
CONTROL	Correlation Coefficient	1.000	.270**
	Sig. (2-tailed)	.	.005
	N	108	108
QA_HOPE	Correlation Coefficient	.270**	1.000
	Sig. (2-tailed)	.005	.
	N	108	108

** Correlation is significant at the .01 level (2-tailed).

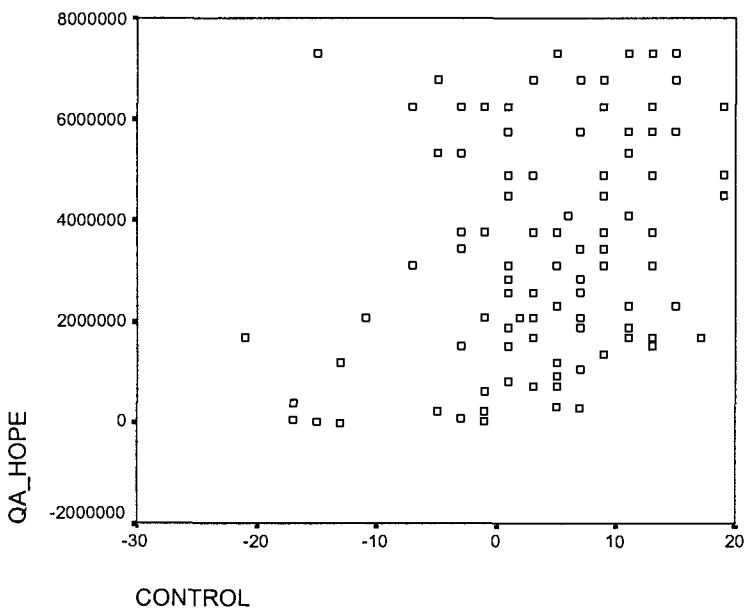

Figure 17. Scatterplot of interaction between hope and control in low positive condition.

Hypothesis 5: Hope and Positive and Negative Life Experience

H_O There is no correlation between Hope and either Positive or Negative life experience.

H_{A1} There is a negative relationship between Hope and Negative Life Experience, such that low to moderate amounts of Negative Life Experience result in greater Hope, but extreme amounts result in lesser Hope.

H_{A2} There is a positive relationship between Hope and Positive Life Experience.

The Hypothesis Five addressed the relationship between Hope and both Positive and Negative Life Experience, with the null hypothesis predicting no relationship between Hope and either Positive or Negative Life Experience. The first stage of the analysis of these relationships utilized the previously transformed Hope (QA_HOPE), as well as the transformed Positive Life Experience (RT_POSLE). A bivariate parametric analysis (Table 36) investigated the relationship between the two variables, producing a statistically significant positive correlation of .152 ($p < .01$). The parallel nonparametric analysis (Table 37) resulted in a similar correlation of .163 ($p < .01$). Figure 18 presents the obtained relationship between Hope and Positive Life Experience graphically. The result of these analyses leads to a rejection of the null hypothesis predicting no relationship between Hope and Positive Life Experience and lends support to the second alternative hypothesis (H_{A2}) which predicted a positive relationship between these two variables.

Table 36

Pearson Correlation Between Hope and Positive Life Experience

		QA_HOPE	RT_POSLE
QA_HOPE	Pearson Correlation	1.000	.152**
	Sig. (2-tailed)	.	.006
	N	328	328
RT_POSLE	Pearson Correlation	.152**	1.000
	Sig. (2-tailed)	.006	.
	N	328	328

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

Table 37

Spearman's rho Correlation Between Hope and Positive Life Experience

		QA_HOPE	RT_POSLE
QA_HOPE	Correlation Coefficient	1.000	.163**
	Sig. (2-tailed)	.	.003
	N	328	328
RT_POSLE	Correlation Coefficient	.163**	1.000
	Sig. (2-tailed)	.003	.
	N	328	328

** Correlation is significant at the .01 level (2-tailed).

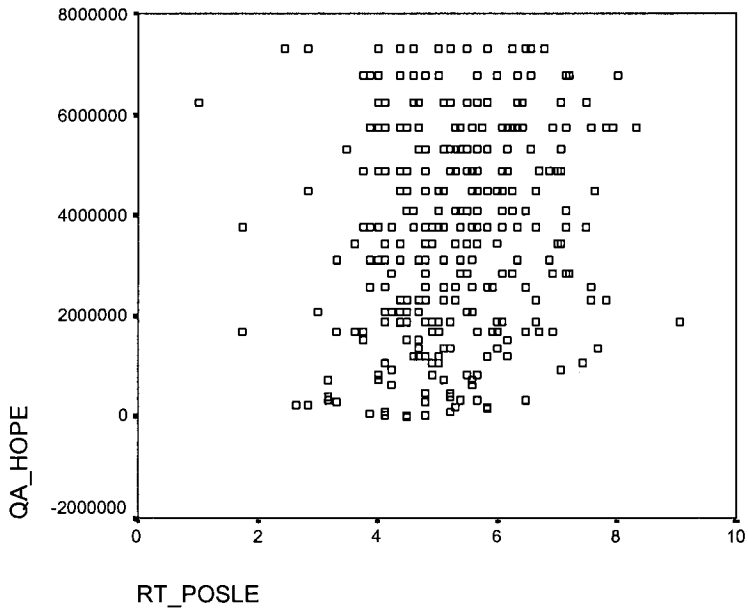

Figure 18. Scatterplot of the interaction between hope and positive life experience.

The second stage of the analysis of the relationship between Hope and Life Experience tested the first alternate hypothesis (H_{A1}) which predicted a negative relationship between Hope and Negative Life Experience, such that low to moderate amounts of Negative Life Experience correlate with greater Hope, but extreme amounts correlate with lesser Hope. This analysis utilized the transformed version of Hope (QA_HOPE) previously employed, and a new version of the Negative Life Experience created by using the absolute value of the raw data, which effectively reversed the scale. This transformation was made so that the values of both variables would be lowest at the origin of the X and Y axes, and highest at the outward points of the axes (top for Y and right for X), making the results easier to interpret.

This preliminary work done, bivariate parametric and nonparametric analyses were made of the variables. The parametric analysis (Table 38) produced a significant, negative correlation (-.157, $p < .01$) between Hope and Negative Life Experience, and the parallel nonparametric analysis (Table 39) produced a somewhat stronger result (-.180, $p < .01$).

Figure 19 provides the graphic representation of this relationship between Hope and Negative Life Experience. Inspection of the relationship between the two variables as depicted in the scatterplot suggests that although the first alternate hypothesis (H_{A1}) can be supported by statistical significance, there is very limited relationship between Negative Life Experience and Hope.

Table 38

Pearson Correlation Between Hope and Negative Life Experience

		QA_HOPE	ABS_NEG
QA_HOPE	Pearson Correlation	1.000	-.157**
	Sig. (2-tailed)	.	.004
	N	328	328
ABS_NEG	Pearson Correlation	-.157**	1.000
	Sig. (2-tailed)	.004	.
	N	328	328

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

Table 39

Spearman's rho Correlation Between Hope and Negative Life Experience

		QA_HOPE	ABS_NEG
QA_HOPE	Correlation Coefficient	1.000	-.180**
	Sig. (2-tailed)	.	.001
	N	328	328
ABS_NEG	Correlation Coefficient	-.180**	1.000
	Sig. (2-tailed)	.001	.
	N	328	328

** Correlation is significant at the .01 level (2-tailed).

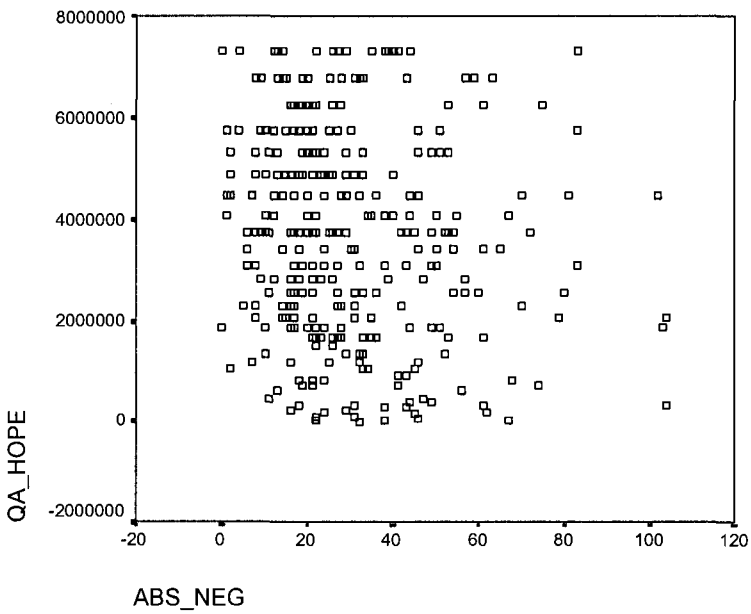

Figure 19. Scatterplot of the interaction between hope and negative life experience.

Hypothesis 6: Control and Positive and Negative Life Experience

H_O There is no relationship between Control and either Positive or Negative Life Experience.

H_{A1} There is a negative relationship between Control and Negative Life Experience.

H_{A2} There is a positive relationship between Control and Positive Life Experience.

The analytic approach employed for testing Hypothesis Six was the same as with the previous two hypotheses. The raw data form of Control was used because no attempts at transformation improved its distribution of scores. As for Positive and Negative Life Experience, the square root transformation was used for Positive Life Experience (RT_POSLE) and the absolute value of the raw data for Negative Life Experience (ABS_NEG).

The first set of analyses addressed the null hypothesis which predicted no relationship between Control and either Positive or Negative Life Experience. The first analysis addressed the relationship between Control and Positive Life Experience. The parametric approach (Table 40) produced a small but significant, positive correlation of .137 ($p < .05$). The parallel nonparametric analysis (Table 41) resulted in a nonsignificant correlation of .079 ($p > .05$). Taking the more conservative of these two analyses, these results do not support rejection of the null hypothesis with regard to the relationship between Control and Positive Life Experience and, therefore, it is retained. Coincidental to this finding, the second alternate hypothesis (H_{A2}) predicting a positive relationship between Control and Positive Life Experience is rejected. Figure 20 presents the obtained results graphically.

