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The Integration and Evaluation of Humor and Positive Psychology Approaches to Well-Being

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Graduate Program in Psychology

A thesis submitted in partial fulfillment of the requirements for the degree in Master of Science

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THE INTEGRATION AND EVALUATION OF HUMOR AND POSITIVE PSYCHOLOGY APPROACHES TO WELL-BEING

(Thesis format: Monograph)

by

Nadia Maiolino

Graduate Program in Psychology

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science

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Abstract

The research domains of humor and positive psychology promote strategies that can enhance well-being. However, these lines of investigation have proceeded in relative isolation. Therefore, this thesis considered how positive psychology constructs, namely, gratitude and savoring, share features with the humor styles. Study 1 mapped out the inter-relationships among these strategies, as differentially used by individuals. Findings indicated that these strategies share meaningful relationships, and that humor and positive psychology have unique roles within the context of well-being. The humor styles also moderated relationships gratitude shared with well-being. Study 2 extended this work by manipulating use of positive psychology and humor strategies. Results indicated that the humor, gratitude, and savoring exercises promoted adaptive change in negative appraisals compared to the control exercise, and pre-exercise state determined the type of benefit derived from the exercise. Furthermore, high trait levels of affiliative humor, gratitude, and savoring bolstered the effectiveness of the exercise.

Keywords: humor, positive psychology, well-being, gratitude, savoring, humor exercises, positive psychology exercises
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The Integration and Evaluation of Humor and Positive Psychology Approaches to Well-Being

Chapter 1: General Introduction

Positive psychology encompasses virtually everything ‘positive’, or that which confers advantages for individuals’ physical, mental, or psychological well-being (Seligman & Csikszentmihalyi, 2000). Thus, despite the fact that positive psychology has carved out its own niche, asserting itself as a discipline or movement, this broad definition would also apply to research in many other fields of psychological study. For instance, another growing area of research has been the scientific study of humor, which has identified both adaptive and maladaptive ways in which humor can be used (Martin, 2007). Surprisingly, very few attempts have been made to integrate contemporary work on humor into a positive psychology framework (Edwards & Martin, in press; Kuiper, 2012), to determine how humor can be understood from a positive psychology perspective, and consider how it fits with constructs being promoted within the field of positive psychology.

The current thesis aimed to integrate promising research being conducted within the domains of humor and positive psychology, in order to clarify how strategies espoused by these respective domains may be similar or different. These efforts will help to place humor on a more solid footing within the field of positive psychology, to ensure that the protective and therapeutic benefits of humor, as well as its potentially detrimental effects, will not go unnoticed. This integration will also be important for elucidating whether traits and techniques associated with a particular domain are far superior, or whether each has something important to offer the field of mental health. Furthermore, this research will help to identify the constructs that show the most promise in terms of...
their implications for psychological well-being. As such, two studies were conducted in this thesis to address the following general research questions:

1. How are dispositional constructs belonging to the humor and positive psychology domains conceptually and empirically related?
2. What relationships exist between these dispositional constructs and well-being?
3. Do dispositional constructs from the humor and positive psychology domains interact in meaningful ways?
4. How do humor and positive psychology exercises impact psychological well-being?
5. How important are individual differences in determining the effectiveness of humor and positive psychology exercises?

The two studies in this thesis that address these questions will be introduced by first considering a brief history of the psychological study of positive attributes or capacities, before turning to the contemporary research being conducted within the individual domains of positive psychology and humor. The preliminary links between these two domains of research will then be considered, before describing the current thesis studies.

**Brief History of Research on Positive Attributes of an Individual**

Scholars have long been interested in attributes or characteristics of individuals that confer benefits for psychological well-being. Philosophers as early as Plato, Aristotle, and Socrates theorized about virtues, goals, and processes that contribute to a well-lived life. Within the study of psychology, noteworthy figures have also considered personal factors that help give rise to positive experiences for individuals. For instance, humanistic psychologists such as Carl Rogers and Abraham Maslow demonstrated curiosity about
the conditions under which people thrive, and how personal growth can be fostered.

Roger’s client-centered therapy was predicated on the assumption that individuals have an inherent ability to better themselves (Rogers, 1961), and Maslow described the ‘self-actualized’ state, in which an individual’s strengths and talents are wholly accessible (Maslow, 1962).

More contemporary research in many different domains of psychology has similarly investigated how traits and consistent ways of interacting with the world influence well-being. For instance, Albert Bandura (1989) championed the notion of ‘self-efficacy’ to describe a person’s beliefs regarding their capabilities, and since then research has documented important ties between self-efficacy and well-being. For instance, greater self-efficacy has been associated with enhanced coping under stress and higher levels of subjective well-being, whereas low self-efficacy has been linked with greater anxious and depressive symptomatology (Faure & Loxton, 2003; Kashdan & Roberts, 2004; Shnek, Irvine, Stewart, & Abbey, 2001). Relatedly, Suzanne Kobosa’s (1979) concept of hardiness nominated certain personality dispositions as important for the conditioning of life stress. She argued that individuals who display greater commitment to and personal control over life’s endeavors, and those who are more likely to conceptualize life tasks as a challenge rather than a threat, are more greatly protected from stress (Kobasa, 1979; Kobasa, Maddi, & Kahn, 1982). Decades of research has since supported the relationship hardiness has with stress and well-being (see Eschleman, Bowling, & Alarcon, 2010).

Moreover, motivation researchers have also displayed an interest in positive attributes of individuals. For instance, using causal path modeling, it has been convincingly demonstrated that setting goals that are in accordance with one’s values and
beliefs leads to enhanced well-being and better adjusted individuals (Sheldon & Elliott, 1999; Sheldon & Houser-Marko, 2001). As a final example, the work of researchers studying giftedness, talent, and expanded definitions of intelligence (e.g., Gardner, 1983; Salovey, Stroud, Woolery, & Epel, 2002; Sternberg, 1985; Winner, 2000) would also qualify as attempts to identify characteristics that well serve, and lead to the betterment of, individuals.

Despite this long-standing history of examining positive characteristics of individuals, traditional work within the mental health field has predominantly considered what is detrimental for well-being. Following the atrocities of World War II, increased service demands resulted in the prioritization of research that focused on the understanding and healing of mental illness (Seligman & Csikszentmihalyi, 2000). As a result, great advances in the study of psychopathology and maladjustment have been made. As one demonstration, the 1998 annual report of the American Psychological Association (APA) documented that at least 14 mental disorders that had previously been understood as untreatable could now be cured or improved substantially (Fowler, Seligman, & Koocher, 1999). However, despite the many rewards of this work, an emphasis on innate vulnerabilities and negative circumstances diverted attention from the study of positive capacities and strengths. Prior to the early 21st century, a comparative dearth of research considered what contributes to living a fulfilling life and that which allows an individual to thrive under life circumstances. Currently, several different research domains model an approach to mental health that emphasizes beneficial effects of individual characteristics, traits or personality styles. These include the positive psychology movement and the scientific study of humor.
Introduction to Positive Psychology

The positive psychology movement grew out of a desire to address the imbalanced state of affairs with respect to how mental health was being viewed prior to the 21st century. Positive psychology has been defined as the scientific study of positive emotions, positive experiences and character strengths, as well as the situational factors that foster the development of all of the above (Duckworth, Steen, & Seligman, 2005; Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005). When operating from a positive psychology framework, mental health is conceptualized as not only the absence of mental illness, but also the existence of certain characteristics that allow individuals to flourish and lead enriching lives (Seligman & Csikszentmihalyi, 2000).

Since the institution and mobilization of the positive psychology movement in the late 20th to early 21st century, a large body of research has accumulated examining how individual difference characteristics have important consequences for enhancing and maintaining overall well-being. For instance, Peterson and Seligman (2004) identified 24 ‘character strengths’, which they theorized were ubiquitous aspects of personality that confer advantages for well-being and allow individuals to thrive. Examples include gratitude, humor, creativity, kindness and open-mindedness. The 24 character strengths were categorized under six broader ‘virtues’: wisdom, courage, humanity, justice, temperance, and transcendence. The Values in Action Inventory of Strengths (VIA-IS; Peterson & Seligman, 2004) was developed to assess the presence of these proposed character strengths.

Gratitude

Gratitude has become one of the most frequently cited and researched constructs within the positive psychology domain. The large amount of attention gratitude has
received in the literature has sparked some debate with respect to how gratitude should be defined. There exist two primary perspectives on gratitude. Firstly, some scholars have maintained that gratitude is an emotion experienced upon receiving valuable aid, and therefore must be directed toward a specific person (McCullough, Kilpatrick, Emmons, & Larson, 2001; Wood, Maltby, Stewart, Linley, & Joseph, 2008). However, others have noted that when you query individuals about gratitude, oftentimes they will note experiences in which a clear benefactor cannot be identified (e.g., Emmons & McCullough, 2003; Graham & Baker, 1990; Veisson, 1999). For instance, when responding to the question of what one was grateful for, a participant once wrote, “I am grateful for this beautiful day” (Emmons & McCullough, 2003).

Gratitude has also been conceptualized at a dispositional level. Identified early on as a character strength (Peterson & Seligman, 2004), gratitude has been described as the capacity to notice and be thankful for the positive events in one’s life (Peterson & Seligman, 2004; Seligman et al., 2005). However, researchers since then have gone further to conceptualize gratitude in a more general sense, positing that grateful individuals are inclined to perceive and appreciate the positive in the world. In this way, gratitude has been defined as a positive life orientation (Wood, Froh, & Geraghty, 2010), which can be thought of as an analogous counterpoint to Beck’s (1967) proposition of the negative cognitive triad among depressed individuals (i.e., that they have negative appraisals of themselves, the world, and the future).

In terms of the relationship gratitude has with well-being, research has considered the association gratitude, from a trait or dispositional perspective, has with psychopathology, improved emotional functioning and enhanced well-being. For instance, there is ample evidence to suggest that individuals with higher levels of trait
gratitude are less likely to be depressed or report depressive symptomatology (Fredrickson, Tugade, Waugh, & Larkin, 2003; Kendler et al., 2003; McCullough, Tsang, & Emmons, 2004; Wood, Maltby, Gillett, Linley, & Joseph, 2008). Gratitude has also been negatively associated with negative affect (e.g., Emmons & McCullough, 2003; Froh, Yurkewicz, & Kashdan, 2009; Sheldon & Lyubomirsky, 2006), as well as generalized anxiety, phobic, bulimic, and substance use disorders (Kendler et al., 2003). In terms of gratitude’s relationship with positive indicators of well-being, researchers have reported positive associations with self-esteem (Bernstein & Simmons, 1974; Kashdan et al., 2006), life satisfaction (e.g., Emmons & McCullough, 2003; Lambert et al., 2009; Wood, Joseph, & Maltby, 2009), positive affect (e.g., Froh et al., 2009; McCullough et al., 2004), environmental mastery (Wood et al., 2009), and personal growth (Wood et al., 2009), to name a few.

Savoring

Compared to gratitude, savoring is an understudied construct within the field of positive psychology, and has only been of more recent interest to researchers in this domain. Savoring describes a process of positive emotion regulation, in that the pleasure and satisfaction that individuals derive from positive events are thought to depend on the extent to which individuals ‘savor’ that experience. Specifically, Bryant and Veroff (2007) have said that to savor is “to attend to, appreciate, and enhance the positive experience…”, and in this way describes a process of elongating or augmenting a pleasurable experience.

The question that is then raised is how an individual can savor or ‘make the most’ of a positive experience. Bryant and Veroff (2007) have proposed a number of cognitive and behavioral strategies that individuals can engage in to promote savoring. They have
specifically referred to ten dimensions of savoring, which include: (i) sharing with others (i.e., telling others about the event), (ii) memory building (i.e., focusing on the sensory characteristics of events, such as scents), (iii) self-congratulation (i.e., positive self-talk), (iv) comparing (i.e., comparing the experience to instances where an individual was less fortunate), (v) sensory-perceptual sharpening (i.e., being alert and attuned to one’s environment), (vi) absorption (i.e., focusing on the present), (vii) behavioral expression (i.e., engaging in emotionally congruent behaviors, such as laughter), (viii) temporal awareness (i.e., reminding oneself of the time-limited nature of the experience), and (xi) counting blessings (i.e., gratitude).

The tenth dimension of kill-joy thinking (i.e., focusing on how the experience is unsatisfactory) relates to what have been coined ‘dampening’ responses to positive experiences. Whereas savoring involves the amplification of positive emotional reactions, dampening behaviors suppress or stifle positive emotions in response to a positive event. Bryant and Veroff (2007) have proposed that savoring, as an emotional regulatory process, is comprised of these two dimensions in which positive emotions are either enhanced (amplifying savoring) or suppressed (dampening savoring). As such, amplifying and dampening responses are not understood as separate processes, but rather as distinct forms of savoring as a positive emotional regulatory process. This is analogous to how coping behaviors can either assuage (e.g., problem-focused strategies) or worsen (e.g., rumination) negative emotional states, but they are coping behaviors nonetheless (Bryant, Chadwick, & Kluwe, 2011; Jose, Lim, & Bryant, 2012; Keefe, Brown, Wallston, & Caldwell, 1989). Research has since been borne to support the distinction between amplifying and dampening savoring. For instance, factor analytic work has indicated that amplifying and dampening tendencies load on separate factors (Jose et al., 2012).
Scholars have proposed that the extent to which individuals engage in amplifying and dampening savoring strategies reflects stable individual differences in how people respond to positive events (Bryant, 1989; Bryant & Veroff, 2007). Empirical research has demonstrated positive associations between an orientation toward amplifying savoring and well-being. For instance, a greater propensity to savor positive experiences has been linked to improved subjective well-being among children, adolescents, young adults, and the elderly (Bryant, 1989; Meehan, Durlak, & Bryant, 1993). Amplifying savoring has also been positively associated with greater optimism, an internal locus of control, and life satisfaction, and negatively associated with hopelessness and depression (Bryant, 2003). On the other hand, the tendency to engage in dampening responses has been negatively correlated with trait positive affectivity, life satisfaction, and subjective well-being (Gross & John, 2003).

**Humor**

The scientific, psychological study of humor has become a rapidly growing area of study, having many wide-ranging implications for mental health and well-being. Humor is a complex, multidimensional construct associated with cognitive, emotional and social phenomena (Martin, 2007). It is a universal human experience that brings enjoyment and allows individuals to consider situations from a playful, non-serious perspective. Scholars have also noted that humor most often takes place within a social context (Martin & Kuiper, 1999; Provine & Fischer, 1989).

Martin (2007) asserted that two necessary cognitive aspects of humor are: 1) incongruence, whereby an event/situation/person is interpreted as incongruous, unexpected or surprising; and 2) diminishment, in that the target is also perceived as being less important or consequential compared to initial judgments. Such processing of
stimuli is thought to lead to the emotional experience of ‘mirth’, which is associated with the behavioral expressions of smiling and laughter (Martin, 2007). It is theorized that humor is consequential for well-being because it can enhance one’s ability to cope under stress (Kuiper, Martin, & Olinger, 1993; Martin, 2004), induce positive emotions (Martin, 2007), and enhance and foster the development of social relationships (Martin, 2004, 2007).

Humor was included as one of the 24 aforementioned character strengths proposed by Peterson and Seligman (2004), subsumed under the virtue of ‘transcendence’. However, humor as it has traditionally been defined within the realm of positive psychology has been met with controversy and inconsistencies (Edwards, 2013; Edwards & Martin, in press; Kuiper, 2012). Peterson and Seligman (2004) defined a humorous person as “one who is skilled at laughing and gentle teasing, at bringing smiles to the faces of others, at seeing the lighter side, and at making (not necessarily telling) jokes” (p. 530). Both Edwards (2013) and Kuiper (2012) formulated a number of important criticisms of Peterson and Seligman’s conceptualization and approach to studying humor. Firstly, it appears that the Humor subscale of the VIA-IS was developed without giving due consideration to the existing body of literature on humor and mental health. For instance, maladaptive uses of humor do not seem to be accounted for, whereas the current, dominant perspectives in the field of humor are that harmful aspects of humor are equally important to take into consideration when discussing humor’s relationship with well-being (e.g., Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003). Furthermore, Edwards also noted that the phrasing of some items on the VIA-IS are concerning, and appear to tap more aggressive uses of humor (e.g., “Whenever my friends are in a gloomy
mood, I try to tease them out of it”). In this way, positive and negative forms of humor may be further obscured by the VIA-IS.

**The Humor Styles**

As alluded to, a groundbreaking moment in the study of humor was the realization that humor is not a singular or unitary construct. For instance, Martin and colleagues (2003) have demonstrated the existence of four humor styles. *Affiliative humor* refers to the exchange of jokes and witty comments that serve to foster social relationships. *Self-enhancing humor* describes humor that is used to maintain an optimistic perspective on life, and facilitates coping in the face of stress or adversity. *Aggressive humor* is characterized by teasing and sarcasm that occurs at the expense of others. *Self-defeating humor* is somewhat the opposite, in which one uses humor to excessively self-deprecate or put oneself down in order to amuse others. Specifically, it is proposed that self-enhancing and affiliative humor represent two positive or adaptive uses of humor, whereas self-defeating and aggressive humor constitute two negative or maladaptive humor styles.

A large number of studies have since demonstrated that these characteristic ways of using humor are associated with different cognitive, emotional, and social phenomena, with predominantly positive well-being being correlated with the adaptive humor styles, and negative outcomes being associated with the maladaptive humor styles (e.g., Dozois, Martin, & Bieling, 2009; Erickson & Feldstein, 2007; Martin et al., 2003; Kuiper & McHale, 2009; Saroglou, Lacour, & Demeure, 2010). For instance, previous research has documented positive associations between the affiliative and self-enhancing humor styles and cheerfulness, optimism, self-esteem, and adaptive coping strategies. These adaptive humor styles have also been negatively associated with depression, anxiety, and the
presence of maladaptive schemas. Conversely, more pessimistic patterns of findings have been documented for aggressive and self-defeating humor. For example, aggressive humor has been negatively associated with marital relationship satisfaction and has been positively associated with divorce. Furthermore, self-defeating humor, in particular, appears to have ties with various indices of well-being. For instance, it has been positively associated with depression, anxiety, and the presence of maladaptive schemas, and negatively associated with self-esteem, intimacy and social support. Taken together, the current state of the research indicates that there exist strong and stable relationships between the humor styles and various aspects of psychological well-being.

**Existing Research Comparisons between Gratitude, Savoring, and Humor**

A small number of studies have considered how humor or related constructs compare with gratitude. Firstly, Algoe and Haidt (2009) showed brief videos intended to evoke admiration, elevation, gratitude, or joy/amusement in participants. Compared to participants in the three other conditions, those who viewed the joy/amusement video clip (i.e., the ‘humor’ condition) reported more physical sensations such as blushing and increased heart rate. Furthermore, these individuals were more likely to endorse self-focused goals following the video, whereas those who watched the three other videos (including the gratitude condition) were more likely to endorse prosocial motivations.

Secondly, in a comprehensive dissertation project that evaluated how humor can be best conceptualized as a character strength, Edwards (2013) asked participants to complete self-report questionnaires assessing gratitude (VIA-IS Gratitude scale; Peterson & Seligman, 2004), the humor styles (the Humor Styles Questionnaire; Martin et al., 2003), and positive psychology outcomes (e.g., positive mood, satisfaction with life). First, it was found that the adaptive humor styles and self-defeating humor were most
robustly associated with emotional well-being and the ability to cope under stress.

Secondly, and perhaps most important, the results of hierarchical regression analyses revealed that the humor styles often predicted well-being outcomes above and beyond the contribution of gratitude. These findings highlight the appropriateness of considering humor as a positive psychology construct, and point to the importance of disentangling where humor fits with constructs promoted within the field of positive psychology. However, although these findings are very informative, no research has yet compared humor or gratitude with savoring, and how these constructs may be differentially associated with phenomena such as outcomes for well-being. Furthermore, no known investigation has examined how humor and positive psychology constructs potentially interact to influence relationships with well-being.

The Current Thesis

In light of the paucity of research that has considered how contemporary theory and research within the humor domain fits with work in the positive psychology domain, the current thesis aims to theoretically and empirically connect these two areas of study. This will be accomplished by two studies that serve complementary purposes. Firstly, it is important to be aware of how strategies belonging to the different domains are related and perhaps even work in conjunction with one another to produce outcomes for well-being. As such, Study 1 will investigate the conceptual and empirical relationships between dispositional or trait measures of constructs within both domains, namely, gratitude, savoring, and the humor styles. This initial investigation will also examine how these dispositional constructs are differentially associated with traditional outcome measures in the literature (e.g., depression, anxiety, subjective happiness) and consider how humor and positive psychology constructs may interact in meaningful ways. In turn, Study 2 will
serve to manipulate the use of positive psychology and humor exercises, in order to extend conclusions beyond individual differences, to determine whether engaging in strategies that promote the use of gratitude, savoring, and the humor styles is advantageous. Specifically, this investigation aimed to uncover how these exercises are associated with traditional measures of well-being, as well as examine how these exercises operate within a constellation of individual differences.
Chapter 2: Understanding Relationships between the Humor and Positive Psychology Domains (Study 1)

This chapter presents the findings of the correlational study that was conducted to address the first three major objectives of this thesis project. Recall that the first objective was to examine the empirical and conceptual relationships between dispositional constructs from the humor and positive psychology research domains, namely, the humor styles, gratitude and savoring. The second objective was to examine how individual differences in the humor styles, gratitude and savoring differentially predict well-being, and determine whether humor adds to the prediction of psychological well-being beyond the contribution of positive psychology constructs. Lastly, the third objective of this thesis was to examine how dispositional constructs from the humor and positive psychology domains might influence one another in determining the relationships they have with well-being.

Exploring Relationships between Dispositional Constructs from the Humor and Positive Psychology Domains

As alluded to in Chapter 1, it was hypothesized that there would be a number of meaningful relationships between the dispositional constructs from the humor and positive psychology domains. This first research objective was examined by calculating and interpreting the correlation coefficients associated with relationships between each of the four humor styles, and gratitude and savoring. It was expected that these strategies would be correlated with one another in meaningful patterns, due to specified conceptual similarities or differences. For instance, as discussed in the General Introduction, gratitude has been conceptualized as noticing and valuing positive aspects of life, and self-enhancing humor is characterized by the ability to use humor to adopt a more
positive outlook. It was therefore predicted that positive strategies would ‘go together’, in the sense that these constructs likely tap broader, underlying positive or negative life orientations. Specifically, it was anticipated that the adaptive humor styles of affiliative and self-enhancing humor would correlate positively with gratitude and savoring, and that the maladaptive humor styles of aggressive and self-defeating humor would correlate negatively with the positive psychology constructs. This hypothesis was also guided by what is known about the typical relationships these constructs appear to share with well-being. That is, the adaptive humor styles, gratitude and savoring have been associated with positive well-being outcomes, whereas the maladaptive humor styles and dampening savoring have been associated with negative indicators of well-being (e.g., Gross & John, 2003; Martin, 2003; Wood, Maltby, Gillett, et al., 2008). This point is elaborated further in the following section.

**Comparing the Ability of Dispositional Constructs to Predict Well-Being**

To explore the second objective of Study 1, hierarchical regression analyses utilizing a block design were employed to determine whether the dispositional constructs included in the present study predicted well-being. In this approach, the positive psychology constructs of gratitude and savoring were entered as the first block of predictors, and the four humor styles were entered as the second block, in order to determine whether these humor styles could account for additional predictive variance in well-being, above and beyond that predicted by the positive psychology constructs. In this study, the assessment of well-being focused on constructs that have been commonly used within the positive psychology, humor and mental health research domains. As such, this representative set included measures of happiness and life satisfaction, which are often used within the field of positive psychology, as well as measures of positive and negative
affect, depression, anxiety, and stress, which are commonly employed when conducting both humor and mental health research.

