**Positive Psychology Summer Institute 2001 Long Research Summaries**

**Sara B. Algoe Summary: Appreciating Gratitude: Distinguishing the Positive Experience of Thankfulness**
It has been hypothesized that positive emotions, in contrast to negative emotions, broaden our thought-action repertoire, therefore building future resources (Fredrickson, 1998). The emotion of gratitude is thought to arise from the joint appraisal of the benefactor's actions as praiseworthy and the outcome as desirable to the self (Ortony, Clore, & Collins, 1988). The small amount of empirical research on the experience of gratitude shows that this positive emotion leads to prosocial motivations toward the benefactor by the beneficiary (Baumgarten-Tramer, 1938). It is hypothesized that gratitude also functions to coordinate new social patterns with the benefactor, thus strengthening social bonds with these morally upstanding people.

Personal accounts of emotional experience were collected in two studies designed to test these hypotheses. Participants in a recall study recorded one intense emotional experience in detail, while participants in a daily diary study recorded several daily instances of an emotional experience over a two-week period. The two conditions of interest in each study were those participants who related times when another did something good for them (gratitude condition), and those relating times when they got something they wanted (i.e., reached a goal; happiness condition). All participants answered a variety of questions about the events, including eliciting conditions, feelings, motivations, and changes in social relationships.

As predicted, results demonstrate distinct features of gratitude, even when compared with happiness events in which another was associated with the benefit. Generally, participants in the gratitude condition were more likely to feel affection, a desire to do something for the other person, and were more likely to feel closer to or have stronger relationships with the other person, than those in the happiness conditions. A central finding was that participants in the gratitude condition focused on the benefactor's virtue and future well-being, while those in the happiness condition focused on their own positive feelings. Preliminary evidence demonstrates that gratitude participants perceived the other as a caring individual. The results of these studies suggest that feelings of reciprocity and closeness result from moral evaluation of the other's action as praiseworthy, and are not simply due to positive feelings associated with another person. Future research will focus on the possibility that gratitude arises from a re-appraisal of the benefactor as caring about the recipient's well-being. This may be the mechanism through which gratitude would serve as a catalyst for the building of alliances between members of the dyad.

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For more on gratitude and moral emotions:

Haidt, J. (In press). The moral emotions. In R. J. Davidson, K. Scherer, & H. H. Goldsmith (Eds.), Handbook of affective sciences. (In press). Oxford University Press.
McCullough, M.E., Kilpatrick, S.D., Emmons, R.A., & Larson, D.B. (2001). Is gratitude a moral affect? Psychological Bulletin, 127 (2), 249-266.

**Jack J. Bauer Summary: Growth and Well-Being in Stories of Voluntary Life Transitions**
This study examined personal stories of life transitions in relation to subjective well-being. The transition stories of 67 participants who had changed careers or religions were coded for several dimensions of personal and interpersonal growth. Results showed that the personal reasons and expectations for making a change held strong ties to well-being. For example, career changers whose decisions to make the change emphasized a crystallization of desire (i.e., approaching a desired future) rather than a crystallization of discontent (i.e., escaping an undesired past) reported higher levels of well-being. Religion changers who emphasized intrinsic reasons for the change (e.g., personal growth, happiness) rather than extrinsic reasons (e.g., status, money) reported higher levels of well-being, regardless of whether the reasons were based on religious ideology or lifestyle pragmatics.

These findings held when controlling for a host of likely mediating variables such as the personality traits of extraversion and neuroticism. Also, intentions for interpersonal growth predicted well-being at least as strongly as intentions for personal growth, which is noteworthy given that research on career transitions focuses almost exclusively on individualistic concerns. This study laid a foundation for longitudinal research on intentional self-development during voluntary life changes, where pre-transition intentions for personal growth can be compared with changes in personality and well-being before and after the transition.

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Bauer, J. J., & Bonanno, G. A. (2001). Continuity amid discontinuity: Bridging one's past and present in stories of conjugal bereavement. Narrative Inquiry, 11, 1-36.

Web page: The Foley Center for the Study of Lives at <http://www.letus.org/foley>

**Julienne E. Bower Summary: Finding Positive Meaning and Physical Health: Physiological and Psychological Mechanisms**
This study was designed to examine how finding positive meaning following a traumatic life event may confer immunological benefits. In two previous studies, we have found that individuals who prioritize values and goals related to finding meaning following a traumatic experience show positive changes in certain immune parameters (Bower, Kemeny, Taylor, & Fahey, 1998, 2000). However, mediators of the association between meaning-related goals and immune outcomes have not been determined. One mechanism through which meaning may exert a beneficial effect on immunity is by promoting more adaptive physiological responses to stress.