Table 40

Pearson Correlation Between Control and Positive Life Experience

		CONTROL	RT_POSLE
CONTROL	Pearson Correlation	1.000	.137*
	Sig. (2-tailed)	.	.013
	N	328	328
RT_POSLE	Pearson Correlation	.137*	1.000
	Sig. (2-tailed)	.013	.
	N	328	328

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

Table 41

Spearman's rho Correlation Between Control and Positive Life Experience

		CONTROL	RT_POSLE
CONTROL	Correlation Coefficient	1.000	.079
	Sig. (2-tailed)	.	.154
	N	328	328
RT_POSLE	Correlation Coefficient	.079	1.000
	Sig. (2-tailed)	.154	.
	N	328	328

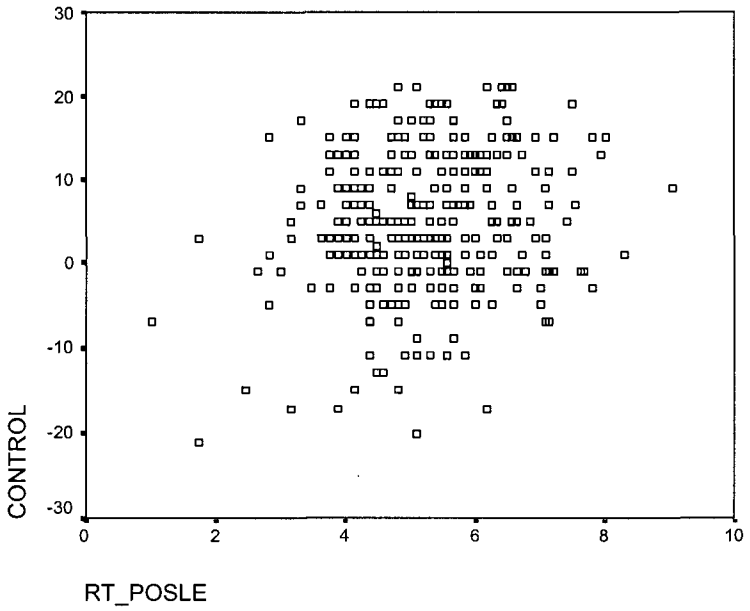

Figure 20. Scatterplot of the interaction between control and positive life experience.

A second analysis was made of the relationship between Control and Negative Life Experience (ABS_NEG). The parametric approach (Table 42) resulted in a nonsignificant, negative correlation of -.108 (p = .05). The parallel nonparametric analysis (Table 43) produced a small but significant, negative correlation of -.115 (p < .05). These results suggest that there is a slight relationship between Control and Negative Life Experience. This being the case, the part of the null hypothesis calling for no relationship between Control and Negative Life Experience is rejected and the first alternate hypothesis (H_{A1}) predicting a negative relationship between Control and Negative Life Experience was supported. Figure 21 presents the relationship between these two variables graphically.

Table 42

Pearson Correlation Between Control and Negative Life Experience

		CONTROL	ABS_NEG
CONTROL	Pearson Correlation	1.000	-.108
	Sig. (2-tailed)	.	.050
	N	328	328
ABS_NEG	Pearson Correlation	-.108	1.000
	Sig. (2-tailed)	.050	.
	N	328	328

Table 43

Spearman's rho Correlation Between Control and Negative Life Experience

		CONTROL	ABS_NEG
CONTROL	Correlation Coefficient	1.000	-.115*
	Sig. (2-tailed)	.	.037
	N	328	328
ABS_NEG	Correlation Coefficient	-.115*	1.000
	Sig. (2-tailed)	.037	.
	N	328	328

* Correlation is significant at the .05 level (2-tailed).

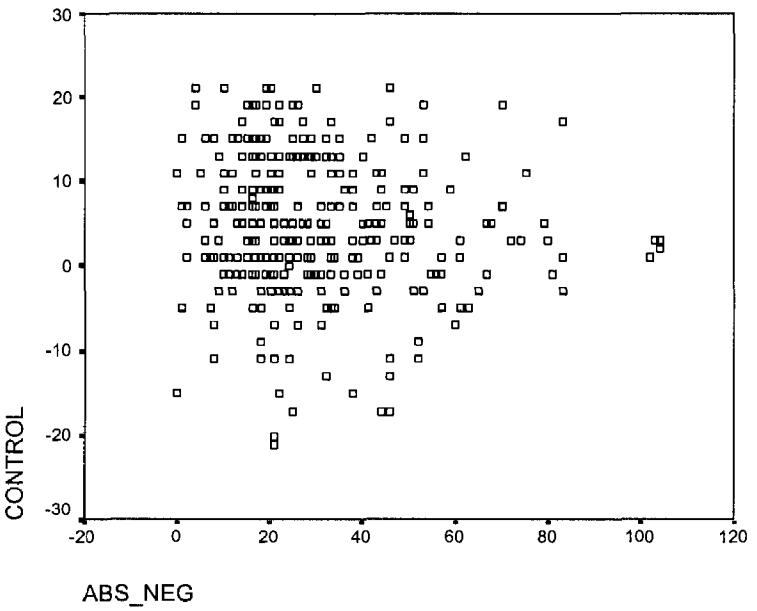

Figure 21. Scatterplot of the interaction between control and negative life experience.

The preceding completes the analyses relevant to the specific research hypotheses. As revealing as these results are, however, there are other approaches to the data that may provide additional clarity regarding the relationships between and among Optimism, Hope, Control, and Positive and Negative Life Experience. The following section presents further analyses of these research variables, and adding the demographic variables of Gender and Age as well as the Number of Life Experiences endorsed by each respondent.

Nonhypothesized Analyses

Multivariate analyses. The first analysis in this series investigated the relative influence of Positive and Negative Life Experience upon Optimism. To accomplish this, a stepwise multiple regression was applied to the variables. The results of this analysis

(Table 44) indicate that Positive Life Experience contributes the most to the variability of Optimism with an R Square of .045, with Negative Life Experience adding nearly as much by bringing the cumulative R Square up to .084. Said differently, Optimism is slightly more correlated with Positive Life Experience than with Negative Life Experience.

Table 44

Stepwise Multiple Regression Analysis of the Relative Influence of Positive and Negative Life Experience on Optimism

	R	R Square	Adjusted R Square	Change Statistics	
Model				R Square Change	Sig. F Change
1	.213a	.045	.042	.045	.000
2	.290b	.084	.079	.039	.000

a Predictors: (Constant), RT_POSLE
b Predictors: (Constant), RT_POSLE, ABS_NEG

The next analysis in this series investigated the relative influence of Positive and Negative Life Experience upon Hope. To accomplish this, a stepwise multiple regression was applied to the variables. The results of this analysis (Table 45) indicate that Negative Life Experience contributes the most to the variability of Hope, though very slightly, with an R Square of .025, with Positive Life Experience adding nearly as much by bringing the cumulative R Square up to .048. Said differently, Hope is slightly more correlated with Negative Life Experience than with Positive Life Experience.

Table 45

Stepwise Multiple Regression Analysis of the Relative Influence of Positive and Negative Life Experience on Hope

Model	R	R Square	Adjusted R Square	Change Statistics		
				R Square Change	F Change	Sig. F Change
1	.157a	.025	.022	.025	8.284	.004
2	.218b	.048	.042	.023	7.819	.005

a Predictors: (Constant), ABS_NEG
b Predictors: (Constant), ABS_NEG, RT_POSLE

The next analysis in this series investigated the relative influence of Positive and Negative Life Experience upon Control. To accomplish this, a stepwise multiple regression was applied to the variables. The results of this analysis (Table 46) indicate that Positive Life Experience contributes the most to the variability of Control, though very slightly, with an R Square of .019, with Negative Life Experience adding nearly as much by bringing the cumulative R Square up to .030. Said differently, Control is somewhat more correlated with Positive Life Experience than with Negative Life Experience, although Control is not as strongly predicted by Life Experience as were Optimism and Hope.

Table 46

Stepwise Multiple Regression Analysis of the Relative Influence of Positive and Negative Life Experience on Control

	R	R Square	Adjusted R Square	Change Statistics	
Model				R Square Change	Sig. F Change
1	.137a	.019	.016	.019	.013
2	.174b	.030	.024	.012	.049

a Predictors: (Constant), RT_POSLE
b Predictors: (Constant), RT_POSLE, ABS_NEG

Multiple regression analyses including demographic variables. A second series of analyses broadened the view by including the three additional variables—Age and Gender and the Number of Life Experiences. These three additional variables were added to Positive and Negative Life Experience in exploration of their relative influences upon Optimism, Hope, and Control.

The first analysis in this series investigated the relative influence of Age, Gender, Number of Life Experiences, and Positive and Negative Life Experience upon Control. To accomplish this investigation, a stepwise multiple regression was applied to the variables. The results of this analysis (Table 47) indicate that Age contributes the most to the variability of Control with an R Square of .052, with Gender adding somewhat by bringing the cumulative R Square up to .073, followed by Negative Life Experience (R^2 = .094). Positive Life Experience and Number of Life Experiences were determined not to add significant predictive value to the variability of Control.

A supplemental analysis of collinearity was performed to determine if the overlap among the predictor variables (Age, Gender, Number of Life Experiences, and Positive and Negative Life Experience) and Control was excessive . The results were below the levels indicative of problematic collinearity, lending support to the validity of the analyses.

Table 47

Stepwise Multiple Regression Analysis of the Relative Influence of Age, Gender, and Positive and Negative Life Experience on Control

	R	R Square	Adjusted R Square	Change Statistics		
Model				R Square Change	F Change	Sig. F Change
1	.227a	.052	.049	.052	17.770	.000
2	.270b	.073	.067	.021	7.476	.007
3	.306c	.094	.085	.021	7.410	.007
4	.320d	.102	.091	.009	3.100	.079

a Predictors: (Constant), AGE
b Predictors: (Constant), AGE, GENDER
c Predictors: (Constant), AGE, GENDER, ABS_NEG
d Predictors: (Constant), AGE, GENDER, ABS_NEG, RT_POSLE

The second analysis in this series investigated the relative influence of Age, Gender, Number of Life Experiences, and Positive and Negative Life Experience upon Hope. To accomplish this, a stepwise multiple regression was applied to the variables. The results of this analysis (Table 48) indicate that Negative Life Experience contributes the most to the variability of Hope with an R Square of .025; Positive Life Experience

adds nearly as much by bringing the cumulative R Square up to .048; then Age increasing the cumulative total to .062. Gender and Number of Life Experiences did not contribute significantly to the variability of Hope and were excluded.

A supplemental analysis of collinearity was performed to determine if the overlap among the predictor variables (Age, Gender, Positive and Negative Life Experience) was excessive when compared to Hope. The results were below the levels indicative of problematic collinearity, lending support to the validity of the analyses.

Table 48

Stepwise Multiple Regression Analysis of the Relative Influence of Age, Gender, and Positive and Negative Life Experience on Hope

	R	R Square	Adjusted R Square	Change Statistics		
Model				R Square Change	F Change	Sig. F Change
1	.157a	.025	.022	.025	8.284	.004
2	.218b	.048	.042	.023	7.819	.005
3	.250c	.062	.054	.015	5.091	.025
4	.257d	.066	.054	.004	1.237	.267

a Predictors: (Constant), ABS_NEG
b Predictors: (Constant), ABS_NEG, RT_POSLE
c Predictors: (Constant), ABS_NEG, RT_POSLE, AGE
d Predictors: (Constant), ABS_NEG, RT_POSLE, AGE, GENDER

The third analysis in this series investigated the relative influence of Age, Gender, Number of Life Experiences, and Positive and Negative Life Experience upon Optimism. To accomplish this, a stepwise multiple regression was applied to the variables. The results of this analysis (Table 49) indicate that Age contributes the most to the variability

of Optimism with an R Square of .053. Negative Life Experience adds nearly as much by bringing the cumulative R Square up to .106. Finally, Positive Life Experience increases the cumulative R Square to .141. Number of Life Experiences and Gender did not add significantly to the prediction of Optimism and were excluded.