As touched upon previously, the humor styles, gratitude and savoring were expected to have certain, positive or negative relationships with the constructs of well-being represented in this study, given the current state of the research literature. Moving beyond hypotheses regarding the simple direction of relationships, it is anticipated that constructs from both the humor and positive psychology domains would play an important role in well-being, and that neither would be completely subsumed under the other. As indicated in the General Introduction, this was expected in light of the different, hypothesized functions of the various constructs. For instance, recall that amplifying savoring is the process of elongating a positive experience, which appears to be important for the positive emotions evoked by a positive event (e.g., Jose et al., 2012). It is therefore anticipated that amplifying savoring would be associated with positive well-being outcomes (e.g., positive affect, happiness), in particular. Conversely, although less is known about the process of dampening savoring and the mechanisms through which it may impact well-being, one might expect that it would account for more unique variance pertaining to negative indicators of well-being. This is in light of the processes associated with this construct (e.g., “kill joy” thinking), which intuitively seem as though they would contribute to negative emotional states (e.g., depression). This hypothesis was also supported by a recent study reporting that negative emotionality predicted dampening savoring among young adolescents (Gentzler, Ramsey, Yuen Yi, Palmer, & Morey, 2014). Lastly, the adaptive humor styles, self-defeating humor, and gratitude all appear to share robust relationships with well-being; it was therefore expected that these constructs,
in particular, would be important for predicting various positive and negative well-being outcomes.

Furthermore, the hypothesis that the humor styles would add to the prediction of well-being, beyond what was accounted for by the positive psychology constructs, was supported by findings reported by Edwards (2013). As previously touched upon in the General Introduction, Edwards (2013) similarly explored how humor compared to gratitude in predicting well-being. Research analyzed using a block regression design indicated that the humor styles significantly added to the prediction of almost every well-being outcome measure included in her study.

**Humor Styles as Moderators of the Relationship between Positive Psychology Constructs and Well-Being**

With respect to the third objective of Study 1, the aim was to explore other possible ways that the dispositional constructs examined in this first study may relate to well-being. Specifically, of interest was how constructs from the humor and positive psychology domains may combine in different ways to become associated with well-being. For instance, perhaps an individual cannot derive some of the positive benefits of gratitude if he or she has low levels of the adaptive humor styles. To examine this possibility, moderator analyses were conducted, and simple slopes were calculated to inform the exact nature of any emerging interaction effects.

This line of investigation was inspired by contemporary research being conducted in the fields of humor, positive psychology, personality, and psychopathology. Specifically, there has been growing interest in exploring how traits may interact with one another, as research has indicated that this can reveal something important about how these traits may operate to produce behavioral and psychological outcomes (e.g., Kryski
et al., 2013). Furthermore, within the humor domain, there is a fair degree of evidence to support the proposal that humor can serve as an important moderator of relationships, including relationships with well-being (e.g., Olson, Hugelshofer, Kwon, & Reff, 2005). As just one illustration of this pattern, Olson and colleagues (2005) examined whether humor could serve as a buffer against rumination, in order to reduce the resultant dysphoria experienced by individuals. Findings indicated a significant interaction effect between the adaptive humor styles and rumination, in that individuals with high levels of affiliative or self-enhancing humor experienced less dysphoria at high levels of rumination, compared to those with low levels of the adaptive humor styles.

In light of such findings, it may be the case that the humor styles can also serve to moderate relationships between the positive psychology constructs and well-being. In the current study, the decision was made to explore this possibility by focusing on gratitude as the independent variable, as it is the most well-established construct within the field of positive psychology. This decision was also based on conceptual viewpoints of gratitude, which have posited that one’s grateful disposition taps into a broader positive orientation to life (Wood et al., 2010). Specifically, it was predicted that individuals high on gratitude would have the highest levels of well-being when they were also high on the adaptive humor styles, and low on the maladaptive humor styles.

Hypotheses

To review and consolidate the set of hypotheses for the current study, firstly, it was predicted that the positive psychology constructs of gratitude and savoring would positively correlate with the adaptive humor styles, affiliative and self-enhancing humor, and negatively correlate with the maladaptive humor styles, self-defeating and aggressive humor. Dampening savoring was expected to exhibit converse relationships with the
humor styles. Secondly, it was hypothesized that individual differences in the humor styles, gratitude and savoring would predict various aspects of well-being, when considered together, and neither constructs belonging to the positive psychology or humor domains would dominate. Rather, it was anticipated that constructs from both fields of study would have a unique role to play. Finally, it was expected that, in some cases, major constructs from the humor and positive psychology domains may interact with one another, such that a construct’s relationship with well-being is dependent on levels of another construct. Specifically, it was predicted that high levels of the adaptive humor styles and low levels of the maladaptive humor styles would be required to derive benefits associated with high levels of gratitude. It was not expected, however, that the humor styles would moderate all of the relationships between gratitude and well-being.

Method

Participants

Ethics approval was obtained prior to data collection (see Appendix A). Participants were students enrolled in an introductory psychology course at the University of Western Ontario. A total of 268 students completed the study; however, one case was excluded from analyses due to the substantial proportion of missing data. Thus, the final sample was comprised of 267 students (212 females, 54 males, and 1 unidentified), who ranged in age from 16 to 43 ($M = 18.35$, $SD = 1.98$).

Measures

Humor Styles Questionnaire (HSQ; Martin et al., 2003). The HSQ consists of 32 items, with four subscales comprised of eight items each. Participants endorse their agreement with items using a 7-point Likert scale ranging from 1(totally disagree) to 7(totally agree). Each subscale measures the extent to which a person typically engages in
one of the four proposed humor styles, namely, affiliative humor (e.g., *I laugh and joke a lot with my closest friends*), self-enhancing humor (e.g., *If I’m feeling depressed, I can usually cheer myself up with humor*), aggressive humor (e.g., *If someone makes a mistake, I will often tease them about it*), and self-defeating humor (e.g., *I let people laugh at me or make fun at my expense more than I should*).

Substantial support for the use of the HSQ exists within the research literature. The four subscales have demonstrated adequate internal consistency, as evidenced by Cronbach’s alphas ranging from .77 for the aggressive humor scale to .81 for the self-enhancing humor scale (Martin et al., 2003). Furthermore, factor analytic work and relatively low intercorrelations between the subscales have indicated that these measures represent humor styles that are relatively distinct from one another (Martin et al., 2003). The HSQ has also demonstrated adequate construct validity; for instance, peer ratings of sense of humor have positively correlated with HSQ scores, with correlations ranging from $r = .22$ for the affiliative humor scale and $r = .33$ for the self-enhancing humor scale (Martin et al., 2003). Finally, expected relationships between the humor subscales and constructs indicative of well-being have also been uncovered. For example, Martin and colleagues (2003) found that affiliative and self-enhancing humor negatively correlated with depression and anxiety, and positively correlated with self-esteem. Self-defeating humor also correlated with these measures, but in the expected opposite direction. Furthermore, both the aggressive and self-defeating humor styles were associated with hostility toward others.

**Gratitude Questionnaire-6** (GQ-6; McCullough, Emmons, & Tsang, 2002). The GQ-6 is comprised of 6 items rated on a 7-point scale ranging from 1(*strongly disagree*) to 7(*strongly agree*). This scale was administered to participants in order to obtain a trait
measure of gratitude. This scale has been used widely for this purpose in past research (see Wood et al., 2010). Specifically, the GQ-6 assesses individual differences in the frequency and intensity of grateful affect (e.g., *I have so much in life to be thankful for*). This unifactorial measure of gratitude exhibits adequate internal consistency (Cronbach’s alpha = .82) and discriminant validity with respect to various related constructs, such as optimism, hope, vitality, subjective happiness, and satisfaction with life (McCullough et al., 2002). Furthermore, it has been demonstrated that the GQ-6 correlates with measures of well-being in the expected manner (McCullough et al., 2002). Specifically, it has been shown that moderate to strong positive correlations exist amongst gratitude and positive indicators of well-being (e.g., life satisfaction, subjective happiness, positive affect), and converse relationships have been demonstrated between gratitude and adverse psychological symptoms (e.g., negative affect, anxiety, and depression).

**Ways of Savoring Scale** (WOSC; Bryant & Veroff, 2007). A subset of the WOSC was employed to obtain a dispositional measure of savoring. The 24-item WOSC was designed to examine the extent to which individuals engaged in various cognitive-behavioral strategies in response to some recent positive event. This scale is comprised of ten subscales that reflect the ten proposed dimensions of savoring: (i) Sharing with Others (e.g., *I thought about sharing the memory of this later with other people*), (ii) Memory Building (e.g., *I tried to take in every sensory property of the event (sights, sounds, smells, etc.*)), (iii) Self-Congratulation (e.g., *I reminded myself how long I had waited for this to happen*), (iv) Comparing (e.g., *I thought back to events that led up to this – to a time when I didn’t have it and wanted it*), (v) Sensory-Perceptual Sharpening (e.g., *I opened my eyes wide and took a deep breath – tried to become more alert*), (vi) Absorption (e.g., *I thought only about the present – got absorbed in the moment*), (vii) Behavioral Expression (e.g., *I laughed or
(viii) Temporal Awareness (e.g., *I reminded myself that nothing lasts forever so I must enjoy this now*), (ix) Counting Blessings (e.g., *I said a prayer of thanks for my good fortune*), and (x) Kill-Joy Thinking (e.g., *I thought about ways in which it could have been better*). Respondents are asked to indicate the extent to which statements apply to their last experience of a positive event using a 7-point scale, ranging from 1(*definitely doesn’t apply*) to 7(*definitely applies*).

In terms of its psychometric properties, the ten WOSC subscales demonstrate questionable to reasonable internal consistency, with Cronbach’s alphas ranging from .57 for the Counting Blessings subscale to .84 for the Temporal Awareness subscale (as cited in Lindberg, 2005). Overall, 7 of the 10 subscales are associated with Cronbach’s alphas equal to or above .70. In light of these properties, the decision was made to replicate the approach of existing studies using the WOSC. In particular, the selection of items for use in the present study was based on a factor analysis conducted by Jose et al. (2012), which revealed the presence of two factors corresponding with participants’ tendencies to savor (the ‘amplifying savoring’ factor; α = .80) or to actively avoid the savoring of positive events (the ‘dampening savoring’ factor; α = .90). These researchers used these two factors to obtain a trait measure of savoring. Due to questionnaire length constraints associated with the present study, the three items that loaded most strongly on the two identified factors provided a measure of savoring. These six items came from the Comparing (1), Sharing with Others (2), Temporal Awareness (1), Counting Blessings (1), and Kill-Joy Thinking (1) subscales. Two separate scores for amplifying savoring and dampening savoring were obtained, with higher scores representing greater amplifying and dampening savoring, respectively.

**Positive and Negative Affect Schedule** (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS is composed of 20 items and yields two separate scores for positive and
negative affect experienced over a given time period. Using a 5-point scale, participants are asked to indicate the frequency with which they experience a variety of emotions, from 1 (very slightly or not at all) to 5 (extremely). Examples of the positive items included in this scale are “interested”, “strong” and “enthusiastic”. Negative items include “distressed”, “upset”, and “guilty”. In the present study, participants were asked to rate items based on their experience over the past week. The PANAS is a well-validated, commonly used measure of positive and negative affect. High reliability has been demonstrated (Watson et al., 1988), as well as good convergent validity with respect to other questionnaires that measure pleasant and unpleasant moods (e.g., Kuiper, Martin, & Dance, 1992).

**Depression, Anxiety, and Stress Scales-21** (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is comprised of three subscales assessing depressive, anxious, or stressful symptomology. This self-report, dimensional measure of psychopathology is composed of 21 items in which respondents are asked to rate their agreement with statements using a 4-point scale, from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time). In the present study, participants were instructed to judge statements based on their experience of depressive (e.g., I couldn't seem to experience any positive feeling at all), anxious (e.g., I was aware of dryness of my mouth), and stressful (e.g., I found it hard to wind down) symptoms over the previous week. The DASS-21 has demonstrated good internal consistency, with Cronbach’s alphas ranging from .87 for anxiety to .94 for depression (Antony, Bieling, Cox, Enns, & Swinson, 1998). Acceptable concurrent validity has also been documented (Antony et al., 1998), such that the subscales correlate highly with related measures. For instance, the depression and anxiety subscales of the DASS-21 have correlated highly with other measures of depression (e.g., Beck Depression Inventory; Beck,
Rush, Shaw, & Emery, 1979), and anxiety (e.g., Beck Anxiety Inventory; Beck, Epstein, Brown, & Steer, 1988), respectively.

**Subjective Happiness Scale** (SHS; Lyubomirsky & Lepper, 1999). The SHS is a four-item scale that examines individuals’ subjective judgments of their global happiness. Participants are presented with a 7-point scale to indicate their response. Items prompt participants to make an absolute judgment concerning their happiness and to judge their happiness relative to their peers. There are also items that provide respondents with a description of what characterizes happy people and unhappy people, with participants then asked to assess how well this applies to them (e.g., *Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?*). Scores on each item are combined to yield a total happiness score, with higher scores representing increased levels of happiness. This scale has been used widely, and within the field of positive psychology, in particular. It has been shown to have good to excellent internal consistency, with internal reliability estimates ranging from .79 to .94 (Lyubomirsky & Lepper, 1999). This measure has also demonstrated adequate test-retest reliability, as well as good convergent validity with other questionnaires measuring happiness (Lyubomirsky & Lepper, 1999).

**Satisfaction with Life Scale** (SWL; Diener, Emmons, Larsen, & Griffin, 1985). Another measure commonly employed within the domain of positive psychology, the SWL examines individuals’ cognitive judgments regarding global life satisfaction. Respondents are asked to rate their agreement with four statements using a 7-point scale, from 1 (*strongly disagree*) to 7 (*strongly agree*). Sample items include, “*In most ways, my life is close to ideal*” and “*I am satisfied with life*”. Participants’ total scores range from 5 to 35, with a score above 20 thought to indicate adequate satisfaction with one’s life. Excellent internal
consistency has been demonstrated, with reliability estimates ranging from .86 to .90. With respect to convergent validity, moderate to strong correlations have been documented between the SWL and other measures of well-being (Diener et al., 1985).

See Table 2.1 for a summary of the measures used in the present study.

**Procedure**

Once participants viewed the description of the study on the Psychology Department’s online participation pool and then signed up for the study, they were randomly directed to one of four versions of a questionnaire hosted on the Survey Monkey website. Four versions of the questionnaire were created to help control for any possible ordering effects (i.e., a complete reverse ordering of scales; orderings which had scales positioned in the middle of one survey version being then placed at the beginning and end of other versions, and so on). Regardless of the survey participants were directed to, they were all presented with a Letter of Information and then gave their informed consent to participation before proceeding. Finally, when participants reached the end of the survey, they were presented with a debriefing form. Copies of these ethics forms are provided in Appendix B.

Missing data were replaced by substituting the average of a participant’s scores for a given scale, or where possible, a specific subscale. To provide context concerning the proportion of missing data, there were 34 instances of replaced data relative to the 25,098 total data entries (0.14%).

**Results**

The means, standard deviations, ranges, and reliabilities (Cronbach’s alpha) for the humor, positive psychology, and well-being measures are presented in Table 2.2. Inspection of this table reveals that these values for the humor, positive psychology and well-being measures were comparable to those reported in previous research. Reliability coefficients
Table 2.1  

*Summary Table of Measures for Study 1*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Subscales</th>
<th>Brief Description of Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gratitude Questionnaire-6 (GQ-6)</td>
<td>None</td>
<td>Examines gratitude as a unidimensional construct, as individual differences in the experience (i.e., frequency, intensity, and density) of grateful affect</td>
</tr>
<tr>
<td>Ways of Savoring Checklist (WOSC; 6 items)</td>
<td>6 items included correspond with the following subscales: Sharing with Others, Comparing, Temporal Awareness, Kill-Joy Thinking, Counting Blessings</td>
<td>Assesses the extent to which individuals engage in specific cognitive-behavioral activities following a positive event which serve to elongate the positive experience</td>
</tr>
<tr>
<td>Humor Styles Questionnaire (HSQ)</td>
<td>Affiliative, Self-Enhancing, Aggressive, Self-Defeating</td>
<td>Examines individuals’ self-perceptions of their humor use</td>
</tr>
<tr>
<td>Positive and Negative Affect Schedule (PANAS)</td>
<td>Positive, Negative</td>
<td>Assesses the frequency of individuals’ positive and negative affect over the previous week</td>
</tr>
<tr>
<td>Depression, Anxiety and Stress Scales (DASS-21)</td>
<td>Depression, Anxiety, Stress</td>
<td>Examines participants’ experiences of depression, anxiety and stress over the previous week</td>
</tr>
<tr>
<td>Subjective Happiness Scale (SHS)</td>
<td>None</td>
<td>Examines individuals’ judgments concerning their global subjective happiness, including both individuals’ absolute ratings and ratings relative to peers</td>
</tr>
<tr>
<td>Satisfaction with Life Scale (SWL)</td>
<td>None</td>
<td>Assesses individuals’ overall satisfaction with life</td>
</tr>
</tbody>
</table>
Table 2.2

*Descriptive Statistics for the Humor, Positive Psychology, and Well-Being Measures*

<table>
<thead>
<tr>
<th>Category</th>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humor</td>
<td>HSQ Affiliative</td>
<td>43.91</td>
<td>7.11</td>
<td>22-56</td>
<td>.83</td>
</tr>
<tr>
<td></td>
<td>HSQ Self-Enhancing</td>
<td>34.34</td>
<td>7.05</td>
<td>13-52</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>HSQ Aggressive</td>
<td>28.64</td>
<td>7.80</td>
<td>9-53</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>HSQ Self-Defeating</td>
<td>28.82</td>
<td>8.79</td>
<td>10-60</td>
<td>.83</td>
</tr>
<tr>
<td>Gratitude</td>
<td>GQ-6</td>
<td>34.40</td>
<td>5.57</td>
<td>9-42</td>
<td>.83</td>
</tr>
<tr>
<td>Savoring</td>
<td>WOSC Amplifying</td>
<td>15.05</td>
<td>3.49</td>
<td>3-21</td>
<td>.75</td>
</tr>
<tr>
<td></td>
<td>WOSC Dampening</td>
<td>10.74</td>
<td>3.67</td>
<td>3-21</td>
<td>.70</td>
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<tr>
<td>Affect</td>
<td>PANAS Positive</td>
<td>30.77</td>
<td>7.15</td>
<td>11-49</td>
<td>.87</td>
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<tr>
<td></td>
<td>PANAS Negative</td>
<td>23.04</td>
<td>7.69</td>
<td>10-49</td>
<td>.87</td>
</tr>
<tr>
<td>Negative</td>
<td>DASS Depression</td>
<td>12.30</td>
<td>4.28</td>
<td>7-26</td>
<td>.86</td>
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<tr>
<td>Symptomatology</td>
<td>DASS Anxiety</td>
<td>12.27</td>
<td>4.01</td>
<td>7-26</td>
<td>.79</td>
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<tr>
<td></td>
<td>DASS Stress</td>
<td>14.45</td>
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<td>7-28</td>
<td>.82</td>
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<tr>
<td>Happiness</td>
<td>SHS</td>
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<td>4.97</td>
<td>4-28</td>
<td>.89</td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>SWL</td>
<td>24.23</td>
<td>6.25</td>
<td>5-35</td>
<td>.89</td>
</tr>
</tbody>
</table>

*Note.* N = 267 for all measures. HSQ = Humor Styles Questionnaire, GQ-6 = Gratitude Questionnaire-6, WOSC = Ways of Savoring Checklist, PANAS = Positive and Negative Affect Schedule, DASS = Depression, Anxiety and Stress Scales-21, SHS = Subjective Happiness Scale, SWL = Satisfaction with Life Scale.
were all quite acceptable for this set of measures, with Cronbach’s alphas ranging from .70 to .89.

The simple correlations amongst the positive psychology constructs are presented in Table 2.3. These correlated in the expected manner, with gratitude being more closely (positively) associated with amplifying savoring than (negatively) associated with dampening savoring, $Williams’ T_2 = 4.48, p < .001$. Amplifying savoring did not significantly correlate with dampening savoring, $r^2 = -.09, p = .15$, consistent with theories conceptualizing these as distinct processes.

The simple correlations between the four humor styles are presented in Table 2.4. These are consistent with what has been reported in past research, with the strongest correlation existing between affiliative and self-enhancing humor scales, and all other correlations reflecting weak or negligible relationships between the remaining subscales. This pattern indicates the four humor subscales are measuring distinct styles of humor.

Table 2.5 presents the simple correlations between the well-being measures included in the present study and the humor styles and positive psychology constructs. The relationships between the humor styles and well-being measures are consistent with what is typically found in the existing literature. Specifically, self-enhancing humor was moderately to strongly correlated with all of the negative and positive indicators of well-being, and in the expected manner (i.e., positively associated with positive well-being measures and vice versa). Similarly, affiliative humor was weakly to moderately correlated with the majority of well-being indicators, with positive relationships existing between affiliative humor and the positive measures, and negative relationships being had with the negative well-being indicators. Converse relationships existed between self-defeating humor and well-being, in which self-defeating humor was weakly to moderately
Table 2.3

*Correlations between the Positive Psychology Measures: Gratitude, Amplifying and Dampening Savoring*

<table>
<thead>
<tr>
<th></th>
<th>Amplifying Savoring</th>
<th>Dampening Savoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gratitude</td>
<td>.49**</td>
<td>-.16**</td>
</tr>
<tr>
<td>Amplifying Savoring</td>
<td></td>
<td>-.09</td>
</tr>
</tbody>
</table>

**p < .01

Table 2.4

*Correlations between the Humor Styles Subscales: Affiliative, Self-Enhancing, Aggressive, and Self-Defeating Humor*

<table>
<thead>
<tr>
<th></th>
<th>Self-Enhancing</th>
<th>Aggressive</th>
<th>Self-Defeating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affiliative</td>
<td>.38**</td>
<td>.08</td>
<td>.07</td>
</tr>
<tr>
<td>Self-Enhancing</td>
<td></td>
<td>.02</td>
<td>.12</td>
</tr>
<tr>
<td>Aggressive</td>
<td></td>
<td></td>
<td>.16*</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01
Table 2.5

*Correlations between the Well-Being and the Humor and Positive Psychology Measures*

<table>
<thead>
<tr>
<th>Category</th>
<th>Measure</th>
<th>Well-Being Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>DASS DEP</td>
</tr>
<tr>
<td>Humor</td>
<td>HSQ AF</td>
<td>-.16**</td>
</tr>
<tr>
<td></td>
<td>HSQ SE</td>
<td>-.37**</td>
</tr>
<tr>
<td></td>
<td>HSQ AG</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>HSQ SD</td>
<td>.29**</td>
</tr>
<tr>
<td>Gratitude</td>
<td>GQ-6</td>
<td>-.45**</td>
</tr>
<tr>
<td>Savoring</td>
<td>WOSC AMP</td>
<td>-.26**</td>
</tr>
<tr>
<td></td>
<td>WOSC DAMP</td>
<td>.31**</td>
</tr>
</tbody>
</table>

*Note. HSQ = Humor Styles Questionnaire, AF = Affiliative, SE = Self-Enhancing, AG = Aggressive, SD = Self-Defeating, GQ-6 = Gratitude Questionnaire-6, WOSC = Ways of Savoring Checklist, AMP = Amplifying, DAMP = Dampening, DASS = Depression, Anxiety and Stress Scale, DEP = Depression, ANX = Anxiety, STR = Stress, PANAS = Positive and Negative Affect Schedule, NA = Negative Affect, PA = Positive Affect, SHS = Subjective Happiness Scale, SWL = Satisfaction with Life Scale.

*p < .05, **p < .01*
correlated with the majority of positive and negative well-being measures. Finally, aggressive humor did not significantly correlate with any of the well-being measures; again, a very consistent finding with previous research (e.g., Kuiper, Grimshaw, Leite & Kirsh, 2004; Martin, 2007).

Also evident in Table 2.5 is that the positive psychology constructs shared expected relationships with positive and negative indicators of well-being. Gratitude was moderately to strongly correlated with all of the well-being measures in the expected manner, with positive relationships existing between gratitude and positive indicators, and negative relationships between gratitude and negative well-being measures. Amplifying savoring also shared moderate to strong relationships with select measures. In particular, this included all positive well-being indicators (e.g., positive affect, as has been frequently cited in the literature). These relationships were in the expected direction, such that amplifying savoring was positively associated with the positive well-being indicators and negatively associated with depression. Finally, dampening savoring was weakly to moderately correlated with all well-being measures, again in the anticipated manner (i.e., positively correlated with negative, and negatively correlated with positive, well-being indicators).

In summary, all the preceding results demonstrate that expected initial patterns of findings emerged from the current study, replicating specific findings within each of the individual domains of humor and positive psychology.