We hypothesize that individuals who have found meaning will be less troubled by subsequent stressors, thereby minimizing excessive and/or prolonged activation of biological stress response systems. In the current study, women with a history of breast cancer are evaluated for cancer-related meaning and growth, then undergo an experimental stressor. Neuroendocrine, autonomic, and psychological responses to the stressor are evaluated. Data collection for this project is currently underway. Results from this study will lay the groundwork for a larger project on finding meaning and health, examining how individuals are able to find meaning and the psychological and physiological mechanisms through which meaning exerts positive health effects.

Bower, J., Kemeny, M., Taylor, S., & Fahey, J. (1998). Cognitive processing, discovery of meaning, CD4 decline, and AIDS-related mortality among bereaved HIV-seropositive men. Journal of Consulting and Clinical Psychology, 66, 979-986.
Epel., E., McEwen, B., & Ickovics, J. (1998). Embodying psychological thriving: Physical thriving in response to stress. Journal of Social Issues, 54, 301-322.

**Jeff Burgdorf Summary: The neurobiology of positive emotions**
My research examines how the brain processes positive emotion. In a series of papers, our group has validated a novel animal model of positive emotions. In brief, rats make a specific vocalization (50-kHz ultrasonic vocalization) in response to stimuli that one would predict would trigger a positive emotional state (i.e. palatable food, play, sex, drugs of abuse) and are inhibited by stimuli that elicit negative affective states (i.e. electrical shock, aversive drugs, presence of a predator). Also, rats only exhibit these vocalizations in rewarding situations, with vocalization rate being strongly positively correlated with the strength of the reward. Since rats make these vocalizations during rough and tumble play behavior as well as in response to tickling we hypothesize that these vocalizations may be analogous to human laughter. Indeed, the highest rate of laughter in human children and 50-kHz calls are seen during the chasing behavior of rough and tumble play.

Using this model, we stimulate the brain of the rat with various drugs or electrical stimulation and measure 50-kHz vocalization rate in order to understand how the brain produces these vocalizations. In a recent study, we found that injecting a drug that increases the neurotransmitter dopamine into a region of the rat brain called the nucleus accumbens dramatically increases these vocalizations. Therefore, we hypothesize that dopamine activity in this brain area is important for generating positive affect in mammals (since subcortical brain structure is well conserved across all mammals). Recent experiment with humans lend support to this hypothesis, with a number of human brain imaging studies now finding a positive relationships between brain activity in the nucleus accumbens related to dopamine and self reported positive affect.

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**Stephane Cote Summary: Individual Differences in Affective Experiences Associated with Interpersonal Behavior**
The goal of this research was to explore whether individuals with different personality traits like doing different things. Although past research has improved our understanding of the structure of personality and of the factors that describe individuals, little is known about the theoretical mechanisms by which factors of personality influence behavior and affect. To advance our knowledge of how personality influences affect, affective reactions to interpersonal behaviors (i.e. agreeable, quarrelsome, dominant, and submissive) were examined in people with different personality traits. It was predicted that individuals would have more pleasant affective reactions to interpersonal behaviors that are concordant with their personality. Conversely, it was predicted that individuals would have more unpleasant affective reactions to interpersonal behaviors that are discordant with their personality.

Participants were either adults from the community or students in work groups. They first completed personality questionnaires. Then, using an event-contingent sampling methodology, participants reported on their affect and interpersonal behavior in their social interactions multiple times. Data were analyzed using hierarchical linear modeling. Individuals were first each characterized by patterns of association between interpersonal behavior and affect. Then, personality traits were used to predict deviations from normative pattern of association between interpersonal behavior and affect.

Support for the hypotheses was found in two samples. Agreeable individuals enjoyed engaging in friendly, cooperative behavior but disliked engaging in hostile, conflicting behavior. Conversely, quarrelsome individuals tended to experience neutral affect, or even unpleasant affect, when engaging in friendly, cooperative behavior and also tended to experience neutral affect, or even pleasant affect, when engaging in hostile, conflicting behavior. Extraverts enjoyed engaging in agreeable behavior. Also consistent with the hypotheses was the counterintuitive finding that neurotic individuals experienced neutral affect, and in some cases enjoyed, engaging in behavior that is hostile or submissive.