A supplemental analysis of collinearity was performed to determine if the overlap among the predictor variables (Age, Gender, Positive and Negative Life Experience) was excessive when compared to Optimism. The results were below the levels indicative of problematic collinearity, lending support to the validity of the analyses.

Table 49

Stepwise Multiple Regression Analysis of the Relative Influence of Age, Gender, and Positive and Negative Life Experience on Optimism

	R	R Square	Adjusted R Square	Change Statistics		
Model				R Square Change	F Change	Sig. F Change
1	.230a	.053	.050	.053	18.197	.000
2	.325b	.106	.100	.053	19.157	.000
3	.376c	.141	.133	.036	13.450	.000
4	.383d	.147	.136	.005	2.020	.156

a Predictors: (Constant), AGE
b Predictors: (Constant), AGE, ABS_NEG
c Predictors: (Constant), AGE, ABS_NEG, RT_POSLE
d Predictors: (Constant), AGE, ABS_NEG, RT_POSLE, NUM_LES

Summary of Results

The present research was designed to test the null and alternative hypotheses which were supported, or suggested, by research in the literature. The preceding analyses

tested each of these hypotheses. The following summarizes the findings with regard to each hypothesis:

Optimism and hope. The analyses of the relationship between Optimism and Hope revealed a significantly positive correlation between them. This positive correlation is in opposition to the null hypothesis (H_O) and, therefore it was rejected in favor of the first alternate hypothesis (H_{A1}). The analyses with regard to the relationship between Optimism and Hope under High and Low Negative conditions revealed that Optimism and Hope are more strongly correlated in the high adversity condition than in the low adversity condition. This outcome is contrary to the second alternate hypothesis (H_{A2}) that predicted exactly the opposite relationship and, therefore it was rejected. Lastly, the analyses determined a positive correlation that was higher in the Low Positive than the High Positive condition. This outcome is contrary to the prediction of the third alternate hypothesis (H_{A3}) though only marginally, and, therefore, it was rejected.

Optimism and locus of control. Analyses of the relationship between Optimism and Control produced significantly positive correlations. As such, the null hypothesis (H_O) was rejected. The first alternative hypothesis (H_{A1}) called for a curvilinear relationship between Optimism and Control such that both extreme low and high levels of Control would result in lower Optimism scores, and moderate amounts result in higher Optimism scores. However, a scatterplot of the correlation between the two did not suggest a curvilinear relationship, though this relationship was delimited at the upper, positive range of scores. Without apparent support for curvilinearity, H_{A1} was rejected.

The question still remained, however, as to whether a curvilinear relationship might exist under the High Negative condition as predicted in the second alternate hypothesis (H_{A2}). Inspection of the scatterplot of the correlation between Optimism and Control under differing levels of adversity did not suggest curvilinearity and, therefore, H_{A2} was not supported.

The third alternate hypothesis (H_{A3}) predicted a relationship between Optimism and Control that would be more strongly correlated in the high positive condition. This relationship was confirmed by the analyses and, therefore, H_{A3} was supported.

Optimism and positive and negative life experience. The null hypothesis predicted no relationship between Optimism and either Positive or Negative Life Experience. Analyses of the relationship between these variables produced significant correlations between Optimism and both Positive and Negative Life Experience, thereby rejecting the null hypothesis. The first alternative hypothesis (H_{A1}) predicted a negative relationship between Optimism and Negative Life Experience. The obtained correlations, and inspection of the scatterplot of the relationship between Optimism and Negative Life Experience confirms a slight relationship as predicted: as the number of Negative Life Experiences increase, Optimism decreases. Therefore, H_{A1} was supported. The second alternative hypothesis (H_{A2}) predicted a positive relationship between Optimism and Positive Life Experience. The obtained correlations, and inspection of the scatterplot of the relationship between Optimism and Positive Life Experience supported H_{A2}. Essentially, as Positive Life Experience increases, Optimism increases. This being the case, H_{A2} was supported.

Hope and control. The null hypothesis predicted no relationship between Hope and Control. The analyses of the relationship between Hope and Control produced significantly positive correlations. This being so, the null hypothesis was rejected and the first alternate hypothesis (H_{A1}), predicting a positive relationship between Hope and Control was accepted.

The second alternate hypothesis (H_{A2}) predicted that the positive relationship between Hope and Control would be greater in the Low Negative condition than the High Negative condition. The analyses of the relationship among these relationships produced correlations which were the opposite of that predicted: the correlation between Hope and Control was greater in the High Adversity condition than in the Low Adversity condition and, H_{A2} was rejected.

The third alternative hypothesis (H_{A3}) predicted that the relationship between Hope and Control would be greater in the High Positive Life Experience condition than the Low Positive Life Experience condition. The analyses of these variables produced correlations which were the opposite of the prediction: the relationship between Hope and Control were greater in the Low Positive condition than the High Positive condition, and H_{A3} was not supported.

Hope and positive and negative life experience. The null hypothesis predicted no correlation between Hope and either Positive or Negative Life Experience. The analyses produced correlations which were statistically significant between Hope and both Positive and Negative Life Experience, and the null hypothesis was rejected.

The first alternative hypothesis (H_{A1}) predicted a negative relationship between Hope and Negative Life Experience, such that low to moderate amounts of Negative Life Experience would correlate with greater Hope, and extreme amounts correlate with lesser Hope. The obtained correlations, and inspection of the scatterplot of the relationships, suggested support for H_{A1} and, therefore, it was supported.

The second alternative hypothesis (H_{A2}) predicted a positive relationship between Hope and Positive Life Experience. The analyses of the relationship between Hope and Positive Life Experience produced a significant, positive correlation, and H_{A1} was supported.

Control and positive and negative life experience. The null hypothesis predicted no relationship between Control and either Positive or Negative Life Experience. The analyses of the relationship between Control and both Positive and Negative Life Experience produced significantly positive correlations, and the null hypothesis was rejected.

The first alternate hypothesis (H_{A1}) predicted a negative relationship between Control and Negative Life Experience. The analyses produced a significant, negative correlation and H_{A1} was supported.

The second alternate hypothesis (H_{A2}) predicted a positive relationship between Control and Positive Life Experience. The parametric analyses produced a significant, positive correlation, but the nonparametric approach, while positive, did not reach significance. This being the case, and for the sake of caution, H_{A1} was judged not to be supported.

Nonhypothesized multivariate analyses. With Life Experiences as predictors, the first nonhypothesized analysis investigated the relative influence of Positive and Negative Life Experience upon Optimism. The analysis of this relationship found that Positive Life Experience contributed the most to the variability of Optimism, followed by Negative Life Experience.

The second nonhypothesized analysis investigated the relative influence of Positive and Negative Life Experience upon Hope. The analysis indicated that Negative Life Experience contributed most to the variability of Hope, though only slightly and with Positive Life Experience contributing nearly as much.

The third nonhypothesized analysis explored the relative influence of Positive and Negative Life Experience upon Control. The results of the analysis indicated that Control was somewhat more influenced by Positive Life Experience, though nearly as much by Negative Life Experience.

Nonhypothesized multiple regression analyses. The first multiple regression analyses of the relationships among the research variables plus Age, Gender, and Number of life Experiences determined that Age contributed the most to the variability of Control, followed by Gender, Negative Life Experience, and Positive Life Experience. The second multiple regression analysis of the full set of variables determined that Negative Life Experience contributed the most to the variability of Hope, with Positive Life Experience, Age, and Gender following, in that order. Finally, a third multiple regression analysis of these variables determined that Age contributed the most to the variability of Optimism, with Negative Life Experience, Positive Life Experience, and Number of Life

Experiences following in order. Gender was not found to contribute significantly to Optimism and was eliminated as a viable factor.

This concludes the analyses of the data obtained through this research effort. These analyses have provided support for some hypotheses, and not for others. Also of note, the data itself became an issue because of its persistent skewness of distribution for each of the research variables. The results of these analyses—the inherent difficulties associated with the data, research instruments, and population sampled—set the stage for the next chapter wherein their meanings and implications are discussed.

Chapter 5: Discussion

This research effort was designed to explore the relationships between and among optimism, hope, control, and positive and negative life experience, as well as the ancillary influences of age, gender, and number of life experiences. This exploration was addressed by testing confidence in the viability of six null hypotheses and fifteen alternate hypotheses. The following sections discuss the results described in the previous chapter with the aim of elucidating their meaning.

Research Instruments

Restricted range of scores. As may be the case in similar research efforts, issues related to the instruments used to measure the variables, the population sampled, and the unique aspects of the data itself appeared to influence the obtained results. The instruments utilized to quantify the research variables for the present research were selected on the basis of their proven reliability and validity, and for their successful use in other research efforts. Nevertheless, aspects of each of these instruments appear to have exerted an influence on the obtained data. For example, the Life Orientation Test—Revised (LOT-R: Optimism), the Hope Scale and, to a lesser extent, the Internal—External Locus of Control Scale (I-E), all have rather small ranges of possible scores. This limited range seems to have made it more likely that a participant would select a choice at one extreme end of the scale or the other, as demonstrated by the frequently observed clustering of scores at either the upper or lower extremes of the limit of range for several of the instruments.

The curtailed range of scores and the tendency toward "clumping" at the extreme limits, as observed on many scatterplots, made true determination of any trend toward curvilinearity more difficult, if not impossible. This potential was most apparent in the analyses of the relationships between and among Optimism, Control, and High and Low Negative. Though far from certain, it is possible that an expanded range of possible scores for Optimism and Control under conditions of High Negative may have extended the observed trend toward curvilinearity and supported the hypothesis predicting it.

Survey instrument. The survey instrument was distributed in two forms: paper, and electronic. The paper form of the survey instrument had limited distribution (n = 28; 8%), while the electronic, web based version was accessed and completed by the vast majority of the respondents (n = 348; 92%). The nature of access to the web based form of the survey instrument made impossible any monitoring or control of who completed it, and prevented any clarification that might have been beneficial to, or desired by, the respondents. This being the case, it is uncertain that all respondents completely understood the instructions provided. While there was no means for determining as much, it is possible that some respondents responded in a confused and inaccurate manner, thereby distorting the results.

The Life Experiences Scale (LES) required respondents to rate experiences they had experienced during their lifetime on a 7-point Likert scale ranging from –3 to +3. As above, while there is no direct evidence of such, it is possible that the nature of the presentation of this scale, with the headings for the scale only on the first page, may have confused some respondents leading to reversals of their rankings.

Population sample. The population sampled for this research effort included, to the extent that can be ascertained, all students drawn from both Walden University and Washington State University. The Washington State University sample included a mix of undergraduate and graduate students. In contrast, the Walden University sample was comprised entirely of graduate students at both the master's and doctoral level of study. The advanced levels of education of the respondents represents an uncontrolled variable for the research. If nothing more, the positively skewed level of education may limit the generalizability of the findings.

Research Outcomes

Relationship between optimism and hope. The research hypotheses predicted complex relationships between Optimism and Hope. The primary finding of a positive correlation between Optimism and Hope was supportive of previous research and theory as reviewed in chapter 2. The other alternate hypotheses regarding the relationship between these two variables were more speculative in that they had been subjected to little, if any, previous research.