**Relationships between Humor Styles, Gratitude and Savoring**

With respect to the first research question, it was found that gratitude and savoring (i.e., amplifying and dampening) were correlated with the four humor styles. Eleven of the twelve possible correlations were significant, the only exception being the relationship between amplifying savoring and self-defeating humor (see Table 2.6). Results indicated that trait
Table 2.6

**Correlations between the Humor Styles, and Gratitude and Savoring**

<table>
<thead>
<tr>
<th></th>
<th>Affiliative Humor</th>
<th>Self-Enhancing Humor</th>
<th>Aggressive Humor</th>
<th>Self-Defeating Humor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gratitude</td>
<td>.33**</td>
<td>.33**</td>
<td>-.29**</td>
<td>-.16*</td>
</tr>
<tr>
<td>Amplifying Savoring</td>
<td>.27**</td>
<td>.43**</td>
<td>-.13*</td>
<td>.01</td>
</tr>
<tr>
<td>Dampening Savoring</td>
<td>-.16*</td>
<td>-.18**</td>
<td>.13*</td>
<td>.18**</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01
gratitude significantly correlated with both adaptive and maladaptive humor styles, with moderately strong relationships existing between gratitude and self-enhancing, affiliative, and aggressive humor. These relationships were in the expected direction, such that greater levels of trait gratitude were associated with significantly higher levels of both affiliative and self-enhancing humor, and significantly lower levels of both aggressive and self-defeating humor.

Similarly, amplifying savoring shared relationships with the humor styles, with a strong relationship existing between savoring and self-enhancing humor, and a more moderate relationship existing between savoring and affiliative humor. As anticipated, higher levels of amplifying savoring were associated with greater endorsement of the two adaptive humor styles (i.e., affiliative and self-enhancing). For the maladaptive styles, however, greater amplifying savoring was only associated with lower levels of aggressive humor. Finally, dampening savoring was weakly correlated with all of the humor styles. The directionality of these relationships was as expected, with higher levels of dampening savoring being associated with lower levels of affiliative and self-enhancing humor, and higher levels of aggressive and self-defeating humor.

*Williams’* $T_2$ statistic was calculated to compare the magnitude of the relationships between the positive psychology constructs and the various humor styles. It has been documented that this method is acceptable for comparing ‘overlapping, correlated correlation coefficients’ (Steiger, 1980). Analyses indicated that gratitude was more closely related to adaptive versus maladaptive humor styles, with self-enhancing ($Williams’ \ T_2 = 2.20, p = .03$) and affiliative humor ($Williams’ \ T_2 = 2.14, p = .03$) being more strongly correlated with gratitude than self-defeating humor. However, neither self-enhancing ($Williams’ \ T_2 = 0.50 p = .62$) nor self-defeating ($Williams’ \ T_2 = -1.70, p = .09$) humor
significantly differed from aggressive humor in the strength of their relationship with gratitude, although the latter pair of correlations approached statistical significance.

The importance of the distinction between adaptive and maladaptive humor styles became more apparent with amplifying savoring, as this was the only positive psychology construct that did not correlate with self-defeating humor. Further, the relationship between amplifying savoring and aggressive humor was marginally weaker than the relationship between amplifying savoring and affiliative humor (Williams’ $T^2 = 1.74, p = .08$), and significantly weaker than the relationship between amplifying savoring and self-enhancing humor (Williams’ $T^2 = 3.81, p < .001$). There were not any differences in the magnitude of relationships between dampening savoring and the adaptive versus maladaptive humor styles.

**Humor Styles, Gratitude and Savoring in Predicting Well-Being**

With respect to the second research question, hierarchical regression analyses were conducted to investigate whether humor contributes to the prediction of psychological well-being (i.e., depression, anxiety, stress, negative affect, positive affect, subjective happiness, and satisfaction with life), beyond the contribution of positive psychology measures. For each outcome measure, the positive psychology measures were entered as predictors in the first block, and the humor styles were entered in the second block.

**Negative well-being.** When considering just the block 1 predictors of depression, the regression equation was significant, $R^2 = .26, F(3, 263) = 31.44, p < .001$, with gratitude ($B = -.30$) and dampening savoring ($B = .29$) being the sole significant contributors. The subsequent inclusion of the block 2 predictors of the four humor styles resulted in a significant incremental change in $R^2$ of .11, $F$-change (4, 259) = 10.84, $p < .001$. The regression equation for this overall model was significant, $R^2 = .37, F(7, 259) = 21.68, p <$
.001, and showed that gratitude was the largest significant predictor ($B = -0.27$), followed by dampening savoring ($B = 0.22$), then self-enhancing humor ($B = -0.16$), and finally, self-defeating humor ($B = 0.12$).

Similar predictive patterns were observed for stress, negative affect, and anxiety. When considering just the block 1 positive psychology predictors, only a lower level of gratitude and higher level of dampening savoring was predictive of higher stress, greater negative affect, and greater anxiety. As shown in the Table 2.7 regression coefficients, amplifying savoring did not contribute significantly. Adding in the block 2 humor styles resulted in a significant increase in the prediction for each negative well-being measure. In terms of stress, the final regression equation for this overall model was significant, with more dampening savoring, more self-defeating humor, less self-enhancing humor, and (marginally) less gratitude all contributing significantly to greater stress levels (see Table 2.7 for the individual regression coefficients). For negative affect, the overall regression model showed that less gratitude, less self-enhancing humor, more self-defeating humor, and less affiliative humor all contributed significantly to greater negative affect. Finally, a slightly different pattern emerged for the overall model predicting anxiety, with more dampening savoring, less gratitude, more amplifying savoring, more self-defeating humor, and less self-enhancing humor all playing a predictive role (see Table 2.7 for coefficients).

Overall, the above patterns of findings support a role for positive psychology constructs (particularly gratitude and dampening savoring) and humor styles (particularly self-enhancing and self-defeating humor) in the prediction of negative psychological well-being. Furthermore, these findings indicate that the humor styles add significantly to the prediction of negative well-being outcomes, above and beyond what is known about an individual’s level of trait gratitude and savoring. The only peculiar finding in this set of
Table 2.7

*Summary of Significant Findings and Regression Coefficients for Regression Analyses of Negative Well-Being*

<table>
<thead>
<tr>
<th>Well-Being Measures</th>
<th>Block 1 Predictors</th>
<th>Block 2 Change</th>
<th>Overall Model and Predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>$F = 31.44^{***}$</td>
<td>$F$-change = 10.84^{***}</td>
<td>$F = 21.68^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .26$</td>
<td>$R^2$ change = .11</td>
<td>$R^2$ = .37</td>
</tr>
<tr>
<td>Gratitude (-.30)^{***}</td>
<td></td>
<td></td>
<td>Gratitude (-.27)^{***}</td>
</tr>
<tr>
<td>Dampening (.29)^{***}</td>
<td></td>
<td></td>
<td>Dampening (.22)^{***}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-Enhancing (-.16)^{***}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-Defeating (.12)^{***}</td>
</tr>
<tr>
<td>Stress</td>
<td>$F = 11.92^{***}$</td>
<td>$F$-change = 5.80^{***}</td>
<td>$F = 8.79^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .12$</td>
<td>$R^2$ change = .07</td>
<td>$R^2$ = .19</td>
</tr>
<tr>
<td>Dampening (.30)^{***}</td>
<td></td>
<td></td>
<td>Dampening (.22)^{***}</td>
</tr>
<tr>
<td>Gratitude (-.16)^{**}</td>
<td></td>
<td></td>
<td>Self-Defeating (.12)^{***}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-Enhancing (-.12)^{**}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Gratitude (-.11)^{†}</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>$F = 12.28^{***}$</td>
<td>$F$-change = 7.11^{***}</td>
<td>$F = 9.81^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .12$</td>
<td>$R^2$ change = .09</td>
<td>$R^2$ = .21</td>
</tr>
<tr>
<td>Gratitude (-.41)^{***}</td>
<td></td>
<td></td>
<td>Gratitude (-.27)^{**}</td>
</tr>
<tr>
<td>Dampening (.36)^{**}</td>
<td></td>
<td></td>
<td>Self-Enhancing (-.22)^{**}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-Defeating (.20)^{***}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Affiliative (-.14)^{*}</td>
</tr>
<tr>
<td>Anxiety</td>
<td>$F = 23.11^{***}$</td>
<td>$F$-change = 5.11^{**}</td>
<td>$F = 13.44^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .21$</td>
<td>$R^2$ change = .09</td>
<td>$R^2$ = .27</td>
</tr>
<tr>
<td>Dampening (.32)^{***}</td>
<td></td>
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<td>Dampening (.25)^{***}</td>
</tr>
<tr>
<td>Gratitude (-.25)^{***}</td>
<td></td>
<td></td>
<td>Gratitude (-.20)^{***}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Amplifying (.18)^{*}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-Defeating (.10)^{***}</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-Enhancing (-.10)^{**}</td>
</tr>
</tbody>
</table>

*Note.* Values in parentheses represent corresponding regression coefficients.

$^† p = .05, ^* p < .05, ^{**} p < .01, ^{***} p < .001$
analyses was that higher levels of amplifying savoring actually contributed to greater anxiety. This finding, however, should be considered in the context of the large set of significant predictors included in the overall final regression model for this specific negative well-being measure.

Positive well-being. When considering only gratitude and savoring (i.e., amplifying and dampening), the block 1 findings revealed that both of these positive psychology constructs played a significant predictive role. In particular, higher levels for all but one positive outcome measure (happiness and satisfaction with life) were predicted by both higher levels of gratitude and amplifying savoring, and lower levels of dampening savoring (see Table 2.8 for individual regression coefficients). Thus, in contrast to negative well-being, amplifying savoring appears to play a much more prominent role in predicting positive well-being, and is actually a primary predictor of positive affect (with gratitude and dampening savoring not contributing significantly, in this case).

The addition of the block 2 humor styles to each regression model resulted in a significant increase in predicted variance for all three positive outcome measures (see Table 2.8 for details). In the resulting overall regression models, greater self-enhancing humor and less self-defeating humor were significant predictors for all three positive outcome measures. Aggressive humor also added significantly to the prediction of satisfaction with life, whereas affiliative humor added significantly to the prediction of positive affect. However, as evidenced by the individual regression coefficients shown in Table 2.8, it was self-enhancing humor that appeared to be the most important humor style for predicting each of the positive well-being measures.

It is also important to note that, in the overall regression models, greater gratitude remained a significant predictor for two of three positive outcomes, and appeared to be
Table 2.8

Summary of Significant Findings and Regression Coefficients for Regression Analyses of Positive Well-Being

<table>
<thead>
<tr>
<th>Well-Being Measures</th>
<th>Block 1 Predictors</th>
<th>Block 2 Change</th>
<th>Overall Model and Predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Happiness</td>
<td>$F = 35.04^{***}$</td>
<td>$F$-change = 23.53***</td>
<td>$F = 33.61^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .29$</td>
<td>$R^2$ change = .19</td>
<td>$R^2 = .48$</td>
</tr>
<tr>
<td></td>
<td>Amplifying (.35)**</td>
<td>Self-Enhancing (.31)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gratitude (.27)***</td>
<td>Gratitude (.20)***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dampening (-.25)**</td>
<td>Dampening (-.14)*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-Defeating (-.09)**</td>
<td></td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>$F = 36.07^{***}$</td>
<td>$F$-change = 4.96**</td>
<td>$F = 19.23^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .29$</td>
<td>$R^2$ change = .05</td>
<td>$R^2 = .34$</td>
</tr>
<tr>
<td></td>
<td>Gratitude (.42)***</td>
<td>Gratitude (.42)***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amplifying (.38)**</td>
<td>Amplifying (.29)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dampening (-.18)*</td>
<td>Self-Enhancing (.16)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-Defeating (-.09)*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aggressive (.09)*</td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td>$F = 19.17^{***}$</td>
<td>$F$-change = 16.23***</td>
<td>$F = 19.39^{***}$</td>
</tr>
<tr>
<td></td>
<td>$R^2 = .18$</td>
<td>$R^2$ change = .16</td>
<td>$R^2 = .34$</td>
</tr>
<tr>
<td></td>
<td>Amplifying (.67)***</td>
<td>Amplifying (.45)***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-Enhancing (.41)***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Self-Defeating (-.17)***</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Affiliative (-.16)**</td>
<td></td>
</tr>
</tbody>
</table>

Note. Values in parentheses represent corresponding regression coefficients.

*p < .05, **p < .01, ***p < .001
particularly important for predicting satisfaction with life. In contrast, amplifying savoring remained a significant predictor for all positive well-being indicators, and was the most important single predictor in the overall model for positive affect, followed closely by self-enhancing humor.

Overall, these results underscore the importance of both positive psychology constructs and humor styles when considering positive indicators of well-being. Thus, just as was the case with negative well-being, the humor styles once again contributed significantly to the prediction of well-being, with the major emphasis being on self-enhancing and self-defeating humor. In a similar fashion, gratitude was also involved in predicting both positive and negative psychological well-being. Perhaps the biggest distinction was that amplifying savoring appears to play much less of a role when considering negative well-being, but assumes increasing prominence in the prediction of positive well-being indices, such as positive affect. The reverse was true for dampening savoring, which contributed significantly to almost all negative measures of well-being, but only one positive well-being indicator (subjective happiness).

**Humor Styles as Moderators of Relationships between Gratitude and Well-Being**

As a final step in exploring how the humor styles and positive psychology constructs might combine meaningfully to impact psychological well-being, moderation analysis was employed. The study of moderator effects allowed for examination of more complex, interactive relationships. Also, as mentioned earlier in this thesis, there has been growing interest in the field to consider interactions between traits, with strong arguments made that this can lead to important discoveries (e.g., Kryski et al., 2013). A number of researchers within the humor domain have already responded and have conducted research examining the moderating effects of humor (e.g., Kuiper & Borowicz-Sibenik, 2005).
Within the context of the current study, analyses were conducted to explore whether the humor styles significantly moderated relationships between gratitude and the well-being measures included in the present study. For all of these measures, multiple regression analyses that utilized centered measures of the humor styles and gratitude were conducted to examine potential moderator effects. Of the 28 total analyses conducted, the results of six of these analyses pointed to significant interaction effects. Four of these significant effects implicated affiliative humor, and aggressive and self-defeating humor were each associated with one significant interaction effect. The interaction effects were plotted by solving the corresponding regression equations for high and low values of gratitude and the humor style of interest (i.e., $M \pm 1 \text{SD}$).

**Affiliative Humor Impacts the Relationship between Gratitude and Well-Being**

**Negative well-being.** With respect to depression, results indicated there was a significant interaction effect, $B = -.02, t = -3.09, p = .002$, (shown in Figure 2.1) as well as a significant main effect of gratitude, such that higher levels corresponded with reduced depression, $B = -.36, t = -8.11, p < .001$. The overall model was significant, $F(3, 263) = 26.46, p < .001$, and tests of simple slopes revealed that both slopes representing high ($t = -8.25, p < .001$) and low affiliative humor use ($t = -7.74, p < .001$) significantly differed from zero. These results indicated that although the relationship between gratitude and depression is strong and negative, this relationship is stronger at higher levels of affiliative humor. That is, there was an expected, beneficial role of affiliative humor, particularly at higher levels of gratitude, such that those with higher levels of affiliative humor and gratitude were especially protected from feelings of depression (see Figure 2.1).

Further analyses indicated that interaction effects between gratitude and affiliative humor were non-significant for all other negative indicators of well-being: anxiety, stress,
Figure 2.1. Affiliative humor moderates the relationship between gratitude and depression.
and negative affect. For details of these analyses, see Table 2.9.

**Positive well-being.** As shown in Table 2.10, results of moderation analyses revealed significant interaction effects between gratitude and affiliative humor for all three positive indicators of well-being (i.e., positive affect, happiness, and life satisfaction). Firstly, for positive affect, there was a significant interaction effect, $B = .04, t = 4.53, p < .001$, as well as a significant main effect of gratitude, $B = .43, t = 5.56, p < .001$, such that higher levels corresponded with greater positive affect. The overall model was significant, $F(3, 263) = 16.09, p < .001$, and tests of simple slopes revealed that both slopes representing high ($t = 5.63, p < .001$) and low affiliative humor use ($t = 4.73, p < .001$) significantly differed from zero (see Figure 2.2). These results suggest that the positive relationship between gratitude and positive affect is stable across low and high levels of affiliative humor, but that this relationship is more pronounced at higher levels of affiliative humor. That is, affiliative humor appears particularly beneficial for bolstering positive affect at higher versus lower levels of gratitude.

These results for positive affect were very consistent with analyses for life satisfaction and subjective happiness. Significant interaction effects and main effects of gratitude were reported for both life satisfaction and happiness, such that higher levels of gratitude corresponded with greater life satisfaction and happiness (see Table 2.10 for details). In addition, a main effect of affiliative humor was also indicated for subjective happiness, with higher levels corresponding with increased happiness. All models were significant, as well as the tests of simple slopes. Further inspection of the interaction effects revealed that similar to positive affect, higher levels of gratitude were particularly beneficial when one also reported using more affiliative humor (see Figure 2.3 and 2.4).
### Table 2.9

**Results of Moderator and Simple Slope Analyses for Negative Well-Being**

<table>
<thead>
<tr>
<th>Well-Being Measures</th>
<th>Results of Moderator Analysis</th>
<th>Results of Simple Slope Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>$F = 26.46^{***}$</td>
<td>High: $t = -8.25, p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Aff ($-.02$)</td>
<td>Low: $t = -7.74, p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Grat ($-.36$)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grat x Aff ($-.02$)**</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>$F = 12.19^{***}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aff ($-.04$)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grat ($-.23$)**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grat x Aff ($-.01$)</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>$F = 6.34^{***}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aff ($-.02$)</td>
<td></td>
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<tr>
<td></td>
<td>Grat ($-.19$)**</td>
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<tr>
<td></td>
<td>Grat x Aff ($-.01$)</td>
<td></td>
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<tr>
<td>Negative Affect</td>
<td>$F = 12.53^{***}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aff ($-.19$)**</td>
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<td></td>
<td>Grat ($-.36$)**</td>
<td></td>
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<tr>
<td></td>
<td>Grat x Aff ($-.02$)</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Values in parentheses represent corresponding regression coefficients. Aff = Affiliative Humor, Grat = Gratitude.

**$p < .01$, ***$p < .001$**
Table 2.10

*Results of Moderator and Simple Slope Analyses for Positive Well-Being*

<table>
<thead>
<tr>
<th>Well-Being Measures</th>
<th>Results of Moderator Analysis</th>
<th>Results of Simple Slope Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Affect</td>
<td>$F = 16.09^{***}$</td>
<td>High: $t = 5.63, p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Aff (.01)</td>
<td>Low: $t = 4.73, p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Grat (.43)^{***}</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grat x Aff (.04)^{***}</td>
<td></td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>$F = 34.64^{***}$</td>
<td>High: $t = 9.34, p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Aff (.05)</td>
<td>Low: $t = 8.72, p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Grat (.57)^{***}</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grat x Aff (.03)^{***}</td>
<td></td>
</tr>
<tr>
<td>Happiness</td>
<td>$F = 38.37^{***}$</td>
<td>High: $t = 8.26, p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Aff (.14)^{***}</td>
<td>Low: $t = 7.25, p &lt; .001$</td>
</tr>
<tr>
<td></td>
<td>Grat (.38)^{***}</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grat x Aff (.03)^{***}</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Values in parentheses represent corresponding regression coefficients. Aff = Affiliative Humor, Grat = Gratitude.

***$p < .001$
Figure 2.2 Affiliative humor moderates the relationship between gratitude and positive affect.

Figure 2.3. Affiliative humor moderates the relationship between gratitude and life satisfaction.
Figure 2.4. Affiliative humor moderates the relationship between gratitude and happiness.
Overall, these results indicate that affiliative humor is a moderator of relationships between gratitude and well-being, specifically, depression and positive indicators of well-being. These findings were very consistent in demonstrating a strong, protective role of gratitude at higher levels of affiliative humor, in particular. Interesting was that despite earlier regression results indicating a negligible or converse relationship between affiliative humor and well-being, these moderation findings clarify how affiliative humor can be beneficial for psychological well-being. For instance, although earlier regression results pointed to a negative contribution of affiliative humor to positive affect, moderation analyses indicated that higher levels of affiliative humor could be beneficial for enhancing the positive relationship between gratitude and positive affect. These results also suggest that complex relationships exist between affiliative humor and well-being, such that affiliative humor appears to interact with other important constructs, such as gratitude. More broadly, this captures how constructs within the positive psychology and humor domains can relate to one another in complex ways to meaningfully impact well-being.

**Aggressive Humor Impacts the Relationship between Gratitude and Positive Affect**

Turning now to the moderation findings for aggressive humor, results indicated a significant interaction effect for positive affect, $B = -.02, t = -2.34, p = .02$, as well as a significant main effect of gratitude, $B = .45, t = 5.54, p < .001$, such that higher levels of gratitude were associated with greater positive affect. The overall model was significant, $F(3, 263) = 10.66, p < .001$, and tests of simple slopes revealed that both slopes representing high ($t = 5.16, p < .001$) and low aggressive humor use ($t = 5.62, p < .001$) significantly differed from zero. This pattern of results suggests that high levels of gratitude correspond with greater positive affect at both low and high levels of aggressive humor, but this relationship is pronounced at low levels of aggressive humor. Thus, as illustrated in
Figure 2.5, it appears that low levels of aggressive humor strengthened the positive association between gratitude and positive affect.

**Self-Defeating Humor Impacts the Relationship between Gratitude and Stress**

Finally, there was also a significant interaction effect for self-defeating humor, in which self-defeating humor moderated the relationship between gratitude and stress, $B = .01, t = 2.17, p = .03$. Moreover, in this case, both the main effects of gratitude, $B = -.15, t = -3.29, p = .001$, and self-defeating humor, $B = .12, t = 4.05, p < .001$, were significant, with low levels of gratitude and high levels of self-defeating humor corresponding with greater stress. The overall model was significant, $F(3, 263) = 13.02, p < .001$, and tests of simple slopes indicated that the slopes representing high ($t = -3.05, p = .003$) and low self-defeating humor ($t = -3.53, p < .001$) significantly differed from zero. These results suggest that the favorable relationship between gratitude and stress is fortified at low levels of self-defeating humor, such that high levels of gratitude appear to be particularly protective within the context of life stress (see Figure 2.6).

**Discussion**

Previous work has considered separately the humor styles and positive psychology constructs such as gratitude and savoring, demonstrating that these constructs at a dispositional level have strong ties to various aspects of psychological well-being. However, to date, very little research has explored how these constructs may relate to one another, or work in conjunction to enhance or detract from well-being. As two areas of study that have received substantial research attention and have shown great promise, it is important to discern whether constructs or styles from the different domains operate as relatively isolated dispositional strategies that can influence overall well-being, or whether a construct is part of a broader network of adaptive or maladaptive strategies.
Figure 2.5. Aggressive humor moderates the relationship between gratitude and positive affect.

Figure 2.6. Self-defeating humor moderates the relationship between gratitude and stress.
employed by individuals. Moreover, it would be valuable to determine whether strategies within a given domain dominate or render other strategies less important, when considered together; or whether there appears to be an important role for both the humor styles and positive psychology constructs within the context of psychological well-being. In the latter case, understandings of humor from a positive psychology perspective would become less obscured and would facilitate greater recognition of humor as an important positive psychology construct. Thus, to address these theoretical and empirical issues, the previously described correlational study was conducted. The results of this study, as they pertain to each research question and corresponding hypothesis will be reviewed, in turn.

**Hypothesis 1: Humor and Positive Psychology Constructs Share Important Relationships**

In accordance with expectations, higher levels of dispositional gratitude and amplifying savoring corresponded with higher levels of both adaptive humor styles, affiliative and self-enhancing humor, and lower levels of aggressive humor. Further, gratitude was also negatively correlated with self-defeating humor, whereas amplifying savoring and self-defeating humor remained uncorrelated, contrary to expectations. Finally, in line with predictions, higher levels of dampening savoring were associated, albeit weakly, with lower levels of affiliative and self-enhancing humor and higher levels of aggressive and self-defeating humor.