These findings advance our knowledge of the processes by which factors of personality are related to affect. These findings also make an important contribution to the science of positive psychology by delineating a process by which individuals can increase their pleasant affect and their overall quality of life - by engaging in behaviors that are consistent with their personality. Future research will examine whether age, in addition to personality traits, predict how individuals feel when they engage in certain interpersonal behaviors. Future research will also extend past research on the relation between personality, situation, and affect. References:

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Author's Web site: <http://www.rotman.utoronto.ca/faculty/bios/cote.htm>

**Elissa Epel Summary: Positive Psychological Function and Positive Health**
Although much research has examined how chronic stress causes bodily wear and tear, little has examined how people can maintain health in the face of adversity, and further, how psychological factors can promote such resilience to stress. My program of research is dedicated to gaining a deeper understanding of why some people thrive under chronic stress whereas others become ill, and the psychophysiological mediators of these different outcomes.

Identification of psychological moderators of "positive health" is an important goal in that it may help explain individual differences in both disease processes and has relevance to prevention. However, in order to study positive health, markers of enhanced physiological functioning must be established. Toward this end, part of my research efforts are devoted to operationalizing measures of positive physical health as reflected by neuroendocrine functioning. Although much research has focused on stress hormones there has been only sparse attention to profiles of hormonal reactivity that may be salutary. In the papers cited below on stress-induced physical thriving (Epel et al., 1999) and disease (Wolkowitz, Epel, & Reus, 2001), we propose that vagal tone and anabolic hormones such as growth hormone and the androgen DHEA may serve as measures of positive health.

The goal of the Positive Psychology Institute funded study is to examine whether certain positive psychological factors (positive emotion, meaning based coping, optimism, spirituality, and psychological growth after facing stress) may buffer from the effect chronic stress by increasing vagal tone and anabolic hormones. The study examines the neuroendocrine, sympathetic, and parasympathetic stress reactivity of 25 caregiving mothers of chronically ill children and 25 matched control mothers, in relation to their psychological functioning. Data collection is still in progress. Future research will further define the process of psychological thriving and positive coping with severe stress and will examine their relationships with positive physiological functioning longitudinally.

Epel, E., McEwen, B., & Ickovics, J. (1998). Embodying psychological thriving: Physical thriving in response to stress. Journal of Social Issues, 54, 301-322. (describes markers of positive health, links cortisol habituation to psychological growth from major stressors)
Wolkowitz, O., Epel, E., Reus, V. (2001), Antiglucocorticoid strategies in treating major depression and improving allostatic load and health outcomes. In: J. Thakore (ed.), The Physical Consequences of Depression, Wrightson Biomedical Publishing, LTD, Philadelphia, USA (describes behavioral strategies to improve markers of positive health)

Other studies linking positive psychological function to physiological function:

Bower J, Kemeny M, Taylor S, Fahey J. Cognitive processing, discovery of meaning, CD4 decline, and AIDS-related mortality among bereaved HIV-seropositive men. Journal of Consulting and Clinical Psychology 1998;66:979-86.
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**Julie Exline Summary: Letters, logic, and letting loose: Can writing about past hurts facilitate forgiveness?**
When people have been hurt or offended by others, can writing an emotionally expressive letter help them to find relief from physical symptoms or feelings of unforgiveness? The current study explored this question in a sample of 120 undergraduates.

Method. In the first session (Time 1), participants completed pretest measures of physical symptoms and mood, recalled an incident in which they were hurt or offended by another person, and rated their current level of forgiveness toward the other person. Participants were then randomly assigned to either: a) write a letter to the person who hurt them, knowing this letter would not be mailed; b) write about the incident with an emphasis on expressing their emotions about the event; c) complete a detailed questionnaire about the incident, or d) write about how they used their time in a typical week (control condition). Two weeks later (Time 2), participants returned to complete measures of physical symptoms and forgiveness.

Results. Although participants in all conditions reported more forgiveness and fewer physical symptoms at Time 2 than at Time 1, these effects were especially strong in the letter writing and emotionally expressive writing conditions. Many studies have focused on the health effects of emotional writing. Thus, the remaining analyses focused on the letter writing condition, which was the new element of the current study.

Letters were coded for the extent of hostility and emotion expressed. Regardless of the extent of forgiveness at Time 1, greater hostility expressed in the letter predicted much lower levels of forgiveness at Time 2. In other words, regardless of how angry a person feels, choosing to directly express that anger in the form of hostility might "lock in" the angry feelings, at least over a two-week period. This association was strong (r = .48).

The second finding was only suggestive: Regardless of the extent of physical symptoms at Time 1, there was some suggestion that greater emotional expression in the letter (including hostility) might be associated with fewer physical symptoms at Time 2 (r = -.22), although there was not sufficient statistical power in the current sample to make the association statistically significant.