The second of these alternate hypotheses predicted that Optimism and Hope would be more highly correlated in conditions of Low Negative Life Experience as compared to conditions of High Negative Life Experience. The underlying logic for this predicted relationship assumed that increasing levels of experienced adversity would serve to "erode" or otherwise diminish either Optimism or Hope. If this were the case, then a little adversity might not greatly impact the relationship between the two, but more extreme amounts would do so. The results obtained from the analysis of these

relationships, however, were the opposite of that predicted: the correlation between Optimism and Hope was greater under conditions of High Negative than Low Negative.

The finding that Optimism and Hope appear to be more strongly correlated under conditions of higher adversity, though seemingly logically incongruous, is not particularly revealing in and of itself. While the complexities of the relationships between and among Optimism, Hope, and Positive and Negative Life Experience will become somewhat clearer as this discussion progresses, the most that might be concluded from the interaction among these variables at present is that Optimism and Hope appear to be independent of each other with regard to Negative Life Experience. Said differently, while Optimism appears vulnerable to life adversity, Hope appears to be more of a belief—one may choose to hold to hope no matter what the circumstances.

The third alternate hypothesis with regard to Optimism and Hope predicted that the positive correlation between them would be greater under conditions of High Positive Life Experience as compared to Low Positive Life Experience. The logic behind this hypothesis was similar to that of adversity: a little positive experiences would sustain or bolster one's sense of Optimism and Hope, but less so than with more positive experience. While the parametric analysis of these relationships did indicate a slight difference in the predicted direction, the nonparametric analysis produced the opposite result. Given this ambiguity, there is insufficient support for the hypothesis of greater correlation between Optimism and Hope under conditions of High Positive Life Experience.

Similar to the results regarding the relationship with regard to Negative Life Experience, the outcome for Positive Life Experience is perplexing at its face. This result suggests that varying amounts of Positive Life Experience has little or no influence upon the relationship between Optimism and Hope. Perhaps more revealing is the contrast in observed relationships of Optimism and Hope under either Adverse or Positive Life Conditions.

The fact that Optimism and Hope did correlate differently under differing levels of Adversity (albeit counter to prediction) and not under differing levels of Positive Life Experience seems to suggest that the relationship between the two variables is responsive to adversity, but not to positive experience. This apparent dynamic suggests that either Optimism or Hope—or both—are reactive to external life difficulties. Perhaps positive life experience does not provide sufficient "incentive" for changing one's sense of optimism or hope, whereas negative experiences do. The lack of reactivity to positive life experiences suggests that, in the absence of significant adversity, one's optimism and/or hope is dependent upon factors other than "encouragement" from life experience—perhaps the influence of religious beliefs, parental example, or other direct or indirect teachings.

Relationship between optimism and control. The obtained significant, positive correlation between Optimism and Control was not surprising given the plethora of literature suggesting this relationship. Less clear, however, was the possibility of curvilinearity in the relationship between them as predicted by the first alternate hypothesis which anticipated that both extreme low and high levels of Control would

result in less Optimism. The underlying logic for this hypothesized relationship was based on the assumption that both individuals who perceive themselves to have very little control over events in their lives, and those who perceive themselves to be (or "should" be) in complete control over events in their lives, might find themselves less optimistic when life does go awry. If this hypothesized relationship were true, then "optimal" optimism might be best achieved by a moderate sense of personal control over life experiences.

The obtained results of the analysis of the relationship between Optimism and Control did not indicate a curvilinear relationship. As discussed earlier, however, the inherent limitation of range of the scales in question, and/or the tendency toward "clumping" at the extremes of these ranges, both conspired to make problematic the determination of curvilinearity. Nevertheless, the lack of apparent curvilinearity disallowed support for the hypothesis. This outcome suggests that Optimism and Control are linearly related: the more of an Internal Locus of Control one has, the more one tends to be Optimistic, and vice versa. The implications of this apparent linear relationship between Optimism and Control are two: (a) they appear to be strongly associated with each other—where one exists, so does the other; and (b) an increase in one is generally associated with an increase in the other.

The second alternate hypothesis for the relationship between Optimism and Control predicted a curvilinear relationship under conditions of High Negative Life Experience. The logic for this hypothesis was predicated on the assumption that high levels of life adversity would intensify, or engender, variability in personal optimism and

control. Said differently, if one believed that he or she should be in control over almost all personal life events (that luck or chance had virtually nothing to do with anything), and severe life adversity arose anyway, then the tendency would be to blame oneself and, thereby, become less optimistic.

The unstated obverse of this hypothesis intimated that lesser levels of adversity would not result in as much curvilinearity with regard to correlation between Optimism and Control. The underlying reasoning for this differential impact on these variables by high and low life adversity was more speculative, but founded on the suspicion that lesser amounts of adverse live experience may not "test" one's optimism or sense of hope enough to result in an observable impact.

A scatterplot of the analysis of the relationship between Optimism and Control under conditions of High Negative Life Experience was suggestive of slight curvilinearity, thereby somewhat supportive of the hypothesis. This suggestive curvilinearity was in rather stark contrast to the relationship between Optimism and Control in the Low Negative condition which, reflective of the nonsignificant correlation, appeared nearly random in the scatterplot of the relationship.

These analyses of Optimism and Control under differing levels of Adversity suggest that, curvilinear or not, their relationship is more influenced by the High Negative than Low Negative conditions. Further, given the positive nature of this correlation, it appears that, as the amount of adversity in life increases, the correlation between Optimism and Control also increases.

The third of the alternate hypotheses regarding the relationship of Optimism and Control predicted a positive relationship under conditions of High Positive Life Experience. The basis for this hypothesis was the reasonable assumption that positive experiences in life might encourage, or at least not discourage, both an optimistic view of life and the sense that one has some control over how things turn out.

The analyses of the relationship between Optimism and Control under the High Positive condition resulted in nonsignificant correlations. This result was in opposition to the hypothesis and it was, therefore, rejected. This outcome is counterintuitive if positive experiences in life are considered to be the cause for optimism or a sense of personal control. This result appears to suggest that positive life experience has a neutral impact on the relationship between Optimism and Control. Taken in conjunction with the apparent influence of highly negative life experience, the lack of influence of positive experience suggests that adversity may either stimulate marshaling of these resilient resources or, more speculatively, may actually engender their creation. Stated analogously, experience of adversity may serve much as a pathogen, and optimism and a sense of control the resultant antigens. If this view is correct, then too little exposure to adversity might leave one with underdeveloped reactive optimism and sense of personal control. Conversely, and somewhat counterintuitively, high levels of adversity apparently promotes the development of these resilient qualities.

Relationship between optimism and positive and negative life experience. The null hypothesis predicted no relationship between Optimism and either Positive or Negative Life Experience. The correlation obtained between Optimism and Positive Life

Experience was positive and significant, and negative and significant between Optimism and Negative Life Experience. In addition to merely rejecting the null hypothesis, this outcome suggests that Optimism is impacted somewhat equally by either Positive or Negative Life Experience, though in different directions. Stated differently, as Positive Life Experience increased, Optimism increased, and as Negative Life Experience increased, Optimism decreased.

The first alternate hypothesis predicted a negative relationship between Optimism and Positive Life Experience. The assumption behind this hypothesis was that negative experiences in life would likely discourage one's sense of optimism or, at the least, not encourage it. The analyses testing this hypothesis resulted in the significant, negative correlation noted above. This outcome supported the prediction of the alternate hypothesis and, therefore, it was retained. This negative correlation relationship between Optimism and Negative Life Experience is consistent with the easy assumption that negative events in life may erode one's optimism, inhibit its development, or both. Which of these three possibilities may be the most accurate is beyond the scope of the present study.

The second alternate hypothesis predicted a positive relationship between Optimism and Positive Life Experience. As previously stated, the assumption associated with this hypothesis is rather straightforward: positive experiences in life might be expected to encourage or, at least, not discourage the development and sustenance of one's sense of optimism. The analyses previously described determined a significant, positive correlation between Optimism and Positive Life Experience. In opposition to the

relationship with Negative Life Experience, it appears that, as Positive Life Experience increases, so does Optimism. This apparent relationship is also consistent with general clinical wisdom and experience, though clinical focus has traditionally emphasized the negative side of the continuum of life experience.

Hope and control. The null hypothesis predicted no relationship between Hope and Control, and the first alternate hypothesis predicted a positive relationship between them. The analyses produced a significant (though very small), positive correlation thereby rejecting the null hypothesis and supporting the alternate. The predicted positive relationship between Hope and Control was predicated on the assumption that traits associated with resilience tend to be associated. There is some general support for this assumption as was discussed earlier in the literature review. This outcome lends additional support to other research findings regarding the relationship between optimism and hope. Coincidentally, the results also supports the literature that finds the two constructs, at least as measured by their respective instruments, are mostly independent of each other. Though correlational findings prevent conclusion of causality, this result is suggestive that increasing (or decreasing) one may not have much impact on the other.

The second alternate hypothesis for the relationship between Hope and Control predicted a positive relationship that would be greater in the Low Negative condition. The underlying assumption for this hypothesis was that lower levels of life adversity would not be as likely to erode either one's sense of hope or control as would higher levels of life adversity. This predicted relationship, in addition to being intuitive, is consistent with the generally accepted view that life stressors tend to break down one's

resilience over time and repeated exposure. The hypothesis was also highly speculative in that it was established as a "straw man" to test the researcher's idea that the experience of life adversity may actually serve to develop or increase resilient traits—perhaps through an inoculation-like reaction.

The analyses of the relationship between Hope and Control under conditions of Low and High Negative resulted in significant, positive correlations for both Negative conditions. However, comparison of the obtained correlations revealed that the correlation between Hope and Control under the two Negative conditions were opposite of that predicted: higher in the High Negative condition, and lower in the Low Negative Condition. This result is contrary to the intuitive and common assumption, and supportive of the author's speculative view. There are, however, other possible explanations for this observed phenomenon other than the author's. For example, the increased correlation between Hope and Control under High Negative conditions may reflect the "marshalling" of resources when one is faced with large and/or prolonged life stressors.

The third alternate hypothesis regarding Hope and Control predicted that their relationship would be greater in the High Positive condition than in the Low Positive condition. The underlying assumption for this hypothesized relationship was that positive life experiences would encourage, or at least not discourage, either trait, and that the more the better. This assumption is intuitive and generally reflects both common and clinical wisdom. The hypothesis, like the preceding one, was also speculative in that it

provided a "straw man" to test the author's theory regarding the benefit of adverse experience to the development of resilience traits.

As with the previous results regarding Negative Life Experience, the analyses for Hope and Control under differing conditions of Positive Life Experience produced correlations which were contrary to the hypothesized direction. That is, the correlation between Hope and Control was higher under the condition of Low Positive Life Experience and lower under the condition of High Positive Life Experience. This outcome appears to be supportive of the previous finding for Negative Life Experience, and seems to extend it. A graphic representation of the relationships between Optimism and Hope in both the Negative and Positive conditions (Figure 22) makes more clear this interesting set of interactions.