Furthermore, comparisons of the magnitude of these relationships revealed that amplifying savoring was most closely linked with adaptive humor styles, and self-enhancing humor, in particular. On the other hand, gratitude and dampening savoring exhibited less of a bias toward affiliative and self-enhancing humor styles.
Somewhat unexpected was that more consistent, negative relationships were observed between the positive psychology constructs and aggressive humor, compared to self-defeating humor. This was surprising given that self-defeating humor has been the predominant, maladaptive humor style implicated in negative well-being, whereas findings that depict aggressive humor as a maladaptive or ‘negative’ humor style are less robust. Nevertheless, as mentioned previously, where aggressive humor does seem to be particularly detrimental is within the context of social relationships. This is interesting given the hypothesized functions of the positive psychology constructs, particularly gratitude, which aggressive humor correlated with most strongly. Gratitude has been referred to as an ‘other praising’ emotion, such that scholars have noted the important social aspect of this construct (Haidt, 2003). This issue will be further considered in the General Discussion section of this thesis.

Taken together, these patterns of results support the interwoven nature of the various humor and positive psychology constructs considered in the present study. In addition, these findings highlight the need to consider constructs from these two domains of psychology in a more unified manner.

**Hypothesis 2: Both Humor and Positive Psychology Constructs are Important for Predicting Well-Being**

Also consistent with predictions, findings indicated that dispositional humor and positive psychology constructs predicted various well-being outcomes. Most important was that the results consistently implicated constructs from both the humor and positive psychology domains, with the humor styles adding to the prediction of psychological well-being beyond what was accounted for by gratitude and savoring.
**Negative well-being.** Concerning the four measures of negative well-being (i.e., depression, stress, negative affect, and anxiety), the most consistent predictors were gratitude, dampening savoring, and the self-focused humor styles of self-enhancing and self-defeating humor. To name the exceptions to this rule, dampening savoring was not retained as a final predictor of negative affect, and affiliative humor and amplifying savoring uniquely contributed to the prediction of negative affect and anxiety, respectively. All the constructs contributed to the prediction of well-being outcomes in the expected manner, except for amplifying savoring, which was positively associated with anxiety when all the predictors were entered into the regression equation.

The majority of these findings are consistent with general expectations and previous research (e.g., Emmons & McCullough, 2003; Gross & John, 2003; Martin et al., 2003). Firstly, the vast literature on gratitude suggests that this construct is a strong predictor of a wide array of well-being outcomes (e.g., Emmons & McCullough, 2003). The results of the current study are consistent with this research, demonstrating that gratitude retains significance within the context of well-being, even when the humor styles are taken into account. Secondly, although little research has explored dampening savoring, or attempted to differentiate between amplifying and dampening savoring, the aforementioned results were consistent with predictions that dampening savoring would have a strong presence among negative well-being outcomes. It seems fitting that a tendency of actively avoiding and denying the experience of positive emotions would be associated with negative states and mental disorder symptomatology. Lastly, it is understandable that both the self-enhancing and self-defeating humor styles were robust predictors of negative well-being, even after gratitude and savoring were accounted for, as research has indicated that these two humor styles share strong positive and negative
ties with well-being, respectively. It has been demonstrated that self-enhancing humor is important for coping with negative life circumstances, and that self-defeating humor is associated with lower levels of well-being, higher levels of psychopathology, and even hypothesized etiological factors (e.g., early maladaptive schemas; Dozois, Martin, & Faulkner, 2013).

Intriguing was that amplifying savoring positively predicted anxiety. In contrast to this finding, a small number of studies examining positive emotion regulation and anxious symptomatology have indicated that tendencies to amplify savoring are negatively related to anxiety (Carl, Fairholme, Gallagher, Thompson-Hollands, & Barlow, 2013; Eisner, Johnson, & Carver, 2009). When additional analyses were conducted to examine the relationship between amplifying savoring and anxiety in the current study, results did not support a significant, predictive role of savoring when it was entered as the sole predictor of anxiety. Therefore, it is likely that the above, unexpected finding may be solely due to the pattern of variance accounted for by the other positive psychology and humor predictors.

**Positive well-being.** With respect to the three measures of positive well-being (i.e., happiness, life satisfaction, and positive affect), the most frequent predictors consisted of the self-focused humor styles, gratitude, and amplifying savoring. However, recall that amplifying savoring was not retained in the final model for happiness, and that gratitude was not an important predictor of positive affect. Furthermore, aggressive humor was a significant predictor of life satisfaction, and affiliative humor was a significant predictor of positive affect. These last two constructs were associated with counterintuitive findings, in which aggressive humor positively predicted life satisfaction, and affiliative humor was negatively associated with positive affect.
Once again, these results are largely in line with hypotheses and previous work in the fields of humor and positive psychology (Bryant, 2003; Edwards, 2013; Emmons & McCullough, 2003). The strength of the self-focused humor styles and gratitude was apparent within this context as well. This is particularly promising, as these positive measures of well-being align with a positive psychology approach. Thus, the humor styles are clearly relevant to conceptualizations of positive psychology constructs, as initial research has already demonstrated (Edwards, 2013; Edwards & Martin, in press). Of further interest is that amplifying savoring replaced dampening savoring as a dominant construct among positive well-being outcomes. Although previous research has indicated that savoring appears to be tied to positive and negative indicators of well-being (e.g., Bryant, 2003), when dampening savoring, gratitude, and the humor styles are also accounted for, it seems like amplifying savoring is not interchangeable with those other constructs in the context of positive well-being. This general observation is consistent with what would be expected, given that amplifying savoring is hypothesized to serve a positive emotion regulatory function.

As was the case with negative well-being, a small number of counterintuitive results were obtained. Although aggressive humor was the weakest predictor retained in the final model for life satisfaction, it was positively rather than negatively associated with this outcome. As previously mentioned, this could have been a result of the relationships amongst the predictors in the regression equation. Alternatively, aggressive humor is the humor style that is most often associated with findings that go against expectations within the context of psychological well-being. These findings challenge simple conceptualizations of aggressive humor as a ‘negative’ humor style, and thus it could be the case that this result reveals something important about life satisfaction.
However, it is important to note that aggressive humor did not significantly predict life satisfaction when it was entered as the sole predictor in the regression equation.

Likewise, it is unclear why affiliative humor negatively predicted positive affect when the other humor styles and positive psychology constructs were also taken into consideration. This result was particularly surprising, given that previous research has documented robust associations between affiliative humor and positive and negative indicators of well-being. To reiterate, this could have been a function of the variance accounted for by the other predictors in the regression equation. Of note is that affiliative humor was the weakest predictor retained in the final model. Furthermore, similar to counterintuitive results for savoring and aggressive humor, additional analyses indicated that affiliative humor did not significantly predict positive affect on its own.

**Hypothesis 3: Dispositional Humor and Positive Psychology Constructs Interact to Influence Relationships with Well-Being**

Finally, in exploring other ways in which humor and positive psychology constructs may relate to one another, and combine in more complex ways to predict well-being, moderator effects were explored. Specifically, it was investigated whether the humor styles served as important moderators of relationships between gratitude and well-being. Six of the 28 possible analyses indicated a significant moderating role of the humor styles, with four significant effects associated with affiliative humor, and self-defeating and aggressive humor associated with one significant interaction effect each. Further investigation into the interaction effects featuring affiliative humor revealed a similar picture. For all the well-being outcomes (i.e., depression, positive affect, life satisfaction, and happiness), the benefits of high levels of gratitude were most pronounced at high levels of affiliative humor. In accordance with hypotheses, individuals reported
the lowest levels of depression and the highest levels of positive affect, life satisfaction, and happiness when both dispositional gratitude and affiliative humor levels were high. This was the case, despite the fact that the benefits associated with high levels of gratitude still appeared to be retained at low levels of affiliative humor (this slope significantly differed from zero as well), and there was a main effect of gratitude across all well-being outcomes. Therefore, individuals at higher levels of gratitude fared better compared to those at low levels, even at low levels of affiliative humor; but this effect was most pronounced at high levels of this humor style.

Interesting is that affiliative humor emerged as the most robust moderator of relationships between gratitude and well-being, given the theoretical similarities between gratitude and affiliative humor. As touched upon previously, gratitude has been classified as an ‘other praising emotion’ in that it is often directed toward a particular benefactor. Scholars have suggested that feelings of gratitude motivate people to behave prosocially (Fredrickson, 2004), which can, in turn, facilitate the development of friendships and other social bonds. Similarly, affiliative humor takes on its meaning in relation to how it is used in the presence of others and functions to strengthen social ties (Martin et al., 2003). Thus, low levels of affiliative humor may signal a difficulty in relating and sharing experiences with others, which, in turn, could mean that gratitude is robbed of some of its social aspects, rendering this construct less consequential for well-being.

This pattern of results is also intriguing in light of the lack of significant regression findings associated with affiliative humor. In particular, the regression findings previously discussed indicated that affiliative humor plays a negligible role in predicting well-being within the context of the other humor styles, gratitude and savoring. Furthermore, one result indicated that lower levels of affiliative humor actually predicted
greater positive affect, within the context of the other humor and positive psychology predictors. However, the results of the moderator analyses indicated that affiliative humor does function as an important construct within the context of well-being, but may be especially important in the face of other humor and positive psychology constructs in the way it operates in a more covert fashion. That is, regression findings suggest that affiliative humor does not often add to the direct prediction of well-being, above and beyond what is accounted for by the other humor styles and gratitude; but the moderation findings imply that affiliative humor may be acting through gratitude to influence the relationships this construct has with psychological well-being.

Moreover, further examination of the interaction effects for aggressive and self-defeating humor revealed that once again, ideal levels of the humor styles as informed by previous research (i.e., high levels of the adaptive styles and low levels of the maladaptive styles) creates a favorable environment in which gratitude is most beneficially tied to well-being. For the maladaptive styles, the positive relationship between gratitude and positive affect was most pronounced at low levels of aggressive humor. Likewise, for self-defeating humor, the relationship between gratitude and stress was most favorable at low levels of this humor style. Therefore, together these moderation findings suggest that some of the benefits for psychological well-being associated with trait levels of gratitude may depend on levels of the humor styles, specifically, high levels of affiliative humor and low levels of aggressive and self-defeating humor.
Chapter 3: Examining the Effectiveness of Humor and Positive Psychology Exercises

(Study 2)

This chapter presents the experimental study that was conducted to address the final two major objectives of this thesis project. To reiterate, these objectives were, firstly, to examine the short-term impact of humor and positive psychology exercises on well-being. Secondly, this investigation sought to elucidate the importance of certain individual difference factors for deriving the benefits of humor and positive psychology exercises.

Although robust correlational findings tie dispositional constructs to various benefits for psychological well-being, this in itself is insufficient to conclude that humor and positive psychology strategies function to enhance well-being. Recently, scholars have indeed begun to investigate whether actually engaging in the activities associated with humor and positive psychology constructs can bolster well-being outcomes (e.g., Crawford & Caltabiano, 2011; Sin & Lyubomirsky, 2009). This research is still very much in its infancy, especially that which accounts for the important, potential contributions of positive and negative forms of humor. Furthermore, lacking is research that contrasts humor and positive psychology exercises with one another, to determine whether the evidence supports the use of some exercises over others.

The broad purpose of the current study was to add to this growing body of literature by examining how exercises modeled after dispositional constructs assessed in the first study (gratitude, savoring, and the humor styles) operate to impact well-being. Specifically, the current study is one of few that investigate the short-term impact of singly administered, positive intervention exercises. Directly below, the extant research on humor and positive psychology exercises is reviewed, followed by a consideration of
the importance of individual difference factors, and an introduction to the present investigation.

**Positive Psychology Exercises and Interventions**

Genetic factors (e.g., Lykken & Tellegen, 1996; Kagan, 2003) and life circumstances such as culture, gender, and health (e.g., Lucas, Clark, Georgellis, & Diener, 2003) appear to account for a large amount of the variance in well-being. Positive psychology researchers Lyubomirsky and colleagues (2005) took stock of the research and calculated that 40% of the variance in well-being remains unexplained, and could plausibly be accounted for by voluntary behavior. Operating under this assumption, well-being outcomes are not entirely predetermined and are moderately within a person’s control, rendering attempts to bolster well-being (e.g., through behavior or cognitive change) a fruitful goal. As such, positive psychology researchers have become very interested in activities that do not simply return distressed individuals to baseline functioning, but move individuals from baseline to higher levels of well-being (e.g., life satisfaction, happiness; Seligman, 2002; Peterson, 2006).

In 2009, Sin and Lyubomirsky conducted a meta-analysis to organize existing research examining the efficacy and utility of positive psychology interventions. Their investigation amalgamated 74 independent studies of 4,266 individuals, which assessed 51 different positive psychology interventions (e.g., gratitude, positive writing, mindfulness). In order to be included, investigations must have incorporated a comparison group (e.g., no-treatment control, placebo) and assessed strictly positive psychology interventions. That is, the goals of the interventions were to foster positive emotions, cognitions or behaviors, rather than ameliorate symptoms of psychopathology (e.g., maladaptive cognitions or behaviors). What they found was promising – results
indicated that the positive psychology interventions significantly improved well-being (unweighted average effect size, \( r = .29 \)) and reduced depressive symptomatology (unweighted average effect size, \( r = .31 \)).

**Gratitude exercises.** Gratitude interventions have been touted as one of the greatest successes of the positive psychology movement (Bono, Emmons, & McCullough, 2004; Seligman et al., 2005). To date, at least thirteen published studies have evaluated gratitude interventions across a wide range of well-being outcomes. These can be parsed into investigations that consider: 1) gratitude lists, 2) grateful contemplation, or 3) behavioral expressions of gratitude (Wood et al., 2010). Firstly, gratitude lists are largely self-explanatory; this involves regularly constructing a list of people, experiences, and circumstances for which a person is thankful. A number of studies support their effectiveness (e.g., Geraghty, Wood, & Hyland, 2010; McCullough et al., 2003; Seligman et al., 2005; Watkins et al., 2003), and report findings such as increased life satisfaction, happiness, and positive affect, along with decreased depression and negative affect, compared to control conditions. Furthermore, recent investigations conducted by Geraghty and colleagues (2010) indicated that gratitude lists were as effective as some other frequently used therapeutic techniques (e.g., self-monitoring).

Secondly, grateful contemplation is a less rigid exercise compared to gratitude lists, in which individuals are instructed to ponder or write about things they are grateful for. One study, taking place over only a few minutes, has suggested that such exercises can ameliorate negative affect, at least in the short-term (Watkins et al., 2003). Finally, behavioral expressions of gratitude prescribe that individuals engage in some kind of behavior to demonstrate their gratefulness – for instance, participants might be instructed
to write a letter to someone and deliver it. Existing studies have supported benefits of engaging in these activities as well (Froh et al., 2009; Seligman et al., 2005).

**Savoring interventions.** Similar to how dispositional constructs related to savoring are understudied compared to gratitude, the same can be said for savoring interventions or exercises. A handful of published studies have examined the potential merits of augmenting one’s ability to savor the present moment (Giuliani, McRae, & Gross, 2008; Hurley & Kwon, 2012; Kurtz, 2008; Seligman, Rashid, & Park, 2006). The results of these investigations have been promising, indicating that promoting general (e.g., Seligman et al., 2006) and specific ways of savoring (e.g., temporal awareness; Kurtz, 2008) can enhance positive well-being measures and ameliorate negative outcomes. For instance, in a recent study conducted by Hurley and Kwon (2012), participants received psycho-education surrounding ways to enhance the savoring of positive events. At a 14-day follow-up, these participants reported lower levels of negative affect and depression, compared to those who did not receive the savoring psycho-education.

**Humor Interventions**

Similarly, the assessment of exercises that attempt to harness the benefits of adaptive humor use is also in its early stages. To date, only a few published studies have evaluated the merits of encouraging positive uses of humor. One illustration is provided by Crawford and Caltabiano (2011), who evaluated the effectiveness of a humor skills training program delivered over the course of eight weeks. The program was a slightly modified adaptation of a training program designed by McGhee (1996) to promote one’s use of humor and cultivate the benefits of using humor to cope with adversity. Fifty-five community volunteers were either assigned to the humor group, a social group, or a no-
treatment control group. Results indicated that the humor skills program enhanced emotional well-being, whereas similar benefits were not evident among individuals in the social and control groups. Specifically, the humor group was associated with increased positive affect, optimism, self-efficacy, and perceptions of control, and decreased anxiety, depression and stress.

There are also some further studies that have examined this issue. Falkenberg, Buchkremer, Bartels, and Wild (2011) for example employed the same training program designed by McGhee (1996) to assist six depressed people in exploiting humor to better cope under stress. Results of this pilot study indicated that participants’ ability to utilize humor as a coping mechanism was enhanced, and individuals appeared to derive various state (e.g., decreased seriousness and bad mood) and trait (e.g., increased cheerfulness) benefits.

Furthermore, in her Ph.D. dissertation project, Edwards (2013) more rigorously evaluated an application of humor research, while also considering how humor compared to a well-established, positive psychology exercise (i.e., a gratitude list). Participants were taught to practice exercises that corresponded with traditional humor, humor styles, gratitude or placebo exercises for three weeks. The traditional humor exercise was nonspecific regarding the manner in which individuals were instructed to reflect on their humor use, whereas the humor styles exercise differentiated between adaptive and maladaptive humor uses, encouraging individuals to reflect on adaptive uses. The main objective was to determine how these exercises differentially influenced positive mood, negative mood, altruism and life satisfaction. Compared to those who received the placebo exercise, individuals in the traditional humor, humor styles and gratitude groups all fared better on some dimension. Specifically, all three exercises increased positive
mood relative to the placebo, and the traditional humor and gratitude groups were associated with decreased negative affect and increased prosocial behavior, respectively. Interestingly and contrary to expectations, the experimental groups (humor and gratitude) did not exhibit any differences amongst each other.

**Importance of Accounting for Individual Differences**

**Pre-exercise state effects.** Previous research evaluating humor and positive psychology exercises have also highlighted the importance of taking into account certain individual difference factors. For instance, it may be the case that an individual’s pre-exercise state bears on the effectiveness of a given exercise. Accounting for this possibility would be especially important for short-term interventions, in which participants are solely evaluated immediately following the exercise. This is because any additional error attributable to pre-state effects would be weighed more heavily. To illustrate, consider a participant who is having an unusually good day when she completes the exercise. Upon completing the exercise, she is still feeling very positive, for example, as she was prior to the exercise. These results would indicate that the exercise was not effective in improving well-being. However, if this participant was engaged in the exercise and was evaluated at multiple time points, it is less likely that her pre-exercise state would so predominately obscure important changes.

Very little research has considered the impact of pre-exercise state when evaluating the effectiveness of positive psychology interventions. However, researchers have more recently explored the moderating effects of trait or baseline levels of positive and negative affect within the context of positive psychology exercises (Froh et al., 2009; Rash, Matsuba, & Prkachin, 2011). For instance, in a study of youth conducted by Froh and colleagues (2009), results indicated that individuals low on positive affect derived
greater benefits from a gratitude intervention compared to those high on positive affect. Specifically, the previous participants were associated with greater positive affect immediately following the exercise, and at 2-month follow-up. This finding nominates the importance of considering individual difference factors such as pre-exercise state when evaluating the effectiveness of various exercises.

**Dispositional humor and positive psychology constructs.** Finally, research documenting robust associations between well-being and trait constructs after which humor styles, gratitude, and savoring exercises are modeled call into question how these dispositional constructs interact with the various exercises to impact psychological well-being. It may be the case that there is a matching specificity effect, such that those high on trait measures of gratitude, savoring, and the humor styles benefit the most from gratitude, savoring, and humor exercises, respectively. Alternatively, other trait effects are also possible and plausible, especially in light of results from Study 1, in which it was demonstrated that humor and positive psychology constructs are inter-correlated with one another. For instance, perhaps individuals higher on gratitude are also in a position to derive greater benefit from the savoring and humor exercises, compared to those lower on gratitude.

Previous research also highlights the importance of considering dispositional constructs when evaluating humor and positive psychology exercises. In the aforementioned dissertation by Edwards (2013), dispositional gratitude significantly moderated relationships between positive mood and both the gratitude and humor exercises, such that individuals high on gratitude benefited most from the gratitude and humor exercises. Conversely, other research has suggested that individuals lower on trait gratitude are in a position to benefit more from a gratitude intervention (Rash et al.,
2011). These findings highlight the need to clarify the nature of trait-exercise relationships, and the results reported by Edwards (2013) suggest that relationships are characterized by non-exclusive, matching effects. In other words, high levels of one construct (e.g., gratitude) may bolster the effectiveness of not only the exercise specific to that construct (e.g., gratitude exercise), but may confer benefits for other exercises as well (e.g., humor exercise).

The Current Study

As was the case with dispositional constructs belonging to the humor and positive psychology domains, available evidence points to a causal role of humor and positive psychology strategies in enhancing well-being. In service of the overarching objective of this thesis project, to integrate work within the fields of humor and positive psychology, this second study served to further clarify how humor and positive psychology techniques compare in terms of their effect on well-being. This was accomplished by having participants engage in a brief humor, gratitude, savoring or placebo exercise modeled after those used in previous research. Participants evaluated themselves on various aspects of psychological well-being prior to and following the exercise. Furthermore, trait measures of humor, gratitude, and savoring were administered in order to permit evaluation of how trait levels of these constructs interact with the various exercises.

In terms of evaluating the effectiveness of the various exercises, the goal was to tap a wide range of well-being outcomes to allow for maximum comparison across the different exercises. As such, traditional well-being and positive psychology outcomes commonly referenced in the literature, and also included in Study 1, were adopted, namely, positive and negative affect, depression, anxiety, stress, happiness, and satisfaction with life. In addition, also included were a number of other constructs that
previous research has demonstrated are indicative of well-being. These include challenge appraisals, perceptions of control, environmental mastery, personal growth, and positive relations with others (Lazarus, 1991; Pallant, 2000; Ryff, 1989).

**Hypotheses.** Specifically, it was hypothesized that all the exercises would enhance well-being compared to the placebo exercise. How the experimental groups would compare amongst themselves was less certain, as previous available research indicates that gratitude and humor exercises may be similarly effective (Edwards, 2013). Therefore, it was anticipated that no large differences amongst the humor, gratitude and savoring conditions would be apparent, although findings from Study 1 suggested that certain exercises may be particularly effective for certain well-being outcomes (e.g., savoring and positive affect).

Furthermore, also in light of previous research, it was anticipated that participants in an adverse state immediately prior to the exercise, as indicated by high levels of negative affect, would derive the greatest benefits from completing the exercise. Negative affect was of interest since scholars have only considered low levels of positive affect (Froh et al., 2009), whereas the presence of strong, negative feelings seems very relevant to conceptions of an ‘adverse’ state. Finally, it was hypothesized that important trait-exercises relationships would emerge, such that exercises would be particularly beneficial for individuals high on humor, gratitude or savoring. Of note is that these effects were not expected to be specific to a given trait/exercise, such that those high versus low on gratitude might benefit more from gratitude, humor, and savoring exercises.
Method

Participants

Ethics approval was granted before data were collected (see Appendix C).

Participants were once again students enrolled in an introductory psychology course at the University of Western Ontario. There were 300 students who signed up for the study, however, 23 cases were excluded from analyses for one or more of the following reasons: (i) the participant went into the survey but failed to answer any questions, (ii) the participant failed to answer more than a third of the pre-manipulation measures, (iii) the participant did not participate in the writing exercise, or (iv) the participant failed to answer more than a third of the post-manipulation measures. Thus, 277 students (195 females, 82 males) constituted the final sample, with participants ranging in age from 16 to 53 ($M = 18.64$, $SD = 3.34$).

Manipulation

Writing exercises. Participants were requested to engage in one of four writing exercises: gratitude, savoring, humor use, or a control exercise (see Appendix D). These exercises were modeled after those used in previous research that has implemented gratitude and humor exercises or interventions (Edwards, 2013; Emmons & McCullough, 2003). The four exercises followed the same general format. For a given exercise, individuals were instructed to think back over the past two weeks and provide examples of that which they were grateful for, found pleasurable, or humorous. Participants were asked to write in as much detail as possible, and to picture in their minds what they were writing as vividly as possible. The instructions for the savoring exercise also included two specific examples of identified methods through which an individual can elongate a positive experience (i.e., sharing with others and comparison), in order to encourage
savoring (Bryant & Veroff, 2006). For the humor exercise, individuals were specifically asked to recall adaptive humor use, and were provided with brief examples to clarify what was sought after. That is, they were asked to write about experiences of “positive humor”, in which individuals did not use humor to put down the self or others, and could have used humor to make light of stressful situations. For the control exercise, individuals were simply instructed to discuss events they had encountered over the past two weeks.