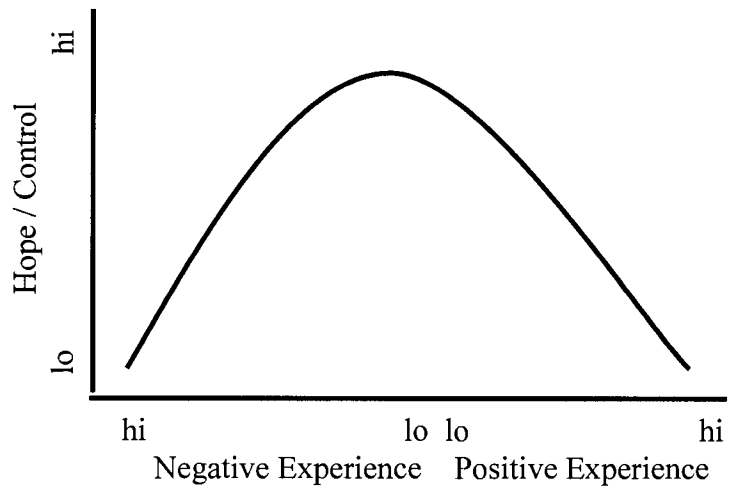

Figure 22. Representation of relationships between hope and control under negative and positive life conditions combined.

These combined analyses indicate that neither high levels of life adversity nor high levels of positive experience influence the relationship between Hope and Control as much as do low levels of both Negative and Positive Life Experience.

Hope and positive and negative life experience. The null hypothesis for the relationship between Hope and both Positive and Negative Life Experience predicted no relationship. The analyses of these relationships yielded a significant, positive correlation between Hope and Positive Life Experience, and a significant, negative correlation between Hope and Negative Life Experience, though both correlations were small. While warranting the rejection of the null hypothesis, these outcomes indicate that Hope is influenced very slightly, and nearly equally as much by, adversity or positive experience. Said differently, neither adverse nor positive experience appear to have much impact upon Hope.

This apparent weakness in the relationship between Hope and Positive or Negative Life Experience is counterintuitive. It would seem logical that hope would be strongly sensitive to negative, if not positive, experience—that high levels of adversity might erode one's hope. Perhaps less obvious but equally reasonable, positive experience might at least encourage hope. These obtained results, however, intimate that a person either has Hope or does not—that life's ups and downs are all but irrelevant.

The first alternate hypothesis predicted a negative relationship between Hope and Negative Life Experience such that low to moderate amounts of adversity relate to increased Hope, but extreme amounts relate to decreased Hope. The assumption underlying this hypothesis is counterintuitive and represented a speculative exploration of

these relationships. More specifically, the hypothesis was designed to test the author's concept that experience of low to moderate amounts of life adversity tends to engender, or at least support, the development of resilient traits such as hope.

The analyses of the relationship between Hope and Negative Life Experience resulted in a significant, positive correlation. More revealing, however, was the graphic depiction of the data which appeared to support the hypothesized relationship: moderate to low levels of Negative Life Experience were more associated with higher levels of Hope. While only suggestive, these results lend support to the concept that low to moderate amounts of experienced life adversity engenders or encourages the development of resilient traits or, at least, their expression.

The final alternate hypothesis predicted a positive relationship between Hope and Positive Life Experience. The assumption underlying this hypothesis is intuitive and predicated on the idea that positive experience should encourage, or at least not discourage, one's hope. As noted earlier, the analyses resulted in a significant, positive correlation which supported this hypothesis. It should be noted that the correlations between Hope and both Positive and Negative Life Experience, though significant and positive, were quite small, further reinforcing the view that neither condition has much impact upon one's sense of hope.

Control and positive and negative life experience. The null hypothesis regarding the relationship between Control and either Positive or Negative Life Experience predicted no relationship. The analyses of these variables resulted in mixed findings for the relationship between Control and Positive Life Experience. That is, the parametric

analysis produced a significant, but small, positive correlation while the nonparametric analysis resulted in a very small, nonsignificant correlation. In the face of these conflicting results, prudence required that the nonsignificant result be accepted and, consequently, the part of the null hypothesis predicting no relationship between Control and Positive Life Experience could not be rejected. This result suggests that there is no appreciable relationship between control and the experience of positive life experiences.

The second part of the null hypothesis predicted no relationship between Control and Negative Life Experience. The analyses associated with this relationship produced a significant, negative correlation which was in opposition to the prediction of no relationship. This finding was in opposition to the part of the null hypothesis predicting no relationship between Control and Negative Life Experience and, therefore, supports the first alternate hypothesis calling for a negative relationship between the two.

The outcomes of the analyses between Control and both Positive and Negative Life Experience suggests that negative experiences exert more influence on one's sense of control than do positive experiences. What this appears to convey is that, in the absence of adversity, a person's sense of control remains constant. It is only when tested by adversity that one's sense of control varies; that the sense of control may flag in the face of adversity. If this is so, then a practical import of this dynamic may be that efforts to bolster or reestablish a person's sense of control may be important when they are experiencing life adversity.

Relative prediction by multiple variables of control. A series of stepwise multiple regression analyses were conducted with the original research variables, and adding the

variables of Age, Gender, and Number of Life Experiences. The first of these analyses explored the relationships between and among these variables, Positive and Negative Life Experience, and Control. In addition to producing correlations among the variables, the stepwise nature of the analysis determined in which order the variables most predicted Control.

The results of this analysis, surprisingly, determined that Age contributed the most prediction to Control, followed by Gender, Negative Life Experience and, finally, Positive Life Experience. The Number of Life Experiences did not contribute significantly to the mix. This result indicates that something about age and gender strongly predicts one's sense of control, the question is: what? Though admittedly speculative, it may simply be that living longer provides one with a more "resilient" perspective of life, such as: What now seems out of control will one day seem in control again.

The possible reasons for the prediction of Gender on Control are even less clear. One highly speculative but plausible possibility comes to mind: that males have a response bias for responding to questions associated with issues of personal control which is different from that of females. Males in the American culture are generally described as being more prone than women to seek and/or assume control in situations of adversity. Men are encouraged and rewarded for this behavior, while women are not.

The second multivariate analysis explored the relationships among Age, Gender, and Positive and Negative Life Experience and Hope. The results of this analysis revealed that Negative Life Experience contributed the most prediction, followed by

Positive Life Experience, then Age and, finally, Gender. Number of Life Experiences did not contribute significant prediction to Hope.

That Positive and Negative Life Experiences contribute to Hope is not surprising given the bivariate analyses described earlier in this chapter. The reasons for Age, and then Gender, making contributions to Hope is much less clear. As for Age, it might be that a similar phenomenon applies to Hope as was previously speculated with regard to Control: living longer leads to a perspective regarding life that allows for ebb and flow, with better times ultimately returning. Gender may also be influenced by the response bias that was posited earlier for Control: men and women may be socially scripted to present themselves differently with regard to hope; to respond in a way they have found to be socially acceptable for their gender.

The final multivariate analysis explored the relationship between and among Age, Gender, and Positive and Negative Life Experience and Optimism. The results determined the order of predictability to be Age, Negative Life Experience, Positive Life Experience, and Number of Life Experiences. Once again, Age exerted a surprisingly large effect and, once again, a speculative but plausible reason may be a life perspective gained through experience over time. Different from the analyses for Control and Hope, Gender did not contribute significant predictability for Optimism. This absence of gender predictability seems to weaken the previously offered speculation of a response bias suggested for both Control and Hope. If men and women tend to have a response bias for control and hope, the same should logically apply to optimism. One possibility for this discrepancy, though none has been noted in the literature, is that the measure for

Optimism—the LOT-R—may be more "gender neutral" than the other measures, thereby weakening the effect of any response bias.

Summary of Discussion

The preceding discussion highlights the clarity, or its lack, regarding the relationships between and among the variables. The points of clarity are several, and relate directly to the research hypotheses. The first of these points is that optimism, hope, and control are significantly correlated. This outcome is not surprising, but adds confirmation to the findings of other, previous research efforts as presented in chapter 2.

Additional clarity was found in the relationships between and among optimism, hope, control and positive and negative life experience. The major revelation for these relationships is that, while optimism and control are straightforwardly correlated with each other, the strength of this correlation varies under differing levels of positive and negative life experience. Specifically, the correlations between optimism and control are high under high negative, low under low negative, low under high positive, and high under low positive. This complex relationship between optimism and control lends support to the concept of moderate levels of life adversity being a *positive* influence on the development of resilience—in this case, the coincidence of optimism and control.

The result of the interplay between hope and control was similar to control and optimism, but different in one interesting way: While there was the same curvilinear relationship across the levels of negative and positive experience, the correlation between hope and control evaporated under the condition of high positive life experience. This

suggests that, compared to negative experience, positive experiences have relatively little influence upon one's perception of control.

Lastly, age and gender provide some predictability for both control and optimism. Both age and gender exhibit relatively strong predictability of control in contrast to optimism where age, and to a much lesser extent number of life experiences, demonstrate stronger predictability.

Recommendations for Further Research

As noted in the preceding summary, the results of this research provided both clarity and uncertainty with regard to the relationships between and among the variables. Much of the uncertainty was related in part to difficulties associated with the measurement instruments themselves which allowed, if not fostered, responses at the extreme ends of their possible score range.

Future research utilizing these instruments might benefit from some form of extension of their ranges such that respondents may more subtly refine their answers. A second consideration for the instruments used in the present research would be to reevaluate the possibility of gender response bias associated with social expectations. If a gender bias was determined, then research findings utilizing these instruments could be accepted with more confidence if this bias were reduced or eliminated.

The population sampled for this research was comprised almost entirely of students currently pursuing advanced degrees, many of these with psychology majors. While this sample is not judged to be abnormal, they cannot be considered typical compared to the general population. Further research regarding the interplay among

optimism, hope, control, and positive and negative life experience would benefit by utilizing other population samples, including both those more reflective of the general population, and also different clinical populations.

Also with regard to the population sampled, the average age was slightly more than 40, with a range between 19 and 73. Further research may benefit from sampling both younger and older populations so as to determine if the findings in the present research generalize across age groups. More specifically, it might be particularly interesting to determine the relationships among these variables for children who are in process of initially formulating their resilient responses to life experiences.

Finally, all the preceding suggests that differing types and amounts of life experience interact in complex ways with the personal characteristics of optimism, hope and perceived locus of control. While this research effort has provided some insights into these relationships, much is left unclear. What is clear is that additional research will be necessary to gain true clarity into the nature of, and interplay among, these elements of resilience.

Practical Relevance of the Research Results

Psychological resilience has implications across a wide range of circumstances and settings. The results of this research can best be considered preliminary in the investigation of the relationships between and among optimism, hope, control, and positive and negative life experience. However, while much is left unclear regarding these variables, the results provide insights that may have application in several fields or endeavors.