Measures

Pre-manipulation measures. PANAS (Watson et al., 1988). The PANAS was employed prior to the writing exercise to attain baseline measures of positive and negative affect. Participants were asked to consider how the items corresponded to their feelings in the present moment. For further details and justification for use in the current study, see Chapter 2.

Set of well-being items. Participants were presented with items tapping various aspects of well-being or well-being indicators, specifically participants’ expectations for the next two weeks concerning their levels of happiness, life satisfaction, optimism, feelings of positivity/ negativity, stress, cognitive appraisals of events, perceived control, environmental mastery, personal growth, and relations with others (see Appendix E). These questions were adapted from various standard questionnaires (e.g., the Ryff Scales, SHS, SWL) (Diener et al., 1985; Lyubomirsky & Lepper, 1999; Ryff, 1989).

Post-manipulation measures. The PANAS (Watson et al., 1988) along with the previously specified assortment of items were also administered following the manipulation to gauge changes in the aforementioned constructs of interest.
Humor Styles Questionnaire (HSQ; Martin et al., 2003). The HSQ was once again employed in the current study to obtain a trait measure of the four humor styles. For a detailed description and justification for use in the present study, see Chapter 2.

Gratitude Questionnaire-6 (GQ-6; McCullough et al., 2002). The GQ-6 was once again included in the present study to estimate individual differences in the regular experience of grateful affect. For details and justification for use in the present study, see Chapter 2.

Savoring Beliefs Inventory (SBI; Bryant, 2003). The SBI is a 24-item scale that assesses an individual’s beliefs about his or her ability to savor positive experiences. The reasons for substituting this measure for a subset of the WOSC, as used in the previous study, were four-fold. Firstly, the SBI provides a more comprehensive measure of savoring, as it is comprised of three subscales to permit evaluation of the ability to savor past, present, and future positive events (i.e., the Reminiscing, Savoring the moment, and Anticipating subscales, respectively). Secondly, the SBI is designed to assess solely amplifying savoring. Thirdly, the SBI provides a measure of savoring that is independent of one’s method of savoring. Finally, the abbreviated WOSC used in the previous study resulted in basing estimates of amplifying and dampening savoring on a very small subset of items.

Evaluation of the SBI psychometric properties has indicated that it demonstrates moderate to high internal consistency, with Cronbach’s alphas ranging from 0.68-0.89 for the three temporally-based subscales. Use of total scores resulted in more reliable estimates, with Cronbach’s alphas ranging from 0.88 to 0.94. Furthermore, analysis of SBI total and subscale scores indicated strong, 3-week test-retest reliability, with correlations ranging from $r = 0.80$ to 0.88. Investigations into the convergent and discriminant validity of the SBI have also been promising, with the SBI positively correlating with constructs such as gratification,
extraversion, optimism, and the intensity and frequency of happy moods, and negatively correlating with constructs such as hopelessness, anhedonia, neuroticism and the frequency of neutral or unhappy moods.

See Table 3.1 for a summary of measures included in the present study.

**Procedure**

Upon viewing the description of the study on the Psychology Department’s online participation pool, students could sign-up for the study. They were then randomly directed to one of twelve versions of a questionnaire hosted on the Survey Monkey website. These versions of the questionnaire were created to control for ordering effects within the four experimental conditions (i.e., a complete reverse ordering of scales; orderings which had scales positioned in the middle of one survey version being then placed at the beginning and end of other versions, and so on). Irrespective of their version of the survey, participants were presented with a Letter of Information at the beginning of the study and were required to give their informed consent before they could proceed. Participants first completed the pre-task assortment of well-being measures, then one of the three exercises (humor, gratitude or savoring) or the control exercise, then the post-task well-being measures, and finally, the set of individual difference measures. When participants reached the end of the study, they were presented with a debriefing letter. See Appendix F for a copy of the ethics forms used in the present study.

Missing data points were replaced with the average for that scale if less than a third of responses were missing. If more than a third of the scale was left unanswered, participants were excluded from specific analyses that employed the measure. Less than 1% (0.27%) of data (100 out of 36,564 data points) were replaced in the current study.
**Table 3.1**

*Summary Table of Measures for Study 2*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Subscales</th>
<th>Brief Description of Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gratitude Questionnaire-6 (GQ-6)</td>
<td>None</td>
<td>Examines gratitude as a unidimensional construct, as individual differences in the experience (i.e., frequency, intensity, and density) of grateful affect</td>
</tr>
<tr>
<td>Savoring Beliefs Inventory (SBI)</td>
<td>Anticipating, Savoring the Moment, Reminiscing</td>
<td>Assesses individuals’ beliefs concerning their ability to derive pleasure from anticipating future positive events, savoring positive moments, and reminiscing about past positive experiences</td>
</tr>
<tr>
<td>Humor Styles Questionnaire (HSQ)</td>
<td>Affiliative, Self-Enhancing, Aggressive, Self-Defeating</td>
<td>Examines individuals' self-perceptions of their humor use</td>
</tr>
<tr>
<td>Positive and Negative Affect Schedule (PANAS)</td>
<td>Positive, Negative</td>
<td>Assesses the frequency of individuals’ positive and negative affect over the previous week</td>
</tr>
<tr>
<td>Items created for the current study</td>
<td>Happiness, life satisfaction, optimism, stress, cognitive appraisals of events, perceived control, environmental mastery, personal growth, relationships</td>
<td>Adapted from commonly used measures of well-being (e.g., the Ryff Scales; Ryff, 1989) or created to assess other constructs well-documented as being important for well-being</td>
</tr>
</tbody>
</table>
Results

Descriptive statistics for the well-being measures administered before and after the writing exercise are presented in Table 3.2. Similarly, the descriptive statistics for the humor and positive psychology trait measures are displayed in Table 3.3. Examination of both of these tables reveals that the means and standard deviations for the pre-post well-being measures and the humor styles and positive psychology trait measures are comparable to those reported in the literature. Furthermore, reliability coefficients were in the acceptable range (.68-.94) for all measures, with one notable exception. A lower Cronbach’s alpha (.56) was associated with items created for the present study to assess environmental mastery. Interestingly, however, this appears to have only been an issue for the pre-manipulation assessment of this construct (see Table 3.2).

Initial Analyses of Pre-Post and Group Effects

The impact of the four writing exercises was initially examined by conducting a 2 x 4 mixed-design analysis of variance (ANOVA) for each individual well-being measure included in the present study. The between subjects factor in this ANOVA was group (4 levels), which consisted of the control condition and the three different writing exercises (humor, gratitude and savoring). The repeated factor in this ANOVA was the pre-post assessment of well-being (2 levels). Table 3.4 summarizes the results of these analyses. Striking was the overall effect the exercises appeared to have from pre to post exercise. Significant findings were obtained for 9 of the 13 constructs, with the patterns always observed in the expected direction. For instance, and as shown in Table 3.2, negative affect decreased significantly from pre to post exercise, whereas happiness increased significantly. Only positive affect, personal growth, perceptions of control, and appraisals of relationships did not change following the exercise. Secondly, no group effects were evident from these
Table 3.2

*Descriptive Statistics for the Pre-Post Well-Being Measures*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Timing of Administration</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANAS Positive</td>
<td>Pre</td>
<td>29.60</td>
<td>7.60</td>
<td>10-47</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>29.62</td>
<td>8.03</td>
<td>10-47</td>
<td>.90</td>
</tr>
<tr>
<td>PANAS Negative</td>
<td>Pre</td>
<td>19.11</td>
<td>7.25</td>
<td>10-45</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>17.47</td>
<td>7.12</td>
<td>10-44</td>
<td>.90</td>
</tr>
<tr>
<td>ENV Mastery</td>
<td>Pre</td>
<td>9.14</td>
<td>2.12</td>
<td>2-14</td>
<td>.56</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>9.32</td>
<td>2.18</td>
<td>4-14</td>
<td>.72</td>
</tr>
<tr>
<td>Personal Growth</td>
<td>Pre</td>
<td>14.51</td>
<td>3.64</td>
<td>3-21</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>14.44</td>
<td>3.80</td>
<td>3-21</td>
<td>.90</td>
</tr>
<tr>
<td>Happiness</td>
<td>Pre</td>
<td>4.55</td>
<td>1.21</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>4.74</td>
<td>1.20</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>Pre</td>
<td>4.54</td>
<td>1.50</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>4.69</td>
<td>1.52</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td>Stress</td>
<td>Pre</td>
<td>5.21</td>
<td>1.39</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>4.65</td>
<td>1.45</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td>Positivity</td>
<td>Pre</td>
<td>4.49</td>
<td>1.23</td>
<td>2-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>4.66</td>
<td>1.24</td>
<td>2-7</td>
<td>n/a</td>
</tr>
<tr>
<td>Negativity</td>
<td>Pre</td>
<td>3.36</td>
<td>1.29</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>3.16</td>
<td>1.21</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td>Challenge</td>
<td>Pre</td>
<td>4.09</td>
<td>1.34</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>4.39</td>
<td>1.29</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td>Control</td>
<td>Pre</td>
<td>4.51</td>
<td>1.25</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>4.59</td>
<td>1.25</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td>Positive Relations</td>
<td>Pre</td>
<td>5.57</td>
<td>1.34</td>
<td>2-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>5.66</td>
<td>1.28</td>
<td>2-7</td>
<td>n/a</td>
</tr>
<tr>
<td>Optimism</td>
<td>Pre</td>
<td>4.55</td>
<td>1.26</td>
<td>1-7</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Post</td>
<td>4.84</td>
<td>1.24</td>
<td>1-7</td>
<td>n/a</td>
</tr>
</tbody>
</table>

*Note. N = 272-277. PANAS = Positive and Negative Affect Schedule, ENV Mastery = Environmental Mastery, n/a = Not applicable. Reliabilities provided for all measures with more than one item.*
### Table 3.3

*Descriptive Statistics for the Humor Styles and Positive Psychology Trait Measures*

<table>
<thead>
<tr>
<th>Category</th>
<th>Measure</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humor</td>
<td>HSQ Affiliative</td>
<td>44.77</td>
<td>7.51</td>
<td>20-56</td>
<td>.82</td>
</tr>
<tr>
<td></td>
<td>HSQ Self-Enhancing</td>
<td>34.77</td>
<td>8.23</td>
<td>11-55</td>
<td>.80</td>
</tr>
<tr>
<td></td>
<td>HSQ Aggressive</td>
<td>28.41</td>
<td>7.31</td>
<td>10-48</td>
<td>.68</td>
</tr>
<tr>
<td></td>
<td>HSQ Self-Defeating</td>
<td>29.87</td>
<td>9.04</td>
<td>8-53</td>
<td>.83</td>
</tr>
<tr>
<td>Gratitude</td>
<td>GQ-6</td>
<td>34.51</td>
<td>5.87</td>
<td>17-42</td>
<td>.83</td>
</tr>
<tr>
<td>Savoring</td>
<td>SBI Total</td>
<td>25.82</td>
<td>23.94</td>
<td>-55-72</td>
<td>.94</td>
</tr>
</tbody>
</table>

*Note. N = 275-276 for all measures. HSQ = Humor Styles Questionnaire, GQ-6 = Gratitude Questionnaire-6, SBI = Savoring Beliefs Inventory.*

### Table 3.4

*Summary of the 2(Pre-Post) x 4(Group) Repeated Measures Analyses of Variance*

<table>
<thead>
<tr>
<th>Well-Being Measure</th>
<th>Pre-Post F-value</th>
<th>Group F-value</th>
<th>Pre-Post x Group F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANAS Positive</td>
<td>$F(1, 273) = 0.00$</td>
<td>$F(3, 273) = 0.33$</td>
<td>$F(3, 273) = 1.68$</td>
</tr>
<tr>
<td>PANAS Negative</td>
<td>$F(1, 273) = 45.29^{***}$</td>
<td>$F(3, 273) = 0.99$</td>
<td>$F(3, 273) = 0.89$</td>
</tr>
<tr>
<td>Environmental Mastery</td>
<td>$F(1, 273) = 4.70^{*}$</td>
<td>$F(3, 273) = 0.73$</td>
<td>$F(3, 273) = 0.16$</td>
</tr>
<tr>
<td>Personal Growth</td>
<td>$F(1, 273) = 0.33$</td>
<td>$F(3, 273) = 0.70$</td>
<td>$F(3, 273) = 0.63$</td>
</tr>
<tr>
<td>Happiness</td>
<td>$F(1, 273) = 12.17^{***}$</td>
<td>$F(3, 273) = 0.66$</td>
<td>$F(3, 273) = 1.79$</td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>$F(1, 268) = 8.49^{**}$</td>
<td>$F(3, 268) = 1.73$</td>
<td>$F(3, 268) = 1.70$</td>
</tr>
<tr>
<td>Stress</td>
<td>$F(1, 273) = 54.99^{***}$</td>
<td>$F(3, 273) = 2.10$</td>
<td>$F(3, 268) = 1.31$</td>
</tr>
<tr>
<td>Positivity</td>
<td>$F(1, 267) = 7.55^{**}$</td>
<td>$F(3, 267) = 1.46$</td>
<td>$F(3, 267) = 2.40^{^}$</td>
</tr>
<tr>
<td>Negativity</td>
<td>$F(1, 269) = 9.00^{**}$</td>
<td>$F(3, 269) = 1.60$</td>
<td>$F(3, 269) = 0.60$</td>
</tr>
<tr>
<td>Challenge</td>
<td>$F(1, 267) = 24.93^{***}$</td>
<td>$F(3, 267) = 1.42$</td>
<td>$F(3, 267) = 2.90^{*}$</td>
</tr>
<tr>
<td>Control</td>
<td>$F(1, 268) = 1.71$</td>
<td>$F(3, 268) = 1.00$</td>
<td>$F(3, 268) = 0.41$</td>
</tr>
<tr>
<td>Positive Relations</td>
<td>$F(1, 269) = 2.62$</td>
<td>$F(3, 269) = 0.83$</td>
<td>$F(3, 269) = 1.80$</td>
</tr>
<tr>
<td>Optimism</td>
<td>$F(1, 272) = 24.62^{***}$</td>
<td>$F(3, 272) = 0.44$</td>
<td>$F(3, 272) = 0.92$</td>
</tr>
</tbody>
</table>

*Note. PANAS = Positive and Negative Affect Schedule.*

$^p = .06, ^{*}p < .05, ^{**}p < .01, ^{***}p < .001$
results. Thus, it appears from this initial examination that there were no marked group
differences when scores were collapsed across pre to post-exercise assessments of well-
being.

However, as shown in Table 3.4, there was a significant interaction, $F(3, 267) = 2.90$, $p = .03$, between group and pre-post reports for the Challenge measure (i.e., how likely individuals were to appraise a difficult situation as a challenge compared to a threat). This 2 x 4 interaction was plotted (see Figure 3.1) and $t$-tests were conducted to determine the exact nature of this interaction effect. Results indicated that participants who received the control exercise did not differ in their challenge appraisals from pre to post manipulation, $t(68) = 1.05$, $p = .30$, whereas a difference was observed for individuals in the humor, $t(68) = 2.14$, $p = .03$, gratitude, $t(68) = 4.50$, $p < .001$, and savoring, $t(63) = 2.12$, $p = .03$, conditions. Furthermore, when a Bonferroni correction was applied ($p < .0125$), only pre-post changes associated with the gratitude exercise remained significant. Thus, it appears that participants in the treatment groups, and those who completed the gratitude exercise, in particular, adopted more adaptive challenge appraisals of difficult situations following the writing exercise.

In summary, these initial analyses indicated that participants improved on the vast majority of well-being measures following the writing exercise. From this preliminary examination, it is also apparent that the humor, gratitude, and savoring exercises may have conferred unique benefits, specifically when considering how participants’ challenge appraisals changed from pre to post manipulation. Nevertheless, an overwhelming lack of apparent group differences despite robust differences from pre to post manipulation provides the impetus for further investigating the effect of the writing exercises in the present study.
Figure 3.1. Interaction between group and pre-post appraisal of challenge.
Construction of Factor Scores

One direction that was taken to further elucidate the impact of the different exercises on well-being was to consolidate the various well-being measures employed in the current study by creating factor scores. Firstly, this involved conducting a principal components analysis on the pre-manipulation well-being measures. A varimax rotation was used, and three factors were derived (eigenvalues and factor loadings are presented in Table 3.5). To be included in the factor composite score, a measure had to yield a factor loading greater than .5, while simultaneously loading less than .5 on all other factors. In addition, a principal components analysis was conducted on the post-manipulation measures to help inform this procedure. This latter analysis was interpreted with caution, since the resulting factors were preceded by the experimental manipulation. Nevertheless, if a measure ‘switched’ factors following the writing exercise, this measure was removed from the original factor. This approach was taken to ensure that the three factors were comprised of the most stable elements across the pre-post exercise manipulation. Thus, although environmental mastery, happiness, and optimism all loaded highly on factor 1, as illustrated in Table 3.5, these measures loaded highly on another factor when the analysis was conducted on the post-manipulation results. Consequently, these measures were excluded from the factor 1 composite score. Furthermore, positive affect loaded highly on both factors 1 and 3; and the positivity measure loaded highly on both factors 1 and 2. Once again, in accordance with the decision rules cited above, both positive affect and positivity were dropped from these factors.

Therefore, the final factors that were obtained captured (1) challenge, stress, and negativity; (2) control, positive relations, and life satisfaction; and (3) negative affect. The first factor primarily taps appraisals of difficult and stressful situations. The second factor
Table 3.5

*Rotated Factor Loadings for the Pre-Manipulation Well-Being Measures*

<table>
<thead>
<tr>
<th>Well-Being Measure</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANAS Positive</td>
<td>.53</td>
<td>.22</td>
<td>.59</td>
</tr>
<tr>
<td>PANAS Negative</td>
<td>-.26</td>
<td>-.27</td>
<td>.82</td>
</tr>
<tr>
<td>Environmental Mastery</td>
<td>.55</td>
<td>.44</td>
<td>-.04</td>
</tr>
<tr>
<td>Personal Growth</td>
<td>.41</td>
<td>.46</td>
<td>.22</td>
</tr>
<tr>
<td>Happiness</td>
<td>.69</td>
<td>.39</td>
<td>.07</td>
</tr>
<tr>
<td>Life Satisfaction</td>
<td>.10</td>
<td>.63</td>
<td>-.09</td>
</tr>
<tr>
<td>Stress</td>
<td>-.77</td>
<td>.26</td>
<td>.22</td>
</tr>
<tr>
<td>Positivity</td>
<td>.71</td>
<td>.49</td>
<td>.04</td>
</tr>
<tr>
<td>Negativity</td>
<td>-.67</td>
<td>-.19</td>
<td>.04</td>
</tr>
<tr>
<td>Challenge</td>
<td>.69</td>
<td>.25</td>
<td>-.02</td>
</tr>
<tr>
<td>Control</td>
<td>.35</td>
<td>.55</td>
<td>-.06</td>
</tr>
<tr>
<td>Positive Relations</td>
<td>.09</td>
<td>.73</td>
<td>-.02</td>
</tr>
<tr>
<td>Optimism</td>
<td>.66</td>
<td>.39</td>
<td>.13</td>
</tr>
</tbody>
</table>

**Eigenvalues**

4.31  1.16  1.10

*Note.* PANAS = Positive and Negative Affect Schedule.
appears to reflect a general positive life orientation. The third factor seems to simply capture negative affect. Pre and post factor scores were computed for each factor by summing the individual components and dividing by the total number of components. All elements remained positive except for stress and negativity, which were subtracted from challenge to create the factor 1 scores. Descriptive statistics for the factor 1 and 2 scores are provided in Table 3.6 (recall that the values for negative affect were already presented earlier). Increasingly positive factor 1 and 2 scores reflect more desirable outcomes.

**Analyses of Pre-Post and Group Effects utilizing Factor Scores**

Factor scores were then entered into a 2 x 4 ANOVA for factor 1 and a further 2 x 4 ANOVA for factor 2. Recall that this analysis has already been conducted previously for negative affect. For the first factor, there was a significant main effect of the pre to post exercise manipulation, $F(1, 263) = 61.05, p < .001$. The interaction between group and pre-post change was also significant, $F(3, 263) = 2.82, p = .04$. This interaction is plotted in Figure 3.2, and closer examination of this interaction revealed that participants’ Factor 1 scores improved from pre to post manipulation for all groups: control, $t(65) = 2.12, p = .04$, humor, $t(67) = 4.00, p < .001$, gratitude, $t(68) = 5.74, p < .001$, and savoring, $t(64) = 3.73, p < .001$. However, when a Bonferroni correction was applied ($p < .0125$), only the treatment conditions were associated with significant improvement following the writing exercise.

Finally, for the second factor, there was again a significant main effect of the pre-post manipulation, $F(1, 259) = 10.14, p = .002$, but the interaction effect, $F(3, 259) = 1.01, p = .39$, and main effect of group, $F(3, 259) = 1.79, p = .15$, were both non-significant. In summary, analyses that considered how individuals’ appraisals of difficult
Table 3.6

*Descriptive Statistics for the Factor Scores*

<table>
<thead>
<tr>
<th>Factor Score</th>
<th>$M$</th>
<th>$SD$</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Factor 1</td>
<td>-1.50</td>
<td>1.03</td>
<td>-4.00-1.33</td>
</tr>
<tr>
<td>Post-Factor 1</td>
<td>-1.13</td>
<td>1.03</td>
<td>-4.33-1.33</td>
</tr>
<tr>
<td>Pre-Factor 2</td>
<td>4.87</td>
<td>0.97</td>
<td>2.00-7.00</td>
</tr>
<tr>
<td>Post-Factor 2</td>
<td>4.99</td>
<td>1.02</td>
<td>1.33-7.00</td>
</tr>
</tbody>
</table>

*Note.* Factor 1 composed of Challenge, - Stress, and - Negativity. Factor 2 composed of Control, Positive Relations and Life Satisfaction.
Figure 3.2. Interaction between group and pre-post change in factor 1 scores.
and stressful situations change following the writing exercise, in particular, suggest there may be some group by pre-post distinctions.

**Impact of Participants’ Pre-Exercise State on the Effectiveness of Exercises**

A final possibility that was explored, before turning to an examination of trait effects, was whether an individual’s internal state just prior to completing the writing exercise was important for the benefits he or she derived from the exercise. The results of this investigation are displayed in Tables 3.7 and 3.8.

**High pre-exercise negative affect.** Of interest was whether individuals with higher negative affect just prior to the writing exercise would benefit more from the exercise than those individuals with low negative affect just prior to the exercise. To begin the process of investigating this possibility, participants were selected if they were at or above the mean average score for negative affect (i.e., 17), just prior to the writing exercise. A 2 x 4 ANOVA was conducted, first with the factor 1 scores and then with the factor 2 scores. The results of these two analyses are displayed in Table 3.7. The third factor score of negative affect was not considered in any of these analyses due to its current use as a pre-exercise selection factor.

For factor 1 scores, there was a significant main effect for both pre-post, $p < .001$, and group, $p = .04$, as well as a pre-post by group interaction effect, $F(3, 140) = 2.92, p = .03$. This interaction is plotted in Figure 3.3. Similar to the interaction effect involving factor 1 scores discussed above, individuals who completed the control exercise did not experience improvement from pre to post manipulation, $t(35) = 1.61, p = .12$, whereas those who completed the humor, $t(36) = 2.64, p = .01$, gratitude, $t(33) = 4.75, p < .001$, and savoring, $t(36) = 2.66, p = .01$, exercises demonstrated favorable change. When a Bonferroni adjustment was applied ($p < .0125$), these significant differences remained.
Table 3.7

*Summary of the 2(Pre-Post) x 4(Group) ANOVA for Participants reporting High Pre-Manipulation Negative Affect*

<table>
<thead>
<tr>
<th>Level of Negative Affect</th>
<th>Factor Score</th>
<th>Pre-Post F-value</th>
<th>Group F-value</th>
<th>Pre-Post x Group F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater or equal to 17</td>
<td>Factor 1</td>
<td>$F(1, 140) = 36.55^{***}$</td>
<td>$F(3, 140) = 2.67^*$</td>
<td>$F(3, 140) = 2.92^*$</td>
</tr>
<tr>
<td></td>
<td>Factor 2</td>
<td>$F(1, 140) = 3.15$</td>
<td>$F(3, 140) = 0.23$</td>
<td>$F(3, 140) = 1.06$</td>
</tr>
</tbody>
</table>

* $p < .05$, $^{***}p < .001$

Table 3.8

*Summary of the 2(Pre-Post) x 4(Group) ANOVA for Participants reporting Low Pre-Manipulation Negative Affect*

<table>
<thead>
<tr>
<th>Level of Negative Affect</th>
<th>Factor Score</th>
<th>Pre-Post F-value</th>
<th>Group F-value</th>
<th>Pre-Post x Group F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less or equal to 16</td>
<td>Factor 1</td>
<td>$F(1, 118) = 24.92^{***}$</td>
<td>$F(3, 118) = 0.47$</td>
<td>$F(3, 118) = 0.67$</td>
</tr>
<tr>
<td></td>
<td>Factor 2</td>
<td>$F(1, 114) = 8.75^{**}$</td>
<td>$F(3, 114) = 3.22^*$</td>
<td>$F(3, 114) = 0.68$</td>
</tr>
</tbody>
</table>

* $p < .05$, $^{**}p < .01$, $^{***}p < .001$
Figure 3.3. Interaction between group and pre-post change in factor 1 scores for participants who reported high pre-exercise levels of negative affect.
Finally, for factor 2 scores, no effects were significant when considering only individuals high on negative affect prior to the writing exercise (see Table 3.7).

**Low pre-exercise negative affect.** An important, next step in determining whether individuals in an adverse state disproportionately benefited from the exercises would be to consider participants in a more desirable state. In this instance, of interest would be individuals who reported low negative affect (i.e., less than the mean value) prior to the writing exercise. To investigate, two 2 x 4 ANOVAs were conducted utilizing the factor 1 and 2 scores, respectively, with the results summarized in Table 3.8. In this case, for the factor 1 scores, there was a sole, significant main effect of pre-post, \( p < .001 \); whereas analyses utilizing factor 2 scores indicated main effects of both the pre-post manipulation, \( F(1, 114) = 8.75, p = .004 \), and group, \( F(3, 114) = 3.22, p = .02 \). Post hoc analyses on the four means comprising this significant main effect of group indicated that, overall, individuals in the gratitude condition fared better compared to those who received the control, \( t(58) = 2.37, p = .01 \), and humor, \( t(62) = 2.83, p = .002 \), exercises, when considering this particular well-being measure. When a Bonferroni adjustment was applied \( (p < .0125) \), these significant differences remained. Further investigation into these group differences revealed that only the gratitude group was associated with significant change in factor 2 scores from pre to post-exercise, \( t(31) = 2.42, p = .01 \).

Therefore, in summary, these results suggest that considering an individual’s state prior to the writing exercises may lend important knowledge concerning their effectiveness. In particular, it appeared that individuals might derive different benefits from an exercise when they are in an adverse compared to a positive state. Furthermore, these findings seem to favor gratitude, humor and savoring exercises, specifically.
Consideration of Trait Effects when Examining the Impact of Exercises

A final set of analyses were conducted to examine the possible roles of the humor styles, and trait gratitude and savoring, in order to address the important question of how stable, individual differences may also influence the benefits derived from the various writing exercises.

To assess the impact of trait measures, participants were first divided into three groups of similar size, which corresponded with low, medium and high levels of the trait being considered. See Table 3.9 for the descriptive statistics for the humor, gratitude and savoring groups formed in this manner. The trait was then entered as a 3-level, between-subjects factor into the original ANOVA design, which specified group as a 4-level, between-subjects factor and pre-post assessment as a 2-level, within-subjects factor. Each trait measure was then considered separately within a 2 (pre-post) x 4 (groups) x 3 (trait level) ANOVA that separately utilized each of the three different factor scores. See Table 3.10 for a summary of these ANOVA findings that pertain to trait main effects and interactions ($F$-values for the group effect and group x pre-post interaction were not included in this table). Also see Table 3.11 for the means and standard errors associated with all significant main effects of trait-level for the various factor scores.

**Affiliative humor.** For affiliative humor, two of the three analyses revealed a significant main effect of affiliative humor. Here, higher levels of affiliative humor were associated with more favorable factor 2 and negative affect scores. In both instances, post hoc pairwise comparisons utilizing a Bonferroni correction indicated that participants at low levels of affiliative humor significantly differed from those at medium and high levels ($p < .001$, $p = .004$), whereas individuals at medium and high levels of affiliative humor did not differ from one another.
Table 3.9

*Descriptive Statistics of the Low, Medium and High Trait Groups*

<table>
<thead>
<tr>
<th>Trait</th>
<th>Group Level</th>
<th>M</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affiliative</td>
<td>Low</td>
<td>35.74</td>
<td>5.02</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>45.99</td>
<td>1.57</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>51.91</td>
<td>2.26</td>
<td>99</td>
</tr>
<tr>
<td>Self-Enhancing</td>
<td>Low</td>
<td>24.80</td>
<td>4.95</td>
<td>82</td>
</tr>
<tr>
<td>Humor</td>
<td>Medium</td>
<td>34.96</td>
<td>2.08</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>43.35</td>
<td>3.59</td>
<td>93</td>
</tr>
<tr>
<td>Aggressive</td>
<td>Low</td>
<td>20.28</td>
<td>3.56</td>
<td>88</td>
</tr>
<tr>
<td>Humor</td>
<td>Medium</td>
<td>28.08</td>
<td>2.01</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>36.17</td>
<td>4.05</td>
<td>96</td>
</tr>
<tr>
<td>Self-Defeating</td>
<td>Low</td>
<td>19.39</td>
<td>4.55</td>
<td>87</td>
</tr>
<tr>
<td>Humor</td>
<td>Medium</td>
<td>29.60</td>
<td>2.13</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>39.18</td>
<td>4.49</td>
<td>100</td>
</tr>
<tr>
<td>Gratitude</td>
<td>Low</td>
<td>26.83</td>
<td>4.04</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>35.14</td>
<td>1.40</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>39.92</td>
<td>1.44</td>
<td>103</td>
</tr>
<tr>
<td>Savoring</td>
<td>Low</td>
<td>-1.28</td>
<td>14.36</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>27.67</td>
<td>6.87</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>51.08</td>
<td>9.36</td>
<td>92</td>
</tr>
</tbody>
</table>
Table 3.10

Summary of the 2(Pre-Post) x 4(Group) x 3 (Trait Level) ANOVAs

<table>
<thead>
<tr>
<th>Trait</th>
<th>Outcome</th>
<th>Trait F-value</th>
<th>Trait x Pre-Post F-value</th>
<th>Trait x Group F-value</th>
<th>Trait x Pre-Post x Group F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFF</td>
<td>Fac 1</td>
<td>(F(2, 254) = 1.09)</td>
<td>(F(2, 254) = 0.78)</td>
<td>(F(6, 254) = 0.68)</td>
<td>(F(6, 254) = 1.48)</td>
</tr>
<tr>
<td></td>
<td>Fac 2</td>
<td>(F(2, 250) = 21.39^{***})</td>
<td>(F(2, 250) = 3.57^{*})</td>
<td>(F(6, 250) = 0.36)</td>
<td>(F(6, 250) = 1.96)</td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>(F(2, 263) = 6.23^{**})</td>
<td>(F(2, 263) = 1.25)</td>
<td>(F(6, 263) = 0.74)</td>
<td>(F(6, 263) = 0.84)</td>
</tr>
<tr>
<td>SE</td>
<td>Fac 1</td>
<td>(F(2, 254) = 24.94^{***})</td>
<td>(F(2, 254) = 0.59)</td>
<td>(F(6, 254) = 0.87)</td>
<td>(F(6, 254) = 1.67)</td>
</tr>
<tr>
<td></td>
<td>Fac 2</td>
<td>(F(2, 250) = 16.71^{***})</td>
<td>(F(2, 250) = 1.12)</td>
<td>(F(6, 250) = 0.52)</td>
<td>(F(6, 250) = 0.84)</td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>(F(2, 263) = 5.73^{**})</td>
<td>(F(2, 263) = 1.34)</td>
<td>(F(6, 263) = 0.87)</td>
<td>(F(6, 263) = 1.08)</td>
</tr>
<tr>
<td>AGG</td>
<td>Fac 1</td>
<td>(F(2, 254) = 3.80)</td>
<td>(F(2, 254) = 0.92)</td>
<td>(F(6, 254) = 0.43)</td>
<td>(F(6, 254) = 0.44)</td>
</tr>
<tr>
<td></td>
<td>Fac 2</td>
<td>(F(2, 250) = 0.12)</td>
<td>(F(2, 250) = 1.06)</td>
<td>(F(6, 250) = 1.09)</td>
<td>(F(6, 250) = 1.27)</td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>(F(2, 263) = 7.30^{***})</td>
<td>(F(2, 263) = 0.65)</td>
<td>(F(6, 263) = 0.54)</td>
<td>(F(6, 263) = 1.00)</td>
</tr>
<tr>
<td>SD</td>
<td>Fac 1</td>
<td>(F(2, 253) = 2.87^{\wedge})</td>
<td>(F(2, 253) = 0.69)</td>
<td>(F(6, 253) = 1.26)</td>
<td>(F(6, 253) = 1.72)</td>
</tr>
<tr>
<td></td>
<td>Fac 2</td>
<td>(F(2, 249) = 5.87^{**})</td>
<td>(F(2, 249) = 0.42)</td>
<td>(F(6, 249) = 0.27)</td>
<td>(F(6, 249) = 0.24)</td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>(F(2, 262) = 11.58^{***})</td>
<td>(F(2, 262) = 1.49)</td>
<td>(F(6, 262) = 0.36)</td>
<td>(F(6, 262) = 0.71)</td>
</tr>
<tr>
<td>GRAT</td>
<td>Fac 1</td>
<td>(F(2, 254) = 6.62^{**})</td>
<td>(F(2, 254) = 0.31)</td>
<td>(F(6, 254) = 1.04)</td>
<td>(F(6, 254) = 0.50)</td>
</tr>
<tr>
<td></td>
<td>Fac 2</td>
<td>(F(2, 250) = 41.69^{***})</td>
<td>(F(2, 250) = 1.43)</td>
<td>(F(6, 250) = 0.95)</td>
<td>(F(6, 250) = 1.33)</td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>(F(2, 263) = 9.04^{***})</td>
<td>(F(2, 263) = 3.16^{*})</td>
<td>(F(6, 263) = 1.13)</td>
<td>(F(6, 263) = 0.18)</td>
</tr>
<tr>
<td>SAV</td>
<td>Fac 1</td>
<td>(F(2, 254) = 8.83^{***})</td>
<td>(F(2, 254) = 0.03)</td>
<td>(F(6, 254) = 0.32)</td>
<td>(F(6, 254) = 1.09)</td>
</tr>
<tr>
<td></td>
<td>Fac 2</td>
<td>(F(2, 250) = 45.00^{***})</td>
<td>(F(2, 250) = 4.24^{**})</td>
<td>(F(6, 250) = 0.34)</td>
<td>(F(6, 250) = 0.84)</td>
</tr>
<tr>
<td></td>
<td>NA</td>
<td>(F(2, 264) = 24.66^{***})</td>
<td>(F(2, 264) = 0.74)</td>
<td>(F(6, 264) = 0.41)</td>
<td>(F(6, 264) = 1.11)</td>
</tr>
</tbody>
</table>

Note. AFF = Affiliative Humor, SE = Self-Enhancing Humor, AGG = Aggressive Humor, SD = Self-Defeating Humor, GRAT = Gratitude, SAV = Savoring. Fac 1 = Factor 1, Fac 2 = Factor 2, NA = Negative Affect.

\(^{\wedge}p = .06, ^{*}p < .05, ^{**}p < .01, ^{***}p < .001\)
### Table 3.11

**Means and Standard Errors for Significant Main Effects of Trait Level for Factor Scores**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Factor Score</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affiliative Humor</strong></td>
<td>Factor 2</td>
<td>$M = 4.42$</td>
<td>$M = 5.05$</td>
<td>$M = 5.28$</td>
</tr>
<tr>
<td></td>
<td>$SE = .98$</td>
<td>$SE = .98$</td>
<td>$SE = .91$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor 3</td>
<td>$M = 20.33$</td>
<td>$M = 17.02$</td>
<td>$M = 17.46$</td>
</tr>
<tr>
<td></td>
<td>$SE = .72$</td>
<td>$SE = .74$</td>
<td>$SE = .69$</td>
<td></td>
</tr>
<tr>
<td><strong>Self-Enhancing Humor</strong></td>
<td>Factor 1</td>
<td>$M = -1.83$</td>
<td>$M = -1.31$</td>
<td>$M = -0.84$</td>
</tr>
<tr>
<td></td>
<td>$SE = .10$</td>
<td>$SE = .09$</td>
<td>$SE = .10$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor 2</td>
<td>$M = 4.45$</td>
<td>$M = 4.96$</td>
<td>$M = 5.29$</td>
</tr>
<tr>
<td></td>
<td>$SE = .11$</td>
<td>$SE = .09$</td>
<td>$SE = .10$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor 3</td>
<td>$M = 19.48$</td>
<td>$M = 19.25$</td>
<td>$M = 16.39$</td>
</tr>
<tr>
<td></td>
<td>$SE = .77$</td>
<td>$SE = .68$</td>
<td>$SE = .71$</td>
<td></td>
</tr>
<tr>
<td><strong>Aggressive Humor</strong></td>
<td>Factor 3</td>
<td>$M = 16.32$</td>
<td>$M = 18.16$</td>
<td>$M = 20.16$</td>
</tr>
<tr>
<td></td>
<td>$SE = .73$</td>
<td>$SE = .72$</td>
<td>$SE = .70$</td>
<td></td>
</tr>
<tr>
<td><strong>Self-Defeating Humor</strong></td>
<td>Factor 2</td>
<td>$M = 5.13$</td>
<td>$M = 5.05$</td>
<td>$M = 4.69$</td>
</tr>
<tr>
<td></td>
<td>$SE = .10$</td>
<td>$SE = .10$</td>
<td>$SE = .10$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor 3</td>
<td>$M = 15.42$</td>
<td>$M = 19.04$</td>
<td>$M = 19.95$</td>
</tr>
<tr>
<td></td>
<td>$SE = .72$</td>
<td>$SE = .72$</td>
<td>$SE = .67$</td>
<td></td>
</tr>
<tr>
<td><strong>Gratitude</strong></td>
<td>Factor 1</td>
<td>$M = -1.59$</td>
<td>$M = -1.35$</td>
<td>$M = -1.07$</td>
</tr>
<tr>
<td></td>
<td>$SE = .11$</td>
<td>$SE = .10$</td>
<td>$SE = .09$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor 2</td>
<td>$M = 4.23$</td>
<td>$M = 5.00$</td>
<td>$M = 5.40$</td>
</tr>
<tr>
<td></td>
<td>$SE = .10$</td>
<td>$SE = .09$</td>
<td>$SE = .08$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor 3</td>
<td>$M = 20.59$</td>
<td>$M = 18.55$</td>
<td>$M = 16.34$</td>
</tr>
<tr>
<td></td>
<td>$SE = .76$</td>
<td>$SE = .71$</td>
<td>$SE = .66$</td>
<td></td>
</tr>
<tr>
<td><strong>Savoring</strong></td>
<td>Factor 1</td>
<td>$M = -1.58$</td>
<td>$M = -1.39$</td>
<td>$M = -0.99$</td>
</tr>
<tr>
<td></td>
<td>$SE = .10$</td>
<td>$SE = .10$</td>
<td>$SE = .10$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor 2</td>
<td>$M = 4.34$</td>
<td>$M = 4.95$</td>
<td>$M = 5.53$</td>
</tr>
<tr>
<td></td>
<td>$SE = .09$</td>
<td>$SE = .09$</td>
<td>$SE = .09$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factor 3</td>
<td>$M = 21.40$</td>
<td>$M = 18.72$</td>
<td>$M = 14.78$</td>
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<tr>
<td></td>
<td>$SE = .67$</td>
<td>$SE = .67$</td>
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*Note.* Statistics only displayed for significant effects.
More importantly, there was also a significant interaction effect between affiliative humor and pre-post comparisons of factor 2 scores. As illustrated in Figure 3.4, analyses indicated that individuals with medium, $t(83) = 3.46, p = .001$, and high, $t(95) = 2.41, p = .01$, levels of affiliative humor displayed significant improvement following the writing exercise, whereas the factor 2 scores of participants with low levels of affiliative humor did not change, $t(81) = 0.06, p = .96$. These effects remained intact when a Bonferroni correction ($p < .017$) was applied.

**Self-enhancing humor.** All three analyses indicated a highly significant main effect of self-enhancing humor. This trait effect was once again in the anticipated direction; higher levels of self-enhancing humor were associated with greater, more positive factor 1 and 2 scores, and lower negative affect scores (see Table 3.10). In this instance, for factor 1 and 2 scores, post hoc analyses utilizing a Bonferroni correction indicated that individuals at low, medium, and high levels of self-enhancing humor all significantly differed from one another ($p < .001, p = .01$), in the expected manner (i.e., more favorable outcomes were associated with those higher on affiliative humor). For negative affect (factor 3), only those at low and high levels of self-enhancing humor differed ($p < .001$). No other effects involving self-enhancing humor were significant.

**Aggressive humor.** Analyses indicated that trait levels of aggressive humor were only consequential for negative affect, with higher levels associated with greater negative affect, $F(2, 263) = 7.30, p = .001$. Post hoc pairwise comparisons indicated that only those low on aggressive humor differed from participants at high levels ($p < .001$), when a Bonferroni correction was applied ($p < .017$). No interaction effects involving aggressive humor were significant.
Figure 3.4. Interaction between trait levels of affiliative humor and pre-post change in factor 2 scores.
**Self-defeating humor.** All three analyses demonstrated a significant or marginally significant main effect of self-defeating humor, in the anticipated direction. There was a marginally significant effect of self-defeating humor for factor 1 scores, \(F(2, 253) = 2.87, p = .06\), and highly significant effects for factor 2, \(F(2, 249) = 5.87, p = .003\), and negative affect scores, \(F(2, 262) = 11.58, p < .001\). Self-defeating humor was associated with increasingly positive factor 1 and 2 scores, and lower negative affect scores. For factor 2 scores, participants high on self-defeating humor differed from those at both low \((p = .002)\) and medium levels \((p = .01)\). For negative affect, individuals low on self-defeating humor fared better than those at medium and high levels \((p < .001)\). These effects remained intact after a Bonferroni correction was applied \((p < .017)\).

**Gratitude.** Results of the three analyses examining trait levels of gratitude indicated highly significant main effects of trait gratitude for all three factor scores (see Table 3.9). Patterns were in the hypothesized direction, linking higher levels of gratitude with more favorable outcomes. For factor 1 and 3 scores, when a Bonferroni adjustment was applied \((p < .017)\), only those high on gratitude fared better than those at low levels \((p < .001)\). For factor 2 scores, participants at low, medium, and high levels of gratitude all significantly differed from one another \((p < .001\) to \(p = .001)\).

There was also a significant interaction effect (see Figure 3.5) between gratitude and pre to post-manipulation changes in negative affect. Post hoc analyses utilizing a Bonferroni correction revealed that it was exclusively participants at medium, \(t(91) = 4.99, p < .001\), and high, \(t(102) = 4.08, p < .001\), levels of trait gratitude who benefited from a decrease in negative affect following the writing exercise.

**Savoring.** Similarly, all three analyses of the factor scores demonstrated highly significant main effects of savoring. This was once again in the anticipated direction,
Figure 3.5. Interaction between trait levels of gratitude and pre-post change in negative affect.

Figure 3.6. Interaction between trait levels of savoring and pre-post change in factor 2 scores.
where increased savoring was associated with more favorable factor 1, 2, and negative affect scores. Post hoc analyses indicated that all groups significantly differed from one another on factor 2 ($p < .001$) and negative affect scores ($p < .001$ to $p = .005$). In contrast, only those high on savoring differed from participants at low ($p < .001$) and medium levels ($p = .005$) with respect to factor 1 scores.

In addition, there was a significant interaction effect (see Figure 3.6) between trait levels of savoring and pre-post factor 2 scores. Results indicated that those at medium, $t(87) = 3.45$, $p = .001$, and high, $t(85) = 2.65$, $p = .01$, levels of savoring experienced a beneficial change on measures comprising factor 2, compared to those at low levels of savoring, whose scores did not change, $t(87) = 0.24$, $p = .81$.

**Discussion**

Emerging research has examined applications of promising work being conducted within the fields of humor and positive psychology (e.g., Crawford & Caltabiano, 2011; Sin & Lyubomirsky, 2009). These lines of investigation move beyond correlational findings that highlight the importance of individual differences in the humor styles, gratitude, and savoring within the context of well-being, to examine how exercises modeled after the various dispositional constructs operate to impact psychological well-being. However, much of this work is still in its early stages, and very little research has explored how various exercises from the humor and positive psychology domains compare. Research assessing the potential merits of humor and positive psychology exercises has generally been kept quite separate, despite the fact that preliminary humor programs have been designed to accomplish much the same as positive psychology interventions – namely, to foster well-being and promote the experience of positive emotions, cognitions and behaviors. As such, this second study served to examine the
psychological impact of exercises modeled after the humor styles, gratitude and savoring. The findings of this study, as they pertain to each research question and corresponding hypothesis, are reviewed and discussed, in turn.

**Hypothesis 1: Humor and Positive Psychology Exercises Enhance Well-Being**

To reiterate, it was hypothesized that the humor, gratitude, and savoring exercises would enhance well-being compared to the placebo exercise, and that these experimental conditions would exhibit some differential effectiveness, based on the well-being outcome measure of interest. One means of examining this hypothesis was to consider each well-being measure separately. Thus, 13 separate ANOVAs were conducted to assess pre-post differences across the four groups for positive affect, negative affect, environmental mastery, personal growth, happiness, life satisfaction, stress, positivity, negativity, challenge appraisals, perceptions of control, positive relations with others, and optimism. Nine of these analyses pointed to a significant pre-post difference in levels of negative affect, environmental mastery, happiness, life satisfaction, stress, positivity, negativity, challenge, and optimism. These results are promising in that they indicate that the exercises generally appeared to have an impact, despite the apparent lack of group differences and pre-post by group interaction effects.

Nevertheless, there was one significant interaction effect for the challenge measure. Here, participants who completed the humor, gratitude, and savoring exercises were more likely to adopt a more adaptive outlook on difficult situations, in which they perceived difficult situations as more of a challenge compared to a threat; whereas the challenge appraisals of individuals in the control group did not change from pre to post manipulation. Gratitude, in particular, was associated with significant change in this regard. This was somewhat surprising, as no known study to date has examined this
challenge construct in conjunction with gratitude. In direct contrast, a copious amount of research on humor and self-enhancing humor, in particular, has addressed how the use of this particular humor style permits the adoption of different perspectives on difficult situations and renders them less threatening (Kuiper, 2012). However, this challenge result does fit with more recent conceptualizations of gratitude as an exercise in which an individual can model a broad, positive approach to life. This issue will be further elaborated in the General Discussion of this thesis.

Another way in which the first research question of this study was addressed was to conduct a principal components analysis on the various pre and post-exercise wellbeing measures, and to conduct subsequent ANOVAs utilizing the resultant factor scores. The final factors corresponded with 1) appraisals of difficult and stressful situations (challenge, stress and negativity), 2) a general positive life orientation (control, positive relations, and life satisfaction), and 3) negative affect. This approach revealed that, similar to what was gleaned from the preliminary examination of results, the first factor reflecting change in negative appraisals was associated with a pre-post by group interaction effect. In particular, results indicated that each of the three experimental treatment conditions were associated with greater change following the exercise, compared to the placebo condition. As previously mentioned, a case could be made for both the humor and gratitude effects, in terms of the how these results are in line with what would be expected, given previous research and conceptualizations of these strategies.