Clinical psychology may find the results of this research useful. These results suggest that one's optimism responds linearly to adverse experience, and is strongly correlated to a sense of control. Knowing this, a clinician might be alerted to the likelihood that a client's optimism will likely be eroded during periods of adversity, and that efforts to increase a perception of control may serve to bolster it. Similarly, a client's perception of control may also be of clinical interest. While the results of this research with regard to control are merely suggestive, it seems that there may be a slight curvilinear relationship between adversity and control such that little and much adversity is correlated with low levels of perceived control, and moderate amounts of adversity correlate with higher levels. A clinician might keep these relationships in mind when assessing a client's background, particularly with regard to their experience of adverse life experiences. As for hope, a clinician might assess for a client's beliefs that are supportive of hope, or encourage a client to explore belief systems that promote it.

Education is another discipline where the results of this research might be relevant. Educators might take note of a student's recent or accumulated life adversity, knowing that large amounts will erode a students optimism, in turn impacting their functioning in school. As for control, the educator might wish to seek the middle ground for education-induced stress, knowing that too much or too little may result in a less-than-optimal sense of personal control for the student. And, if a student's hope is part of a belief system as suggested by these results, educators may help their students explore different philosophies which promote and sustain such a belief.

Parents, like educators and clinicians, may benefit from the insights gained by this research. With these results in mind, parents might more carefully consider their childrens' recent or accumulated adverse life experience. High levels may erode their child's resilience, leading to negative impacts on mental health and, ability to learn self-esteem, and other important aspects of the child's functioning.

Finally, these results may have implication for military training and other performance related enterprises which operate in high pressure and/or high adversity environments. Military trainers, sports coaches, performance enhancement psychologists and the like might find application for the insights provided by this research. For example, enhanced understanding the relationship between adversity and one's sense of control could help tailor military training to achieve an optimal level of stress so as to "inoculate" against greater stressors in the future, without overwhelming the soldier in the process. Likewise, hope might be instilled through indoctrination of belief systems which promote it.

The preceding possibilities for practical application of these results are certainly incomplete. If the literature on the subject accurately reflects its importance, psychological resilience has implication for virtually all human endeavors. Also, though it was beyond the scope and outside the focus of this research there is a significant and growing body of literature suggesting a relationship between psychological resilience and various aspects of physical health. This apparent relationship makes understanding what promotes, and erodes, psychological resilience important for both preventive and curative medicine. While the present research offers only a preliminary and incomplete view of

the richly complex interplay between resilience traits and life experience, the glimpse provided is nonetheless intriguing and beckons further exploration.

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Appendix A

Research Instruments

LOT-R

Instructions: Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

A = I agree a lot
B = I agree a little
C = I neither agree nor disagree
D = I *DIS*agree a little
E = I *DIS*agree a lot

In uncertain times, I usually expect the best.

It's easy for me to relax. [Filler item]

If something can go wrong for me, it will.[a]

I'm always optimistic about my future.

I enjoy my friends a lot. [Filler item]

It's important for me to keep busy. [Filler item]

I hardly ever expect things to go my way.[a]

I don't get upset too easily. [Filler item]

I rarely count on good things happening to me.[a]

Overall, I expect more good things to happen to me than bad.

Note: [a] These items are reverse scored.
Items 2, 5, 6, and 8 are fillers. Responses to "scored" items are coded so that high values imply optimism.

HOPE Scale—Trait

Instructions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

1 = Definitely false
2 = Mostly false
3 = Somewhat false
4 = Slightly false
5 = Slightly true
6 = Somewhat true
7 = Mostly true
8 = Definitely true

I can think of many ways to get out of a jam. [Pathways]

I energetically pursue my goals. [Agency]

I feel tired most of the time [Filler item]

There are lots of ways around any problem. [Pathways]

I am easily downed in an argument. [Filler item]

I can think of many ways to get the things in life that most important to me. [Pathways]

I worry about my health [Filler item]

Even when others get discouraged, I know I can find a way to solve the problem. [Pathways]

My past experiences have prepared me well for my future. [Agency]

I've been pretty successful in life. [Agency]

I usually find myself worrying about something. [Filler item]

I meet the goals that I set for myself. [Agency]

Note: When administering the measure, the scale is called The Future Scale. The Agency subscale score may be derived by summing items 2, 9, 10, and 12; The Pathway subscale score may be derived by adding items 1, 4, 6, and 8. The total Hope Scale score is derived by summing the four agency and the four pathway items.

Perceived Locus of Control Scale (I-E)

Instructions: Each item below consists of a pair of alternatives lettered *a* or *b*. Please select the one statement of each pair (*and only one*) which you more strongly *believe* to be the case as far as you are concerned. Be sure to select the one you actually believe to be true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

Please answer these items *carefully* but do not spend too much time on any one item. Be sure to find an answer for *every* pair of alternatives. Circle either the *a* or *b* to indicate which alternative is your choice.

In some cases you may discover that you believe both statements or neither one. In such cases, be sure to select the *one* you more strongly believe to be the case as far as you are concerned. Also, try to respond to each item *independently* when making your choice: do not be influenced by your previous choices.

1. a. Children get into trouble because their parents punish them too much. [Filler item]

   b. The trouble with most children nowadays is that their parents are too easy with them. [Filler item]

2. a. Many of the unhappy things in people's lives are partly due to bad luck.

   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.

   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.

   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.

   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks one cannot be an effective leader.

   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try, some people just don't like you.

   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality. [Filler item]

   b. It is one's experiences in life which determine what they're like. [Filler Item]

9. a. I have often found that what is going to happen will happen.

   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared students there is rarely if ever such a thing as an unfair test.

    b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

    b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have an influence in government decisions.

    b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.

    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good. [Filler item]

    b. There is some good in everybody. [Filler item]

15. a. In my case getting what I want has little or nothing to do with luck.

    b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are victims of forces we can neither understand, nor control.

    b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

    b. There is really no such thing as luck.

19. a. One should always be willing to admit mistakes. [Filler item]

    b. It is usually best to cover up one's mistakes. [Filler item]

20. a. It is hard to know whether or not a person really likes you.

    b. How many friends you have depends upon how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.

    b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

    b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.

    b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do. [Filler item]

    b. A good leader makes it clear to everybody what their jobs are. [Filler item]

25. a. Many times I feel that I have little influence over the things that happen to me.

    b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.

    b. There's not much use in trying too hard to please people, if they like you, they like you.

27. a. There is too much emphasis on athletics in high school. [Filler item]

    b. Team sports are an excellent way to build character. [Filler item]

28. a. What happens to me is my own doing.

    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.

    b. In the long run the people are responsible for bad government on a national as well as on a local level.

Note: Questions 1, 8, 14, 19, 24, and 27 are filler items and not scored. The *external* locus of control answers are: 2-a, 3-b, 4-b, 5-b, 6-a, 7-a, 9-a, 10-b, 11-b, 12-b, 13-b, 15-b, 16-a, 17-a, 18-a, 20-a, 21-a, 22-b, 23-a, 25-a, 26-b, 28-b, 29-a. The *internal* locus of control answers are the opposite letter answer for the same numbered questions. An individual's score is the sum of answers which yield either a cumulative internal or external majority.

Life Experiences Survey (LES)

Instructions: Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment.

For each item checked below, *please indicate the extent to which you viewed the event as having either a positive or negative impact on your life* at the time the event occurred. That is, *indicate the type and extent of impact that the event had by circling the appropriate number.* A rating of –3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact.

1. Marriage	–3	–2	–1	0	+1	+2	+3
2. Detention in jail or comparable institution	–3	–2	–1	0	+1	+2	+3
3. Death of spouse	–3	–2	–1	0	+1	+2	+3
4. Major change in sleeping habits (much more or much less sleep)	–3	–2	–1	0	+1	+2	+3
5. Death of close family member:							
a. mother	–3	–2	–1	0	+1	+2	+3
b. father	–3	–2	–1	0	+1	+2	+3
c. brother	–3	–2	–1	0	+1	+2	+3
d. sister	–3	–2	–1	0	+1	+2	+3
e. grandmother	–3	–2	–1	0	+1	+2	+3
f. other (specify)	–3	–2	–1	0	+1	+2	+3
6. Major change in eating habits (much more or much less food intake)	–3	–2	–1	0	+1	+2	+3
7. Foreclosure on mortgage or loan	–3	–2	–1	0	+1	+2	+3
8. Death of close friend	–3	–2	–1	0	+1	+2	+3
9. Outstanding personal achievement	–3	–2	–1	0	+1	+2	+3
10. Minor law violation (traffic tickets, disturbing the peace, etc.)	–3	–2	–1	0	+1	+2	+3
11. *Male*: Wife/girlfriend's pregnancy	–3	–2	–1	0	+1	+2	+3
12. *Female*: Pregnancy	–3	–2	–1	0	+1	+2	+3
13. Changed work situation (different work responsibility, major change in working conditions, working hours, etc.)	–3	–2	–1	0	+1	+2	+3
14. New job	–3	–2	–1	0	+1	+2	+3

15. Serious illness or injury of close family member:							
a. father	−3	−2	−1	0	+1	+2	+3
b. mother	−3	−2	−1	0	+1	+2	+3
c. sister	−3	−2	−1	0	+1	+2	+3
d. brother	−3	−2	−1	0	+1	+2	+3
e. grandfather	−3	−2	−1	0	+1	+2	+3
f. grandmother	−3	−2	−1	0	+1	+2	+3
g. spouse	−3	−2	−1	0	+1	+2	+3
h. other (specify) _____	−3	−2	−1	0	+1	+2	+3
16. Sexual difficulties	−3	−2	−1	0	+1	+2	+3
17. Trouble with employer (in danger of losing job, being suspended, demoted, etc.)	−3	−2	−1	0	+1	+2	+3
18. Trouble with in-laws	−3	−2	−1	0	+1	+2	+3
19. Major change in financial status (a lot better off or a lot worse off)	−3	−2	−1	0	+1	+2	+3
20. Major change in closeness of family members (increased or decreased closeness)	−3	−2	−1	0	+1	+2	+3
21. Gaining a new family member (through birth, adoption, family member moving in, etc.)	−3	−2	−1	0	+1	+2	+3
22. Change in residence	−3	−2	−1	0	+1	+2	+3
23. Marital separation from mate (due to conflict)	−3	−2	−1	0	+1	+2	+3
24. Major change in church activities (increased or decreased attendance)	−3	−2	−1	0	+1	+2	+3
25. Marital reconciliation with mate	−3	−2	−1	0	+1	+2	+3
26. Major change in number of arguments with spouse (a lot more or a lot less arguments)	−3	−2	−1	0	+1	+2	+3
27. *Married male*: Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.)	−3	−2	−1	0	+1	+2	+3
28. *Married female*: Change in husband's work (loss of job, beginning new job, retirement, etc.)	−3	−2	−1	0	+1	+2	+3

29. Major change in usual type and/or amount of recreation	−3	−2	−1	0	+1	+2	+3
30. Borrowing more than $10,000 (buying home, business, etc.)	−3	−2	−1	0	+1	+2	+3
31. Borrowing less than $10,000 (buying car, TV, getting school loan, etc.)	−3	−2	−1	0	+1	+2	+3
32. Being fired from job	−3	−2	−1	0	+1	+2	+3
33. *Male*: Wife/girlfriend having abortion	−3	−2	−1	0	+1	+2	+3
34. *Female*: Having abortion	−3	−2	−1	0	+1	+2	+3
35. Major personal illness or injury	−3	−2	−1	0	+1	+2	+3
36. Major change in social activities, e.g., parties movies, visiting (increased or decreased participation)	−3	−2	−1	0	+1	+2	+3
37. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc.)	−3	−2	−1	0	+1	+2	+3
38. Divorce	−3	−2	−1	0	+1	+2	+3
39. Serious injury or illness of close friend	−3	−2	−1	0	+1	+2	+3
40. Retirement from work	−3	−2	−1	0	+1	+2	+3
41. Son or daughter leaving home (due to marriage, college, etc.)	−3	−2	−1	0	+1	+2	+3
42. Ending of formal schooling	−3	−2	−1	0	+1	+2	+3
43. Separation from spouse (due to work, travel, etc.)	−3	−2	−1	0	+1	+2	+3
44. Engagement	−3	−2	−1	0	+1	+2	+3
45. Breaking up with boyfriend/girlfriend	−3	−2	−1	0	+1	+2	+3
46. Leaving home for the first time	−3	−2	−1	0	+1	+2	+3
47. Reconciliation with boyfriend/girlfriend	−3	−2	−1	0	+1	+2	+3
Other recent experiences which have had an impact on your life. List and rate.							
48. _____	−3	−2	−1	0	+1	+2	+3
49. _____	−3	−2	−1	0	+1	+2	+3
50. _____	−3	−2	−1	0	+1	+2	+3

Section 2: Student Only

51. Beginning a new school experience at a higher academic level (college, graduate school, professional school, etc.)	−3	−2	−1	0	+1	+2	+3
52. Changing to a new school at same academic level (undergraduate, graduate, etc.)	−3	−2	−1	0	+1	+2	+3
53. Academic probation	−3	−2	−1	0	+1	+2	+3
54. Being dismissed from dormitory or other residence	−3	−2	−1	0	+1	+2	+3
55. Failing an important exam	−3	−2	−1	0	+1	+2	+3
56. Changing a major	−3	−2	−1	0	+1	+2	+3
57. Failing a course	−3	−2	−1	0	+1	+2	+3
58. Dropping a course	−3	−2	−1	0	+1	+2	+3
59. Joining a fraternity/sorority	−3	−2	−1	0	+1	+2	+3
60. Financial problems concerning school (in danger of not having sufficient money to continue)	−3	−2	−1	0	+1	+2	+3

Note: The LES score is determined by adding the positive and negative totals *separately*. Each time period may be calculated independently or collapsed into a cumulative, lifespan total. In addition, a count of total *number* of different experiences may be determined which may provide insight into the range of life stressors experienced irrespective of perceived positive or negative weights.

Appendix B

Research Consent Form and Survey

Life Experiences and Perspectives Consent Form

You are invited to participate in a research study of life experiences and perspectives. *You* were selected as a possible participant because you are an adult college student. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Michael Hand, a doctoral candidate at Walden University.

Background Information:

The purpose of this study is: An exploration of positive and negative life events, and their relationship to attitudes and beliefs about self and life in general.

Procedures:

If you agree to be in this study, we would ask you to do the following things. Answer the few questions regarding your gender, age, and school affiliation, and then complete a series of four questionnaires Completion of the entire questionnaire will take approximately 15 to 20 minutes.

Risks and Benefits of Being in the Study:

The study possesses the following risks: There are no risks associated with participating in this study.

The benefits to participation are: There are no benefits for participating in this study.

Compensation:

You will receive payment: Depending upon how you were recruited for participation, you may, or may not, receive class credit or other incentives for participating in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report that might be published, I will not include any information that will make it possible to identify a

participant. Research records will be kept in a locked file; only the researcher(s) will have access to the records.

Voluntary Nature of the Study:

Your decision whether or not to participate will not affect your current or future relations with any other institution or organization. If you decide to participate, you are free to withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is: Michael Hand. The researcher's adviser is Dr. Augustine Baron. *You* may ask any questions you have now. If you have questions later, you may contact the researcher by email at: mhand@waldenu.edu; and his advisor at: abaron@waldenu.edu.

If you so request, you will be provided a copy of this form to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and received answers. I consent to participate in the study.

Printed Name of Participant: _____

Signature:_____Date:_____

Life Experiences and Perspectives Survey

Gender: M F (circle one)

Age: _____

Instructions: Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

1 = I *DIS*agree a lot
2 = I *DIS*agree a little
3 = I neither agree nor disagree
4 = I agree a little
5 = I agree a lot

____ In uncertain times, I usually expect the best.

____ It's easy for me to relax.

____ If something can go wrong for me, it will.

____ I'm always optimistic about my future.

____ I enjoy my friends a lot.

____ It's important for me to keep busy.

____ I hardly ever expect things to go my way.

____ I don't get upset too easily.

____ I rarely count on good things happening to me.

____ Overall, I expect more good things to happen to me than bad.

Instructions: Read each item carefully. Using the scale shown below, please select the number that best describes YOU and put that number in the blank provided.

1 = Definitely false
2 = Mostly false
3 = Somewhat false
4 = Slightly false
5 = Slightly true
6 = Somewhat true
7 = Mostly true
8 = Definitely true

_____ I can think of many ways to get out of a jam.

_____ I energetically pursue my goals.

_____ I feel tired most of the time.

_____ There are lots of ways around any problem.

_____ I am easily downed in an argument.

_____ I can think of many ways to get the things in life that most important to me.

_____ I worry about my health.

_____ Even when others get discouraged, I know I can find a way to solve the problem.

_____ My past experiences have prepared me well for my future.

_____ I've been pretty successful in life.

_____ I usually find myself worrying about something.

_____ I meet the goals that I set for myself.

Instructions: Each item below consists of a pair of alternatives lettered *a* or *b*. Please select the one statement of each pair (*and only one*) which you more strongly *believe* to be the case as far as you are concerned. Be sure to select the one you actually believe to be true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

Please answer these items *carefully* but do not spend too much time on any one item. Be sure to find an answer for *every* pair of alternatives. **Circle either the *a* or *b* to indicate which alternative is your choice.**

In some cases you may discover that you believe both statements or neither one. In such cases, be sure to select the *one* you more strongly believe to be the case as far as you are concerned. Also, try to respond to each item *independently* when making your choice: do not be influenced by your previous choices.

1. a. Children get into trouble because their parents punish them too much.

   b. The trouble with most children nowadays is that their parents are too easy with them.

2. a. Many of the unhappy things in people's lives are partly due to bad luck.

   b. People's misfortunes result from the mistakes they make.

3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.

   b. There will always be wars, no matter how hard people try to prevent them.

4. a. In the long run people get the respect they deserve in this world.

   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. a. The idea that teachers are unfair to students is nonsense.

   b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. a. Without the right breaks one cannot be an effective leader.

   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. a. No matter how hard you try, some people just don't like you.

   b. People who can't get others to like them don't understand how to get along with others.

8. a. Heredity plays the major role in determining one's personality.

   b. It is one's experiences in life which determine what they're like.

9. a. I have often found that what is going to happen will happen.

   b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. a. In the case of the well prepared students there is rarely if ever such a thing as an unfair test.

    b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

    b. Getting a good job depends mainly on being in the right place at the right time.

12. a. The average citizen can have an influence in government decisions.

    b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. a. When I make plans, I am almost certain that I can make them work.

    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. a. There are certain people who are just no good.

    b. There is some good in everybody.

15. a. In my case getting what I want has little or nothing to do with luck.

    b. Many times we might just as well decide what to do by flipping a coin.

16. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

    b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

17. a. As far as world affairs are concerned, most of us are victims of forces we can neither understand, nor control.

    b. By taking an active part in political and social affairs the people can control world events.

18. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

    b. There is really no such thing as luck.

19. a. One should always be willing to admit mistakes.

    b. It is usually best to cover up one's mistakes.

20. a. It is hard to know whether or not a person really likes you.

    b. How many friends you have depends upon how nice a person you are.

21. a. In the long run the bad things that happen to us are balanced by the good ones.

    b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. a. With enough effort we can wipe out political corruption.

    b. It is difficult for people to have much control over the things politicians do in office.

23. a. Sometimes I can't understand how teachers arrive at the grades they give.

    b. There is a direct connection between how hard I study and the grades I get.

24. a. A good leader expects people to decide for themselves what they should do.

    b. A good leader makes it clear to everybody what their jobs are.

25. a. Many times I feel that I have little influence over the things that happen to me.

    b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. a. People are lonely because they don't try to be friendly.

    b. There's not much use in trying too hard to please people, if they like you, they like you.

27. a. There is too much emphasis on athletics in high school.

    b. Team sports are an excellent way to build character.

28. a. What happens to me is my own doing.

    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. a. Most of the time I can't understand why politicians behave the way they do.

    b. In the long run the people are responsible for bad government on a national as well as on a local level.

Instructions: Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment.

For each item checked below, *please indicate the extent to which you viewed the event as having either a positive or negative impact on your life* at the time the event occurred. That is, *indicate the type and extent of impact that the event had by circling the appropriate number.* A rating of –3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact. **For those events you have NOT experienced, please mark N/A.**

1. Marriage	–3	–2	–1	0	+1	+2	+3	N/A
2. Detention in jail or comparable institution	–3	–2	–1	0	+1	+2	+3	N/A
3. Death of spouse	–3	–2	–1	0	+1	+2	+3	N/A
4. Major change in sleeping habits (much more or much less sleep)	–3	–2	–1	0	+1	+2	+3	N/A
5. Death of close family member:								
g. mother	–3	–2	–1	0	+1	+2	+3	N/A
h. father	–3	–2	–1	0	+1	+2	+3	N/A
i. brother	–3	–2	–1	0	+1	+2	+3	N/A
j. sister	–3	–2	–1	0	+1	+2	+3	N/A
k. grandmother	–3	–2	–1	0	+1	+2	+3	N/A
l. other (specify)	–3	–2	–1	0	+1	+2	+3	N/A
6. Major change in eating habits (much more or much less food intake)	–3	–2	–1	0	+1	+2	+3	N/A
7. Foreclosure on mortgage or loan	–3	–2	–1	0	+1	+2	+3	N/A
8. Death of close friend	–3	–2	–1	0	+1	+2	+3	N/A
9. Outstanding personal achievement	–3	–2	–1	0	+1	+2	+3	N/A
10. Minor law violation (traffic tickets, disturbing the peace, etc.)	–3	–2	–1	0	+1	+2	+3	N/A
11. *Male*: Wife/girlfriend's pregnancy	–3	–2	–1	0	+1	+2	+3	N/A
12. *Female*: Pregnancy	–3	–2	–1	0	+1	+2	+3	N/A
13. Changed work situation (different work responsibility, major change in working conditions, working hours, etc.)	–3	–2	–1	0	+1	+2	+3	N/A
14. New job	–3	–2	–1	0	+1	+2	+3	N/A