Intriguing is that this also held true for savoring, despite hypotheses that this exercise would be particularly effective for positive well-being outcomes and previous work that has concentrated on how momentary savoring can enhance positive well-being
(e.g., Giuliani et al., 2008; Seligman et al., 2006). Nevertheless, preliminary research has suggested that the effectiveness of savoring exercises can also be detected along negative indicators of well-being (Hurley & Kwon, 2012). A candidate theory that could help to explain these positive findings associated with the savoring exercise is the broaden and build hypothesis (Fredrickson, 2001, 2006). Presumably, reminiscing about positive events during the savoring exercise would have evoked feelings of happiness, which in turn, would serve to broaden the thought-action repertoires of these individuals, according to this theory. As such, participants would have been permitted more flexibility in their thinking, and would have been more amenable to changing their perspectives on difficult and stressful situations.

**Hypothesis 2: Participants in an Adverse State would Benefit Most from the Exercise**

To address the second hypothesis, participants who reported the greatest negative affect and the least negative affect were assessed from pre to post manipulation across the factor scores representing positive life orientation and appraisal of stressful/difficult situations. For individuals high on negative affect, once again there was a significant interaction effect for negative appraisals, such that individuals in the humor, gratitude and savoring conditions adopted more adaptive perspectives following the exercises, whereas those in the control condition did not. This finding is in accordance with the hypothesis that individuals in an adverse state would benefit most from the humor and positive psychology exercises, which was generally based on theories concerning who should benefit most from positive psychology exercises. For example, McCullough and colleagues (2004) have offered the resistance hypothesis, positing that individuals who have a proclivity toward gratefulness already experience the world more positively. Thus,
there is a ceiling effect on how much their quality of life can be improved. In support of this theory, the aforementioned study conducted by Froh et al. (2009) indicated that youth who benefited from a gratitude intervention were individuals who reported low typical positive affect. Thus, although the current study considered pre-exercise state and not trait levels of negative affect, an extension of this theory would suggest that individuals in an adverse state have the most to gain from a humor, gratitude, or savoring exercise, as the results thus far support.

However, contrary to expectations, examination of exercise effects among individuals low on negative affect also revealed promising findings. Notably, group differences were detected along scores for positive life orientation, with individuals receiving the gratitude exercise adopting a more positive life orientation compared to those who received placebo and humor exercises. This result is intriguing as it suggests that individuals in a more positive state (i.e., with low negative affect) may also benefit from positive exercises, but in a different manner. This finding is inconsistent with hypotheses, but is still in line with the broaden and build theory of positive emotions (Fredrickson, 2001, 2006). As previously mentioned, this theory postulates that the response patterns following positive emotions drastically differ from that of negative emotions, in that positive emotions increase the flexibility of thought and behavioral patterns. It is theorized that this facilitates the accumulation of resources (e.g., social, psychological) that do not promote immediate survival, but are thought to confer advantages in times of future adversity. Thus, it is interesting that a more positive, pre-exercise state corresponded with benefits predominantly gauged by positive psychology measures, whereas a more negative, pre-exercise state was associated with benefits regarding the absence of negative symptomatology.
Of further note was that the gratitude exercise outperformed the humor exercise among individuals low on negative affect, with respect to changes across positive life orientation scores. One possibility is that among these individuals, strategies that exploit adaptive humor uses are less effective than gratitude in promoting a more positive life orientation. This could tie into the specific proposed functions of these different strategies – for instance, recall that discussions of gratitude have revolved around the broad, far-reaching nature of this construct (Wood, Maltby, & Stewart, 2008). A second possibility ties into the type of humor exercise utilized in the current study, and whether this provides a fair assessment of the use of adaptive humor strategies. These possibilities will be further considered in the General Discussion.

Taken together, these findings indicate that pre-exercise state may dictate the type of short-term benefits delivered to individuals, rather than mitigate the overall effectiveness of positive exercises. Furthermore, it appears that gratitude in particular is effective in promoting the adoption of a more positive life orientation.

**Hypothesis 3: Dispositional Constructs will Interact with the Exercises to Determine Effectiveness**

Finally, trait by exercise group interactions were explored by creating groupings that corresponded with low, medium and high levels of dispositional humor, gratitude and savoring constructs. Contrary to expectations, no trait by group interactions were evident. Noteworthy, however, was that all the dispositional constructs were associated with main effects for at least one of the factor scores, and all these effects were in the anticipated direction. These findings indicate that individuals at a desirable level of these constructs fared better than those at undesirable levels, regardless of the type of writing exercise they received.
To briefly summarize these findings, firstly, participants at high and medium levels of affiliative humor were associated with lower negative affect compared to those with low levels of affiliative humor. Secondly, individuals at higher levels of self-enhancing humor reported more favorable negative appraisal and positive life orientation scores compared to lower levels; and those very high on self-enhancing humor were associated with less negative affect compared to individuals with very low levels of this humor style. Thirdly, participants with very high levels of aggressive humor reported more negative affect compared to those very low on aggressive humor. Fourthly, individuals who reported frequent use of self-defeating humor were associated with less favorable positive life orientation scores compared to those with moderate and little use; whereas participants very low on self-defeating humor reported less negative affect compared to those at medium and high levels. Fifthly, participants with very high levels of dispositional gratitude reported more favorable negative appraisal scores compared to those very low on gratitude, and individuals at higher levels of gratitude, more generally, were associated with better positive life orientation scores. Finally, participants at very high levels of savoring were associated with preferable positive life orientation scores compared to those at low and medium levels, and those at higher levels of savoring, more generally, reported less negative affect.

In addition, significant interaction effects between dispositional constructs and the presence of the writing exercise were observed for affiliative humor, gratitude, and savoring. Specifically, trait levels of affiliative humor interacted with pre to post-exercise positive life orientation scores, such that those at high and medium levels of affiliative humor benefitted more greatly from the writing exercise compared to participants at low levels of this humor style. This is interesting as it suggests that the trait construct of
affiliative humor is an important determinant of the effectiveness of a nonspecific writing exercise. One possibility is that these individuals were predisposed to benefits of various positive exercises and were engaging in positive strategies (humor, gratitude, or savoring) even within the context of the placebo exercise. A related theory that supports this rationalization is an alternative hypothesis formulated by McCullough and colleagues (2004), the conductance hypothesis, which posits that individuals of a grateful disposition are ‘primed’ toward positive experiences, and are more sensitive to the benefits these experiences bring. An adaptation of this theory within the context of humor would suggest that those high on affiliative humor are similarly sensitive to positive content and thus responsive to the effects of positive exercises, even to the extent that these individuals may spontaneously engage in positive strategies in the case of the control exercise. This possibility could be further examined by conducting content analyses utilizing the writing responses of participants.

In a similar vein, there was an interaction between dispositional gratitude and pre to post manipulation measures of negative affect. Specifically, those at high and medium levels of gratitude exhibited a decrease in negative affect following the writing exercise, whereas participants at low levels did not. Finally, trait levels of savoring interacted with pre to post-exercise measures of positive life orientation. Similar to affiliative humor and gratitude, it was exclusively participants at high and medium levels of this dispositional construct who benefited from the writing exercises. The conductance hypothesis and possibilities regarding the benefits of even nonspecific exercises are also applicable in these cases.

The absence of trait by exercise interactions ran contrary to hypotheses, although contradictory findings in the literature regarding the importance of trait levels of gratitude
for the effectiveness of positive exercises can help to explain these findings. However, alternative explanations of this result could also relate to the limitations of the current study, which will be addressed in the General Discussion of this thesis. Furthermore, very promising was that significant trait by pre to post-exercise interaction effects were observed for every broad construct examined in the present study – humor, gratitude, and savoring. Together, these findings along with the main effect trait findings reported earlier strengthen conclusions drawn from Study 1, indicating that trait levels of the humor styles, gratitude and savoring are consequential for well-being.
Chapter 4: General Discussion

The current thesis served to theoretically and empirically integrate work within the fields of humor and positive psychology. As such, the first study in this thesis explored how humor, gratitude and savoring strategies related to one another at a trait level, how individual differences in these constructs differentially predicted various well-being outcomes, and how these dispositional constructs acted in conjunction with one another to determine relationships with psychological well-being. In addition, the second study examined how brief exercises modeled after the humor styles, gratitude and savoring functioned comparatively to impact well-being. This study also examined how these exercises operated within a constellation of individual differences by focusing on how the pre-exercise state of participants and trait levels of the humor styles, gratitude, and savoring influenced the effectiveness of exercises.

This discussion will consider the general contributions of this thesis project, in an attempt to explain, integrate, and elaborate findings, and position this work within the existing literature. Limitations of the current project and suggestions for future research will also be addressed.

Exploring Relationships Between the Humor Styles, Gratitude and Savoring

Three approaches were taken in an effort to examine the relationships between constructs from the humor and positive psychology domains. Firstly, simple correlations between the humor styles, gratitude and savoring were examined. It was found that these constructs were extensively inter-correlated with one another, specifically, that the adaptive humor styles were likely to be accompanied by gratitude and amplifying savoring, whereas the maladaptive styles were likely to be present alongside dampening savoring. Furthermore, the presence of almost all the positive or adaptive strategies
mitigated the presence of negative or maladaptive strategies. That is, with the exception of amplifying savoring and self-defeating humor, the maladaptive humor styles were inversely related to gratitude and amplifying savoring, and the adaptive styles were inversely related to dampening savoring.

The implications of these correlational results are threefold. Firstly, it appears that individuals who engage in one positive strategy (e.g., gratitude) are more likely to participate in several other positive strategies (e.g., affiliative and self-enhancing humor), and are more unlikely to engage in the maladaptive strategies considered in this thesis. Secondly, this conclusion suggests that positive strategies do not work in isolation, but that many could be at play for a given individual. Thirdly, and most relevant to the overarching objective of this thesis, these relationships suggest there are important, conceptual parallels between dispositional humor and positive psychology constructs. In particular, these correlational findings support the contention that the humor styles fit with other constructs being promoted within the field of positive psychology, and underscore the appropriateness of considering humor as a multi-faceted construct within a positive psychology perspective.

Previous theoretical and empirical research highlights ways in which gratitude, savoring and the humor styles are conceptually similar (e.g., Bryant & Veroff, 2007; Fredrickson, 2004; Martin et al., 2003). Firstly, scholars have theorized that affiliative humor and gratitude have important social components. As previously touched upon, affiliative humor is thought to enhance social relationships, reduce conflict, and bolster group morale (Kuiper, 2012; Martin et al., 2003). Scholars have also outlined a similar role for gratitude. Under the broaden and build model of positive emotions, Fredrickson (2001, 2006) has proposed a unique function of gratitude such that it stimulates prosocial
behavior, which then serves to foster the development and maintenance of friendships and other social relationships. Thus, both affiliative humor and gratitude appear to confer benefits for well-being by assisting in the building and strengthening of one’s social network, which an individual can then draw from and exploit during times of stress or adversity (Fredrickson, 2004; Martin, 2004, 2007).

Moreover, scholars have discussed the important cognitive and perceptual aspects of humor and gratitude. Self-enhancing humor, in particular, has been conceptualized as an ability to adopt an alternative, less threatening perspective on a situation (Geisler & Weber, 2010; Kidd, Miller, Boyd, & Cardena, 2009; Kuiper, Martin, & Olinger, 1993; Martin, 2004). The cognitive shift that takes place allows an individual to create distance between oneself and a source of stress, enabling him or her to cope more effectively (Kuiper, 2012; Martin, 2004). Gratitude has also been associated with alternative ways of perceiving and experiencing the world. In this regard, the schematic hypothesis (Wood et al., 2008) posits that grateful individuals have distinctive cognitive schemas representing help-giving situations, such that assistance is understood as altruistic, costly, and valuable. Furthermore, as already noted in previous sections of this thesis, gratitude is thought to tap a broader life orientation, in which individuals generally recognize and appreciate positive aspects of life (Wood, Maltby, Stewart, et al., 2008). Thus, it is theorized that grateful individuals are primed to be aware of positive experiences and resources, which can likewise facilitate coping in times of adversity. For instance, in support of this theory, there is research to suggest that grateful individuals more effectively utilize their social support network (Wood, Joseph, & Linley, 2007).

In comparison with self-defeating humor, gratitude represents almost an opposite approach to relating to others and interacting with the world. As previously touched upon,
self-defeating humor involves excessive self-denigration, often used in an attempt to gain the attention and approval of others (Martin et al., 2003). Gratitude, on the other hand, requires an individual to look outside of the self, to perceive and value the positive strengths of others. These observations of how gratitude and self-defeating humor resemble virtually opposite strategies can help to explain why these constructs negatively correlated with one another, rather than just being unrelated. That being said, gratitude negatively correlated with aggressive humor even more strongly than with self-defeating humor. Perhaps this is due to the strong, social component that both aggressive humor and gratitude share. Aggressive humor acquires its meaning in relation to how individuals address and comment on the characteristics of others in a negative fashion, whereas gratitude involves the prizing and valuing of others.

Savoring also appears to share important features with the humor styles. For instance, as previously mentioned, the processes of amplifying and dampening savoring are thought to be important for the up and down-regulation of positive emotions, respectively. Likewise, scholars have discussed the emotion regulation effects of positive forms of humor, such that humor does not only down-regulate negative emotions through the construal of experiences as less threatening, but also up-regulates positive emotions by eliciting positive affect (Geisler & Weber, 2010). Gratitude, as a positive psychology construct, has also been espoused as a strategy that can maintain or amplify the experience of positive emotions. Thus, it appears that all three of these constructs share important, positive emotion regulation functions, which from the standpoint of the broaden and build model (Fredrickson, 2001, 2006), are important for building resiliency and buffering against future times of adversity.
Of further note is that amplifying savoring negatively correlated with aggressive but not self-defeating humor, whereas dampening savoring positively correlated with both maladaptive humor styles. As such, it could be that self-defeating humor is more consequential for the up-regulation of negative emotions rather than the down-regulation of positive emotions. Although little research has yet considered negative forms of humor within an emotion regulation framework, there is considerable research linking self-defeating humor with negative emotional states such as depression, anxiety, and negative affect (Kuiper, 2012; Martin, 2007).

Furthermore, recall that researchers have also examined how self-defeating humor is associated with the self-concept and maladaptive schemas (Dozois et al., 2009; Kirsh, 2006). For instance, Dozois and colleagues (2009) found that individuals who frequently use self-defeating humor were likely to exhibit early maladaptive schemas, such as ‘disconnection and rejection’, (e.g., a person is self-perceived as inferior or unlovable). Given that dampening savoring involves the denial of positive experience, it would not be surprising if this dispositional construct were associated with similar, characteristic schemas.

Despite a number of conceptual parallels that can be drawn between humor, gratitude and savoring, notable differences are implicated by the results derived from the second approach to exploring relationships utilized in the current thesis. Specifically, it was examined whether the humor styles contributed to the prediction of well-being outcomes above and beyond the contributions of gratitude and savoring. The ultimate conclusion that was distilled from this set of analyses was that constructs from both the domains of humor and positive psychology are important, in different ways, for the prediction of various positive and negative indicators of well-being. Gratitude and the
self-focused humor styles, in particular, emerged as the most robust predictors of psychological well-being, with amplifying and dampening savoring also being important for positive and negative well-being outcomes, respectively.

More generally, these findings point to important, conceptual differences between gratitude, savoring and the humor styles, and their relationships with well-being. Firstly, humor is a playful, non-serious way of approaching life situations, whereas gratitude and savoring represent more profound, contemplative positive strategies. Secondly, it can be recalled that important determinants of whether something is perceived as humorous include incongruity and diminishment. Conversely, gratitude and amplifying savoring serve to focus attention and enhance positive aspects of life.

Similarly, an important mechanism through which humor is thought to promote well-being and buffer against the negative effects of life stress is that it helps to create distance between individuals and the situations they find themselves in (Kuiper, 2012; Martin, 2007). Alternatively, conceptualizations of gratitude and savoring emphasize the importance of being immersed in the present moment. For instance, recall that one of the identified methods of savoring a positive event is sensory-perceptual sharpening, which involves directing attention to the sensory and perceptual features of the experience (Bryant & Veroff, 2007). Dampening savoring, alternatively, is an avoidance or diminishment of what is happening in the present. Moreover, gratitude involves considering aspects of life for which one is grateful, thereby priming individuals to think about the positive features of their present reality.

Finally, from an emotional regulation standpoint, it may be noticed that humor has been associated with not only the up-regulation of positive emotions, but the down-regulation of negative emotions, whereas gratitude and savoring have only been
associated with the former. As these latter constructs have been strongly promoted within the field of positive psychology, which attests to an interest in strategies that enhance the ‘positive’, this is not surprising. However, this is the case despite the fact that gratitude and savoring have not only been linked with positive well-being outcomes, but the amelioration of negative well-being. Thus, it would be valuable for future research to disentangle whether humor and these positive psychology strategies do differ in this respect, and if so, what are the specific patterns and potential mechanisms that may be involved.

One possibility, here, for example, would be to build upon recent theory and work considering humor and the social sharing of emotions. According to Rimé (2009), a theory of emotion regulation that espouses an individualist view is untenable, and mounting evidence suggests that “interdependent processes buffer adults’ emotions, stimulate adults’ cognitive processing of emotional experiences, increase adults’ personal knowledge about emotion, and contribute to the strengthening of their interpersonal relationships and social integration” (p. 7-8, Rimé, 2009). As such, humor, gratitude, and savoring could be understood as evoking a process of social sharing of positive and negative emotions, which comes to bear on the benefits derived from these strategies. As one illustration, Kuiper and colleagues (in press) have applied these notions to the humor styles within the context of generalized anxiety, and highlight how negative humor styles may limit, whereas positive humor styles may enhance, opportunities for genuine and lasting social sharing of both positive and negative emotions. Relatedly, it could be that gratitude and amplifying savoring maximize opportunities for the social sharing of positive emotions, whereas dampening savoring limits these opportunities.
A third manner in which relationships between the humor and positive psychology domains were explored was through examination of the humor styles as possible moderators of relationships between gratitude and savoring. Affiliative humor emerged as the most robust moderator of these relationships, and it has been theorized that the social component shared by gratitude and affiliative humor can shed some light on these findings. Further, the suggestion has been offered that affiliative humor has something important to contribute within the context of psychological well-being, despite the relative absence of significant ‘main effect’ regression findings for affiliative humor. Instead, it appears that affiliative humor may be acting through gratitude to modify relationships with well-being.

In addition, aggressive and self-defeating humor emerged as moderators of one relationship each between gratitude and well-being. Although it was not expected that the humor styles would moderate all the relationships, since there is a substantial amount of research to support the considerable strength of gratitude as an individual difference characteristic within the context of psychological well-being, altogether the humor styles only moderated 6 of 28 possible relationships. Thus, it would be important for future research to replicate these results, especially in the case of aggressive and self-defeating humor, in order to more firmly substantiate the present findings. Further research should also explore whether the humor styles serve as important moderators of relationships between other positive psychology constructs and well-being, such as savoring.

Moderation analyses were employed to elucidate how humor and positive psychology strategies may work in conjunction with one another to determine relationships with well-being. This was important to consider since correlation findings indicated that individuals are likely to endorse frequent engagement in a number of
positive strategies. That being said, there are other methods of examining how these constructs may combine to become associated with psychological well-being. For instance, researchers have also considered the humor styles as mediators of relationships within the context of well-being. As one illustration, Kuiper, Klein, Vertes and Maiolino (in press) examined the potential mediating effects of the humor styles within an intolerance of uncertainty model of generalized anxiety. They found that affiliative humor was a significant mediator of the relationship between intolerance of uncertainty and anxiety, in addition to the mediating role of worry, a traditional component of the intolerance of uncertainty model of anxiety. Thus, it would be important to consider how mediator relationships may theoretically and empirically manifest among humor and positive psychology constructs, in order to further understandings of how these constructs may be interacting in complex ways to determine relationships with psychological well-being.

Therefore, in summary, this thesis added to existing knowledge surrounding humor as a positive strategy by examining how conceptualizations of humor, as informed by contemporary research, are positioned in relation to constructs being promoted within the positive psychology domain. Of note is that these strategies share many similarities, but also appear to have a unique role to play within the context of well-being. In addition, there is evidence to suggest that some of these strategies may work in conjunction with one another, rather than operate in isolation within a given individual. These findings validate efforts to situate humor within a positive psychology framework, and highlight how the humor styles, gratitude, and savoring as individual difference characteristics are uniquely important in terms of their relationships with well-being.
Examining the Effectiveness of Humor and Positive Psychology Exercises

An examination of exercises modeled after the humor styles, gratitude, and savoring complimented the first part of this thesis by permitting causal conclusions to be drawn concerning the impact of humor and positive psychology strategies on well-being. There were a number of important, general contributions of this second study. Firstly, it was evident that the exercises were having a pre-post effect across diverse indicators of well-being, despite a lack of group by pre-post interaction effects. That is, it was apparent that all exercises, including the placebo exercise, were enhancing well-being, and thus further investigation into these effects were required to clarify whether this exercises were, in fact, equally effective. The development of factor scores helped to consolidate various measures of well-being, and together, the results of these analyses implicated an interaction between the exercises and pre-post changes in well-being for appraisals of future, difficult and stressful situations. Only the treatment groups demonstrated favorable change, in that more adaptive appraisals of future negative events were adopted. In particular, gratitude appeared to be most effective in promoting this change. It is important for future research to replicate this finding, as very little research has considered cognitive reappraisal within the context of gratitude, and what specific mechanisms might account for this pattern of change in the present research.

That being said, there are a number of possible explanations for why the humor and positive psychology exercises did not demonstrate greater, differential effectiveness, especially compared to the placebo exercise. Firstly, this study incorporated a very brief exercise that only considered short-term changes in well-being. One previous study conducted a similar investigation, in which researchers asked children to participant in a 5-minute intervention (Watkins et al., 2003). Specifically, they were asked to recount
what had transpired over the summer, for which they were either thankful or regretful. The results of this study indicated that negative affect decreased among the grateful group in comparison to the regretful group. However, despite the fact that this exercise was similar to the present study in the duration of the exercise and follow-up, the current study utilized a more neutral comparison group (i.e., participants were simply asked to describe what they had “encountered”, with no specifications regarding the positive/ negative impact).

However, the vast majority of other studies examining the impact of humor and positive psychology interventions have participants engage in the exercises for weeks at a time, with researchers evaluating changes in well-being at various points in time. Indeed, scholars have reported that continued practice with positive exercises could be crucial for their effectiveness (e.g., Lyubomirsky et al., 2011). Thus, the relative power of the exercises utilized in the current study was quite limited, and yet a number of changes in well-being were evident. These results are therefore quite promising, and point to the value in more powerfully examining the impact of humor, gratitude and savoring exercises.

Available empirical research supporting the value of humor programs, in particular, is modest, and thus this work is even more important for promoting continued development and evaluation of exercises that exploit positive uses of humor. This ties into another possible explanation for why findings did not more strongly support a unique effect of the humor exercise. It is likely that this has to do with the nature of the humor exercise evaluated in the present study. In order to establish a certain degree of uniformity across the different exercises, the humor exercise was similar to the three other conditions, in that participants were asked to recount past experiences of adaptive humor.
use. In this way, they were not actually *using* humor, but reflecting on their use. If future research in this area could structure humor programs in such a way that individuals were actually experiencing humor, this would allow for a fairer assessment of humor as a positive exercise. Recall that this was better accomplished by Crawford and Caltabiano (2011), who instructed participants in effective humor skills over eight weeks.

A similar note can be made regarding the savoring exercise. Although available research on savoring as an intervention is also limited (e.g., Hurley & Kwon, 2012), attempts have been made to coach individuals in how they can amplify savoring (e.g., sharing with others). The implication is that these individuals will engage in these strategies in the face of future positive events, permitting evaluation of increased momentary savoring of positive experiences. The current study, on the other hand, had participants engage in what has been referred to as a reminiscing savoring strategy (Bryant, 2003). This has been far less studied, and it could be argued that the former approach, which has participants attempt to elongate positive emotions experienced in the moment, is likely more powerful. Thus, future research could also further the development and evaluation of savoring as a positive exercise, perhaps by more directly examining different strategies for savoring in the same study, and then also comparing these with various humor strategies.

Thirdly, previous research has incorporated a number of different comparison groups, in an effort to evaluate the effectiveness of positive psychology exercises. These have included no treatment control groups, negative control groups (e.g., the ‘regretful’ group utilized by Watkins et al., 2003), ‘treatment as usual’ groups, and neutral or placebo groups. The current study adopted the most stringent control whereby effects could be compared by incorporating a placebo exercise. The earlier meta-analysis
conducted by Sin and Lyumborsisky (2009) revealed that the effects of positive psychology exercises were moderated by the comparison groups included in the study designs, with effects being largest among studies incorporating no treatment control groups and effects being smallest for designs utilizing placebo control groups. Although placebo control groups are important for powerfully isolating the ‘active ingredients’ of positive psychology and humor exercises, an important concern would be whether this type of exercise might also obscure important findings, because participants may be spontaneously engaging in positive exercises (e.g., gratitude, humor and savoring) in response to the very general instructions of the placebo exercise. This possibility might be examined by conducting content analyses on the written responses of participants and then utilizing this data to segregate individuals into the most appropriate groups, based upon the type of exercise (e.g., humorous, gratitude, or savoring) they actually utilized.

Other possible explanations for the modest number of unique effects relate to the effort and motivation of participants in the current study. Previous research has indicated that the effort participants invest into positive exercises can be important for the benefits they derive (e.g., Lyubomirsky et al., 2011; Seligman et al., 2005). Since this study took place online and recruited university students who were completing the study to obtain course credit, there is the possibility that participants were generally less motivated to fully engage in the exercise. Relatedly, emerging research has indicated that an individual’s preference for an exercise is important for whether he or she completes the exercise (Schueller, 2010). Therefore, future research would do well to take into account factors that could promote the effort and motivation of participants engaging in positive exercises.
The final contributions of this thesis include an examination of several individual difference variables that were of particular interest. Firstly, the importance of one’s pre-exercise state has not been widely considered by researchers examining the effectiveness of positive exercises. Some scholars might even argue that an exercise should be able to overcome differences in momentary affect, in order to make lasting changes to well-being. However, due to the brief, time-limited nature of the exercises in the current study, it was important to observe whether a person’s emotional state, just prior to the exercise, interfered with them fully engaging in and benefitting from the exercises. Very promising was the finding that both individuals in an adverse and positive state (as determined by their pre-exercise negative affect) benefitted from the exercise, but in quite dissimilar ways. Individuals who were feeling more negatively at the outset of the study were more likely to report benefits associated with negative expectancies and appraisals of difficult situations over the next two weeks, whereas those feeling positively were more likely to endorse a more positive orientation following the exercise. This is an interesting and potentially important distinction. As such, it would be important for future research to replicate these findings and further discern whether pre-exercise state is important to take into consideration within the context of positive exercises. Further, it would be important to confirm whether those in a more positive state are more amenable to changes in positive well-being indicators (e.g., satisfaction with life), whereas those in a more negative state are more likely to endorse changes along negative well-being indicators, as the results of this study suggest.

Recall that gratitude outperformed the control and humor exercises among participants in a positive state. It would be important to replicate this finding in order to determine whether there are opportune instances in which humor versus gratitude or
savoring exercises should be employed. For instance, this finding might indicate that a strength of humor is that it has the ability to ‘lift up’ those who are in an adverse state, but a more reflective exercise (e.g., gratitude) is more suitable among individuals who are already feeling positively. One possible explanation relates to what was discussed earlier regarding the emotional regulation capabilities of humor, gratitude and savoring exercises. It may be that humor is especially beneficial among individuals in a negative state because of its ability to down-regulate negative emotions, in addition to up-regulate positive emotions. Gratitude, on the other hand, may be a particularly powerful way in which individuals can up-regulate positive emotions, which is why it is associated with the greatest effectiveness among individuals in a positive state.

Finally, dispositional levels of the humor styles, gratitude, and savoring were also taken into account in the second study to determine whether these constructs significantly interacted with the type of positive exercise. Across these analyses, it was evident that the trait levels of these constructs were accounting for a large amount of variance in well-being outcomes, consistent with the results of the first study in this thesis. However, trait levels of affiliative humor, gratitude and savoring also interacted with the pre-post manipulation for one outcome each (e.g., negative affect). Thus, these results demonstrated the importance of trait levels of these constructs for deriving the benefits of the exercises utilized in the current study, including the placebo exercise. Specifically, it was individuals who had high levels of these dispositional constructs who benefitted most from the exercise. As previously mentioned, it might be expected that someone high on gratitude, for example, would spontaneously engage in a gratitude exercise when confronted with the general instructions of the placebo exercise, which could help to explain these findings. This is consistent with some aspects of previous studies, which
have found that high levels of gratitude translated into increased benefits for those completing a humor or gratitude exercise (Edwards, 2013). Future research should attempt to further disentangle whether high levels of dispositional positive constructs facilitate the effectiveness of exercises, and investigate how this may be specific or non-specific to a given type of exercise.

**Limitations**

There were a number of limitations of the current thesis project. Firstly, both studies were conducted online, utilized undergraduate student populations, and relied exclusively on the self-reports of participants. There is therefore some concern about the accuracy and generalizability of these findings. In a similar vein, there was also a preponderance of females in the participant samples recruited for this research. This is an important consideration as research indicates that males and females may differ along trait measures of gratitude and the humor styles (Kashdan, Mishra, Breen, & Froh, 2009; Martin et al., 2003), and that females may disproportionately benefit from gratitude exercises (Kashdan et al., 2009).

Another related issue pertains to the exercises included in the second study, and the threat of demand characteristics and social desirability bias. It could have been the case that participants improved on the vast majority of measures following the exercise because they believed the researcher expected them to change. This is an important concern especially within the context of findings indicating that expectancy influences the benefits derived from positive exercises (Lyubomirsky et al., 2011). These issues also bear on the trait effects examined in the second study – it could have been the case that participants with desirable levels of the dispositional constructs fared better because they were particularly affected by demand characteristics.
Furthermore, the first study was purely correlational, limiting the conclusions that could be drawn regarding the exact nature and directionality of relationships. For instance, perhaps people that are more grateful are flourishing and are psychologically healthier because their life circumstances are more favorable. Thus, the second study attempted to address this limitation by having participants actually engage in the positive exercises. Further limitations associated with this second study include the short-term nature of the humor and positive psychology exercises, as previously discussed, and the small number of items upon which some measures of well-being were based.

Finally, both the correlational and experimental studies only offered a glimpse into the phenomena of interest at one point in time. Thus, it would be beneficial for longitudinal research to be conducted, in order to gain a more comprehensive understanding of how humor and positive psychology strategies operate over time to confer benefits for psychological well-being. Indeed, contemporary research within the field of humor has begun to consider the importance of such longitudinal designs (Caird, 2011).

**Future Directions**

A number of future directions of this research have already been noted, and include replicating correlational and experimental findings, improving on the design and evaluation of the positive exercises, and pursuing future methods of examining relationships between the humor and positive psychology domains (e.g., potential mediator effects). In addition, it is important for future research to continue to advance understandings of how humor, gratitude and savoring function to enhance well-being, as well as elucidate the potential mechanisms involved. Furthermore, research that examines exercises modeled after humor and positive psychology strategies is still very much in its
early stages, and offers an exciting opportunity to harness the power these constructs appear to have as individual difference characteristics.

In order to aid future research, this thesis will conclude by presenting an emotion regulation framework (see Tables 4.1 and 4.2) that organizes and integrates the hypothesized functions of humor, gratitude and savoring. Such a framework is meant to serve as a useful heuristic for guiding future theorizing and research. This thesis has already considered several specific processes or mechanisms that may be involved in transmitting the benefits of adaptive humor styles, gratitude and savoring. These are included in the framework illustrated in Table 4.1, which summarizes these possibilities.

Firstly, this framework identifies the emotion regulation strategies that have previously been discussed in relation to humor, gratitude, and savoring, or should be considered in light of the current thesis project. These emotion regulation strategies include distancing, cognitive reappraisal, change in perspective, sharing of positive emotions, and sharing of negative emotions. Distancing and the social sharing of negative emotions are identified as mechanisms unique to humor, whereas the social sharing of positive emotions is relevant to humor, gratitude, and savoring. Cognitive reappraisal is thought to be an important process through which individuals derive benefits of adaptive forms of humor, and in particular, self-enhancing humor. Results of the current thesis also suggest that gratitude may confer benefits related to cognitive reappraisal, in that it permits the adoption of more adaptive appraisals of stressful or challenging life situations. Adopting a change in perspective can also apply to both self-enhancing humor and gratitude, in that these strategies are associated with a particular manner in which individuals see the world.
Table 4.1

*Proposed Emotion Regulation Framework for Humor, Gratitude and Savoring*

<table>
<thead>
<tr>
<th>Emotion Regulation Strategy</th>
<th>Humor</th>
<th>Gratitude</th>
<th>Savoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distancing</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive Reappraisal</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>(Self-Erasing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in Perspective</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>(Self-Erasing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharing Positive Emotions</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(Self-Erasing, Affiliative)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharing Negative Emotions</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2

*Predominant Context in which Positive Strategies are Active*

<table>
<thead>
<tr>
<th>Positive Exercise</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intrapersonal</td>
</tr>
<tr>
<td>Affiliative Humor</td>
<td>✓✓</td>
</tr>
<tr>
<td>Self-Enhancing Humor</td>
<td>✓✓</td>
</tr>
<tr>
<td>Gratitude</td>
<td>✓✓</td>
</tr>
<tr>
<td>Savoring</td>
<td>✓✓</td>
</tr>
</tbody>
</table>
Finally, a second dimension along which humor, gratitude, and savoring can be compared includes the context in which these strategies are used. It could be that these strategies are thought to operate primarily in an intrapersonal or interpersonal context (see Table 4.2). As already touched upon, scholars have described humor as a predominantly social phenomenon (Martin, 2007), and this is relevant to affiliative humor, in particular. However, the benefits of self-enhancing humor can be thought of as largely determined by the processes that take place within the individual, and this strategy can be practiced alone. Gratitude can be expressed to others, and could therefore operate in a social context, or it could be practiced on one’s own. In particular, it is thought that simply reflecting on things for which a person is grateful can have large effects (e.g., Wood et al., 2010), and therefore the intrapersonal context appears to be particularly important. Finally, the process of amplifying savoring can be facilitated in the presence of others (e.g., by telling others about the positive event), but once again, the intrapersonal context appears to be dominant. To illustrate, the majority of the cognitive-behavioral strategies identified by Bryant and Veroff (2007) describe intrapersonal practices. Thus, using this framework as a guide, further research can then systematically address both the context and processes that may be involved in the impact of humor, gratitude, and savoring on emotional regulation and psychological well-being.
References


Appendix A

Institutional Ethics Review Board Approval Notice (Study 1)

Department of Psychology
The University of Western Ontario
Room 7418 Social Sciences Centre,
London, ON, Canada N6A 5C1
Telephone: (519) 661-2067 Fax: (519) 661-3961

Use of Human Subjects - Ethics Approval Notice

<table>
<thead>
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<th>Review Number</th>
<th>Approval Date</th>
<th>Principal Investigator</th>
<th>End Date</th>
</tr>
</thead>
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<tr>
<td>12 09 25</td>
<td>12 09 25</td>
<td>Nick Kuiper/Nadia Maiolino</td>
<td>13 03 30</td>
</tr>
<tr>
<td>Protocol Title</td>
<td>Emotion and personality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sponsor</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This is to notify you that The University of Western Ontario Department of Psychology Research Ethics Board (PREB) has granted expedited ethics approval to the above named research study on the date noted above.

The PREB is a sub-REB of The University of Western Ontario’s Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario. (See Office of Research Ethics web site: http://www.uwo.ca/research/ethics/)

This approval shall remain valid until end date noted above assuming timely and acceptable responses to the University’s periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the PREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of research assistant, telephone number etc). Subjects must receive a copy of the information/consent documentation.

Investigators must promptly also report to the PREB:
  a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
  b) all adverse and unexpected experiences or events that are both serious and unexpected;
  c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to the PREB for approval.

Members of the PREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the PREB.

Clive Seligman Ph.D.

Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2012-2013 PREB are: Mike Atkinson (Introductory Psychology Coordinator), Rick Goffin, Riley Hinson, Albert Katz (Department Chair), Steve Lupker, and TBA (Graduate Student Representative)

CC: UWO Office of Research Ethics

This is an official document. Please retain the original in your files
Appendix B

Ethics Forms (Study 1)

University of Western Ontario

Letter of Information

**Project Title:** Emotion and Personality  
**Principal Investigators:** N. Maiolino, N. Kuiper

In this study, we will ask you to answer a number of questions about your personality and emotional experiences. You are to follow the directions embedded in the survey and indicate your answers using the rating scales provided. It will take approximately one hour to complete this study, and you will receive one credit towards your research participation grade in the psychology course you are enrolled in.

Your participation in this study is completely voluntary. At any point you have the right to not complete certain questions or to withdraw without loss of promised research credit. The data collected in this study will be kept confidential, and will be used for research purposes only.

You will receive additional written feedback at the end of the session. If you have any questions about this research, please contact Nadia Maiolino (email) or Nicholas Kuiper (email).

If you have any questions regarding the conduct of this study or your rights as a research participant, you may contact the Office of Research Ethics at the University of Western Ontario (phone; email).
Project Title: Emotion and Personality
Principal Investigators: N. Maiolino, N. Kuiper

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate in this study.

___ Yes
___ No
University of Western Ontario

Feedback

**Project Title:** Emotion and Personality  
**Principal Investigators:** N. Maiolino, N. Kuiper

In this research study, you answered a number of questions from a variety of questionnaires in order to obtain measures of personality (e.g., agreeableness, emotionality), specific positive psychology constructs (e.g., gratitude, prosocial behavior), humor styles (i.e., self-enhancing, affiliative, self-defeating, and aggressive humor), and various outcomes (e.g., anxiety, stress, positive and negative affect, subjective happiness, satisfaction with life).

The purpose of this study was to connect two promising areas of the research literature: namely, 1) investigation into the adaptive and maladaptive aspects of humor (e.g., Crawford & Caltabiano, 2011; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003), and 2) evidence for the positive association between positive psychology constructs and well-being (e.g., Schueller, 2010; Sin & Lyubomirsky, 2009). These areas of study have been kept quite separate, despite the fact that a similar rationale underlies both these lines of research. That is, both domains consider strategies that can positively contribute to mental health and subjective well-being. It would thus be important to know how these strategies are related and perhaps work in conjunction with one another to produce outcomes. As such, the purpose of the current study was twofold: 1) to gather basic information on the different relationships among constructs in both domains (i.e. both the relationships between positive psychology and humor measures, and the different positive psychology measures themselves), and 2) to uncover how these measures are associated with traditional outcome measures (e.g. depression, anxiety, and stress; subjective happiness).

Your participation is greatly appreciated. To ensure confidentiality, your responses will be processed under a coding number and they will never be associated with your name. We could not tell you the full details of this study prior to your participation because it might have biased your responses. Likewise, we would greatly appreciate it if you refrain from discussing the details of this study with your fellow students in order to prevent the possibility of introducing biases about this study. If you have any questions about this research, please contact Nadia Maiolino (email) or Nicholas Kuiper (email). If you have any questions about the conduct of this study or your rights as a research participant, you may contact the Office of Research Ethics, The University of Western Ontario, (phone; email).

Suggested readings:


Appendix C

Institutional Ethics Review Board Approval Notice (Study 2)

Use of Human Subjects - Ethics Approval Notice

<table>
<thead>
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<th>End Date</th>
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<td>130718</td>
<td>Nick Kuiper/Nadia Maiolino</td>
<td>140315</td>
</tr>
<tr>
<td>Protocol Title</td>
<td>Personality and describing life events and experiences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sponsor</td>
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Members of the PREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the PREB.

Clive Seligman Ph.D.
Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2012-2013 PREB are: Mike Atkinson (Introductory Psychology Coordinator), Rick Goffin, Riley Hinson, Albert Katz (Department Chair), Steve Lupker, and Adam Piraino (Graduate Student Representative)

CC: UWO Office of Research Ethics

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Appendix D

Writing Exercises (Study 2)

Gratitude
There are many things in our lives, both large and small, that we might be grateful about. Think back over the past two weeks and write down in the spaces below up to five things in your life that you are grateful or thankful for. This can be specific to people in your life and things they have done for you (e.g., being grateful for one’s family), but can also be more broad and not necessarily tied to people or events that have happened specifically to you (e.g., being thankful for a beautiful day).

Use this information to help you write about your experiences in as much detail as possible. As you write, try to also picture these things in your mind as vividly as possible.

Savoring
There are many things in our lives, both large and small, that we might get pleasure from. Think back over the past two weeks and write down in the spaces below up to five events in your life that you found pleasurable. For each example, also write about whom you might want to tell about this experience and what you would say to them. Also write about the characteristics that made the event special – for example, perhaps you waited a long time for it to happen or can remember back to a time when you didn’t have what you have now.

Use this information to help you write about your experiences in as much detail as possible. As you write, try to also picture these things in your mind as vividly as possible.

Humor
There are many things in our lives, both large and small, that we might find humorous. Think back over the past two weeks and write down in the spaces below up to five things in your life that made you laugh, smile, or chuckle. Specifically, write about examples of positive humor, including situations where you made others smile without using humor to criticize others or yourself, or used humor to make light of stressful situations so they became less overwhelming.

Use this information to help you write about your experiences in as much detail as possible. As you write, try to also picture these things in your mind as vividly as possible.

Control
There are many things in our lives, both large and small, that we encounter. Think back over the past two weeks and write down in the spaces below up to five events in your life that happened to you. These can be daily events or any circumstances you encountered in the past two weeks.

Use this information to help you write about your experiences in as much detail as possible. As you write, try to also picture these things in your mind as vividly as possible.
Appendix E

Assortment of Well-Being Items (Study 2)

1. **Happiness**: “Over the next two weeks, how happy do you expect you will be?”
   (1= extremely unhappy, 7= extremely happy)

2. **Life satisfaction**: “In most ways my life is close to ideal”.
   (1= strongly disagree, 7=strongly agree)

3. **Optimism**: “Rate your expectations for the next two weeks using a scale ranging from
   1(pessimistic, expect the worst) to 7 (optimistic, expect the best).”

4. **Positivity/ Negativity:**
   a. “How negatively do you expect to feel over the next two weeks?”
      (1=least negative possible, 7=most negative possible)
   b. “How positively do you expect to feel over the next two weeks?”
      (1=least positive possible, 7=most positive possible)

5. **Stress**: “Over the next two weeks, how often do you expect to feel nervous or stressed?”
   (1=never, 7=very often)

6. **Challenge**: “If you encounter something difficult over the next two weeks, how likely
   are you to see this as a positive challenge versus a negative threat?”
   (1=very much a threat, 7=very much a challenge)

7. **Control**: “Over the coming two weeks, how much control do you feel you have over the
   things that happen to you?” (1=very little control, 7=very much control)

8. **Environmental Mastery**
   a. “Over the next two weeks, how much do you feel you will be in charge of the
      situation in which you live?” (1=not in charge at all, 7=very much in charge)
   b. “Over the next two weeks, how good do you feel you will be at managing the many
      responsibilities of your daily life?” (1=not very good at all, 7=extremely good)

9. **Personal Growth**
   a. “Over the next two weeks, how interested do you think you will be in activities that
      will expand your horizons?”(1=extremely disinterested, 7=extremely interested)
   b. “Over the next two weeks, how much will you feel like the kind of person who likes
      to give new things a try?” (1=not very much, 7=very much)
   c. “Over the next two weeks, how important will you think it will be to have new
      experiences that challenge how you think about yourself and the world?”
      (1=not very important at all, 7=extremely important)

10. **Positive Relations with Others**: “Over the next two weeks, how often do you expect to
    enjoy personal and mutual conversations with family members or friends?”
    (1=never, 7=very often)
Appendix F

Ethics Forms (Study 2)

University of Western Ontario

Letter of Information

Project Title: Personality and Describing Life Events and Experiences  
Principal Investigators: Nadia Maiolino & Nick Kuiper

In this on-line study, we ask that you participate in a writing exercise where you briefly describe several recent life events or experiences that have happened to you in the past two weeks. We will also ask you to complete some rating scales about your personality, well-being and various strategies you might use in your daily life.

You will be asked to follow the directions embedded in the survey and indicate your responses on the computer. The study will take approximately one hour to complete, and you will receive one credit towards your research participation grade in the psychology course you are enrolled in.

Your participation in this study is completely voluntary. At any point you have the right to not complete certain questions or to withdraw from the study, without loss of the promised research credit. The data collected in this study will be kept confidential, and will be used for research purposes only.

You will receive additional written feedback at the end of the session. If you have any questions about this research, or want to obtain a copy of the results once all the data has been collected, please contact Nadia Maiolino (email) or Nicholas Kuiper (email).

If you have any questions regarding the conduct of this study or your rights as a research participant, you may contact the Office of Research Ethics at the University of Western Ontario (phone; email).
University of Western Ontario

Consent Form

**Project Title:** Personality and Describing Life Events and Experiences  
**Principal Investigators:** N. Maiolino, N. Kuiper

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate in this study.

___Yes  
___No
Feedback

**Project Title:** Personality and Describing Life Events and Experiences

**Principal Investigators:** N. Maiolino, N. Kuiper

In this on-line research study you participated in one of four writing exercises: gratitude, savoring, humor, or a descriptive exercise. You also provided information about various aspects of your personality (e.g., self-concept clarity), well-being (e.g., self-esteem, satisfaction with life), as well as your use of positive psychology strategies (e.g., gratitude, savoring) and different humor styles (i.e., self-enhancing, affiliative, self-defeating, and aggressive humor).

The purpose of this study was to connect two promising areas of research, namely, (1) investigation into the adaptive and maladaptive aspects of humor (e.g., Crawford & Caltabiano, 2011; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003), and (2) evidence for the positive association between positive psychology constructs and well-being (e.g., Schueller, 2010; Sin & Lyubomirsky, 2009). These areas of study have been kept quite separate, despite the fact that a similar rationale underlies both these lines of research. That is, both domains have developed exercises and strategies that can positively contribute to mental health and subjective well-being. As such, it is important to know how these strategies are related and may work together to enhance psychological health. In this regard, a prior study in our lab investigated the relationships between trait measures of these constructs, with promising results. Accordingly, the purpose of the current follow-up study was threefold: (1) To actually have participants use several positive psychology and humor exercises to allow us to draw stronger causal inferences, (2) To examine how these positive psychology and humor exercises operate within a constellation of individual difference measures (e.g., trait measures of gratitude and savoring), and (3) To determine how these exercises are associated with traditional measures of well-being in the literature (e.g. positive and negative affect, self-efficacy), as well as explore potential moderators of these relationships (e.g., willingness to express emotion).

Your participation is greatly appreciated. To ensure confidentiality, your responses will be processed under a coding number and will never be associated with your name. We would greatly appreciate it if you refrain from discussing the details of this study with your fellow students, in order to prevent the possibility of introducing biases about this study. If you have any questions about this research, please contact Nadia Maiolino (email) or Nicholas Kuiper (email). If you have any questions about the conduct of this study or your rights as a research participant, you may contact the Office of Research Ethics, The University of Western Ontario, (phone; email).

Suggested readings:
**Curriculum Vitae**  
Nadia Maiolino

**Post-secondary Education and Degrees:**  
Brescia University College  
London, Ontario, Canada  
Bachelor of Arts, Honours  
2007-2011

The University of Western Ontario  
London, Ontario, Canada  
Master of Science  
2012-Present

**Honors and Awards:**  
Ontario Graduate Scholarship  
2014-2015

Ontario Graduate Scholarship  
2013-2014

Social Science and Humanities Research Council (SSHRC) Joseph-Armand Bombardier Canada Graduate Scholarship  
– Master’s Award  
2012-2013

Merici Award in Arts and Social Science  
Brescia University College  
2011-2012

Dr. Pat Devolder Award  
Brescia University College  
2009-2010

Principal’s Entrance Scholarship Award  
Brescia University College  
2007-2011

Dean’s List Scholar  
Brescia University College  
2007-2011

**Related Work Experience**  
Teaching Assistant  
The University of Western Ontario  
2012-2014
Publications:


Conference Presentations:


Maiolino, N., & Kuiper, N. A. (2013, June). *Integrating positive psychology and humor approaches to well-being*. Poster presentation at the Canadian Psychological Association Convention, Quebec City, QC.

Pound, M.S., Kuiper, N. A, & Maiolino, N. (2013, June). *Receiving emotional support and the experience of daily affect*. Poster presentation at the Canadian Psychological Association Convention, Quebec City, QC.