15. Serious illness or injury of close family member:
    i. father ..... −3 −2 −1 0 +1 +2 +3 N/A
    j. mother ..... −3 −2 −1 0 +1 +2 +3 N/A
    k. sister ..... −3 −2 −1 0 +1 +2 +3 N/A
    l. brother ..... −3 −2 −1 0 +1 +2 +3 N/A
    m. grandfather ..... −3 −2 −1 0 +1 +2 +3 N/A
    n. grandmother ..... −3 −2 −1 0 +1 +2 +3 N/A
    o. spouse ..... −3 −2 −1 0 +1 +2 +3 N/A
    p. other (specify) _____ ..... −3 −2 −1 0 +1 +2 +3 N/A
16. Sexual difficulties ..... −3 −2 −1 0 +1 +2 +3 N/A
17. Trouble with employer (in danger of losing job, being suspended, demoted, etc.) ..... −3 −2 −1 0 +1 +2 +3 N/A
18. Trouble with in-laws ..... −3 −2 −1 0 +1 +2 +3 N/A
19. Major change in financial status (a lot better off or a lot worse off) ..... −3 −2 −1 0 +1 +2 +3 N/A
20. Major change in closeness of family members (increased or decreased closeness) ..... −3 −2 −1 0 +1 +2 +3 N/A

21. Gaining a new family member (through birth, adoption, family member moving in, etc.) ..... −3 −2 −1 0 +1 +2 +3 N/A
22. Change in residence ..... −3 −2 −1 0 +1 +2 +3 N/A
23. Marital separation from mate (due to conflict) ..... −3 −2 −1 0 +1 +2 +3 N/A
24. Major change in church activities (increased or decreased attendance) ..... −3 −2 −1 0 +1 +2 +3 N/A
25. Marital reconciliation with mate ..... −3 −2 −1 0 +1 +2 +3 N/A
26. Major change in number of arguments with spouse (a lot more or a lot less arguments) ..... −3 −2 −1 0 +1 +2 +3 N/A
27. *Married male*: Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.) ..... −3 −2 −1 0 +1 +2 +3 N/A
28. *Married female*: Change in husband's work (loss of job, beginning new job, retirement, etc.) ..... −3 −2 −1 0 +1 +2 +3 N/A

29. Major change in usual type and/or amount of recreation	−3	−2	−1	0	+1	+2	+3	N/A
30. Borrowing more than $10,000 (buying home, business, etc.)	−3	−2	−1	0	+1	+2	+3	N/A
31. Borrowing less than $10,000 (buying car, TV, getting school loan, etc.)	−3	−2	−1	0	+1	+2	+3	N/A
32. Being fired from job	−3	−2	−1	0	+1	+2	+3	N/A
33. *Male*: Wife/girlfriend having abortion	−3	−2	−1	0	+1	+2	+3	N/A
34. *Female*: Having abortion	−3	−2	−1	0	+1	+2	+3	N/A
35. Major personal illness or injury	−3	−2	−1	0	+1	+2	+3	N/A
36. Major change in social activities, e.g., parties movies, visiting (increased or decreased participation)	−3	−2	−1	0	+1	+2	+3	N/A
37. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc.)	−3	−2	−1	0	+1	+2	+3	N/A
38. Divorce	−3	−2	−1	0	+1	+2	+3	N/A
39. Serious injury or illness of close friend	−3	−2	−1	0	+1	+2	+3	N/A
40. Retirement from work	−3	−2	−1	0	+1	+2	+3	N/A
41. Son or daughter leaving home (due to marriage, college, etc.)	−3	−2	−1	0	+1	+2	+3	N/A
42. Ending of formal schooling	−3	−2	−1	0	+1	+2	+3	N/A
43. Separation from spouse (due to work, travel, etc.)	−3	−2	−1	0	+1	+2	+3	N/A
44. Engagement	−3	−2	−1	0	+1	+2	+3	N/A
45. Breaking up with boyfriend/ girlfriend	−3	−2	−1	0	+1	+2	+3	N/A
46. Leaving home for the first time	−3	−2	−1	0	+1	+2	+3	N/A
47. Reconciliation with boyfriend/ Girlfriend	−3	−2	−1	0	+1	+2	+3	N/A
Other recent experiences which have had an impact on your life. List and rate.								
48. _____	−3	−2	−1	0	+1	+2	+3	N/A
49. _____	−3	−2	−1	0	+1	+2	+3	N/A
50. _____	−3	−2	−1	0	+1	+2	+3	N/A

Section 2: Student Only

51. Beginning a new school experience at a higher academic level (college, graduate school, professional school, etc.)	–3	–2	–1	0	+1	+2	+3	N/A
52. Changing to a new school at same academic level (undergraduate, graduate, etc.)	–3	–2	–1	0	+1	+2	+3	N/A
53. Academic probation	–3	–2	–1	0	+1	+2	+3	N/A
54. Being dismissed from dormitory or other residence	–3	–2	–1	0	+1	+2	+3	N/A
55. Failing an important exam	–3	–2	–1	0	+1	+2	+3	N/A
56. Changing a major	–3	–2	–1	0	+1	+2	+3	N/A
57. Failing a course	–3	–2	–1	0	+1	+2	+3	N/A
58. Dropping a course	–3	–2	–1	0	+1	+2	+3	N/A
59. Joining a fraternity/sorority	–3	–2	–1	0	+1	+2	+3	N/A
60. Financial problems concerning school (in danger of not having sufficient money to continue)	–3	–2	–1	0	+1	+2	+3	N/A

Curriculum Vita

EDUCATION

Ph.D. in Counseling Psychology. New Mexico State University, Las Cruces, New Mexico, 1982.

M.A. in Psychology. University of Texas at El Paso, El Paso, Texas, 1974.

B.A. in Psychology. University of Texas at El Paso, El Paso, Texas, 1972.

PUBLICATIONS

Post-trauma Stress Among Vietnam Veterans. Doctoral Dissertation, 1982.

The Effects of Transactional Analysis Group Psychotherapy Upon State and Trait Anxiety and Perceived Locus of Control. Masters Thesis, 1974.

WORK HISTORY:

2002-2003 Psychological Intern at Washington State University. Provided psychotherapy and psychological testing for students at the university's Counseling Services. Also provided Medical Psychology assessment and treatment at Pullman Memorial Hospital which serves both the student and non-student population of Pullman, Washington and surrounding communities.

2000–2002 Psychologist and Regional Program Manager for Long Term Care Services, Texas Department of Human Services. Responsible for all programmatic operations of Medical Eligibility, Community Care Services, and Community Based Alternatives services for the six county region of far west Texas. Directly supervise supervisory staff, insure compliance with federal, state, and regional policy and standards. Insure and maintain quality client service, and best management of staff and other resources. Provide liaison with federal, state, county, city and community organizations. Conduct psychological assessments for nursing home residents with diagnoses of mental illness, mental retardation, and/or developmental delays to determine appropriateness of placement and the need for supportive programs and services.

1994-2000 Psychologist for the Texas Department of Human Services. Conducting Preadmission and Annual Resident Review (PASARR) evaluations of nursing home residents with cognitive deficiencies or mental illnesses to

insure proper placement and supportive services. Also serving as Supervisor for both Long Term Care Services caseworkers and an Intake Screening Unit. The primary function of the caseworkers and screeners is to assess and authorize Title IX and Title XX in-home support services to aged and disabled clients within a six-county region of west Texas. Am a member of the Region's Extended Management Team, Serve as both Budget Coordinator and Training Coordinator for the Long Term Care Services program and am a Liaison to the El Paso Adult Protective Services Program.

1993-1994 I left private practice as a psychologist to give myself a year to write. Over the intervening period, I decided not to return to practice in favor of seeking out new opportunities and challenges. I created a new company, InfoSearch International, which provides information investigation and research services for attorneys and businesses.

1987-1993 Seven years as a psychologist in a private practice serving a wide range of patients including: alcohol and drug abuse; post-trauma stress; acute anxiety and depression; family conflicts; mental deficiency, the chronically mentally ill, etc. Patients included adult, adolescent and child, both inpatient and outpatient.

1984-1987 Director for Continuity of Care Services for Life Management Center. Responsibilities included: management and supervision of both Mental Health and Mental Retardation Case Management teams (budgeting, hiring and firing, program design and development); determining the flow of clients (both MH and MR) throughout the Life Management, El Paso State Center for Human Development (both MH and MR), R.E. Thomason Hospital's psychiatric ward, and the state hospital at Big Spring, with the idea of maximizing services/quality and controlling costs.

1984-1984 Psychologist at the El Paso State Center for Human Development. Responsible for clinical evaluation and treatment of higher functioning mentally retarded clients. Major responsibilities included: supervision of all treatment staff in their use of behavior modification techniques and the use of any restraint necessary for aggressive client control; provision of regular evaluations of client functioning and progress; management of the budget associated with my department; and working with the consulting physicians to provide more tailored medical and psychological treatment.

1982-1984 Resident Psychologist for the El Paso Neuro-Psychiatric Clinic. Provided intensive diagnostic and psychotherapeutic services to clinic patients. Major responsibilities included: managing the daily operations of the clinic; providing a wide range of psychological testing to patients both as

outpatients and inpatients; and providing workshops on such subjects as stress management, self-esteem and alcohol/drug issues.

1977-1982 Director of Planning for the West Texas Health Systems Agency. Assisted in all aspects of plan development, plan implementation, data analysis, public relations, and Agency organization and management. Served for awhile as Acting Executive Director. Major responsibilities included direction and supervision of all phases of health planning activities of the Agency; working with the public, federal/state/local agencies, task-forces, and the Agency's Governing Body in accomplishment of the Agency's functions; supervision of Agency staff in their activities relating to plan development.

1975-1977 Director of Alcohol/Drug Abuse Programs for the West Texas Council of Governments (now Rio Grande Council of Governments). Directed and coordinated all aspects of alcohol/drug abuse planning and development for a six-county region of West Texas. Major responsibilities included: alcohol/drug abuse programs funding development; agency and public education and training; design of effective therapeutic interventive processes; liaison with federal, state and local governmental structures in the pursuit of solutions to alcohol/drug abuse problems; and development and management of the Program budget.

1972-1975 Civilian psychotherapist for William Beaumont Army Medical Center's alcohol/drug program. Served as consultant to commanders as well as therapist for active duty personnel and their families. Major responsibilities included: the creation and implementation of prevention and therapeutic programs within the commands served; coordinating efforts of the hospital, mental hygiene services, and the Halfway House in their identification and treatment of alcohol and other drug abusers; conducting preventive education programs for the commanders and their commands; training psychiatric interns at William Beaumont Army Medical Center and Counseling Interns from U.T. El Paso in therapeutic technique effective in alcohol/drug abuse treatment.

ACADEMIC ACTIVITIES:

- Member, Psi Chi National Honor Society
- Reviewer for Psi Chi Midwestern Regional research competition, November, 2000.

TEACHING EXPERIENCE:

Part-time, Adjunct Professor, Webster University,1982 thru 1984.

COMMUNITY ACTIVITIES:

- Member, Strategic Planning Committee on Aging
- Past President, El Paso Psychological Association
- Past President, El Paso Mental Health Association
- Past Chairman, El Paso Comprehensive Alcoholism Program Advisory Council
- Past President, El Paso Area Transactional Analysis Society