Tentative Conclusions & Future Directions

Although more data need to be collected before firm conclusions can be drawn, these preliminary results suggest that people may obtain some physical and emotional health benefits by writing letters to people who have hurt them (knowing that the letters will not be mailed). Choosing to express hostility in such a letter might create a tradeoff: It is possible (though not certain) that writing a hostile letter might bring some short-term health benefit. However, writing a hostile letter may also "lock in" one's feelings of anger toward the other person.

Data collection on the current study continues in Fall 2001, to determine whether the above findings are robust. In addition, a follow-up project is now starting in which participants are specifically directed to express positive or negative feelings in their letters. Finally, plans are being made for an extension of the current paradigm to a spiritual rather than an interpersonal domain: Does writing a letter to God influence people's perceived relationships with God?

References

Please feel free to e-mail Julie Exline at jaj20@po.cwru.edu to inquire about her research on interpersonal forgiveness. Prior to this study, her work has focused primarily on the role of pride as a barrier to forgiveness.

For an overview of research on the effects of writing about traumatic events, please see: Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. Psychological Science, 8, 162-166.

For another study looking at possible health effects related to forgiveness, this time related to the cardiovascular system, please see: Witvliet, C. V., Ludwig, T. E., & van der Laan, K. L. Granting forgiveness or harboring grudges: Implications for emotion, physiology, and health. Psychological Science, 121, 117-123.

**Shelly Gable Summary: Flourishing Relationships: Appetitive and Aversive Processes in Close Relationships**
Research across seemingly diverse areas has recognized, either explicitly or implicitly, two distinct functional systems, one concerned with appetitive (i.e., approach) processes, the other concerned with aversive (i.e., avoidance) processes. The approach system pertains to psychological processes and behavior associated with desired, positive outcomes whereas the avoidance system relates to psychological processes and behavior associated with undesired, negative outcomes. The present research examined appetitive and aversive systems in marital relationships. Participants were (86 married couples) who completed approach and avoidance motivation and goal measures, and everyday for two weeks they completed measures of the quality of their relationship and reported on both their own and their spouses' behaviors. It was hypothesized that activation of the approach system would be associated positive relationship qualities, and activation of the avoidance system would be associated negative relationship qualities. In addition, it was predicted that these two systems would operate through different processes. That is, those with more sensitive approach systems would over-report positive behaviors from their spouses and those with more sensitive avoidance systems would over-report negative behaviors from their spouses.

Results were largely consistent with predictions. The observation of positive behaviors from the spouse and doing something fun was associated with increases in appetitive relationship qualities (e.g., growth) but did not covary with aversive relationship qualities (e.g., insecurity). The observation of negative behavior from the spouse and conflict was associated with increases in aversive relationship qualities and decreases in appetitive relationships qualities. although the association with appetitive qualities was significantly weaker. Finally, stronger approach motives were associated with over-reporting of positive spousal behaviors for men, whereas stronger avoidance motives were associated with over-reporting of negative spousal behaviors for women. The lion's share of previous research on marital processes and relationship satisfaction has focused on conflict, problem-solving, and negative emotions. Future directions in my research involve identification of the processes involved in appetitive relationship outcomes, such as growth, intimacy, and shared positive affect. In addition, more work is needed to understand the role of motives and goals in close relationship maintenance and enhancement.

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Web site: <http://www.bol.ucla.edu/~sgable/>

**David Gard Summary: Positive Emotion in the Daily Lives of Patients with Schizophrenia**
Background. Empirically little is known about the experience of positive emotion or pleasure in schizophrenia patients, but historically the assumption has been that they do not experience much of it. One study has indicated as many as 76% of patients reported anhedonia, or a diminished experience of pleasure (Fenton & McGlashan, 1991) and several others have shown schizophrenia patients consistently report higher scores relative to controls on a scales designed to measure anhedonia (e.g. Berenbaum & Oltmans, 1992; Blanchard et al., 1994; Chapman et al., 1976). Contrary to these findings on anhedonia, however, are several laboratory studies of emotion in schizophrenia. They have found that when presented with emotionally evocative material, patients with schizophrenia do not show very many observable facial expressions of emotion but report experiencing as much positive emotion as controls when viewing positive emotional stimuli. Thus, from these studies, it appears that schizophrenia patients do not manifest an experiential deficit in response to positive emotional stimuli, but rather an expressive one. So, given the results of several studies on flat affect and the prevalence of anhedonia, a paradox emerges: If schizophrenia patients report experiencing as much positive emotion to emotion eliciting stimuli, how can they have anhedonia? This study was therefore designed to look at this paradox using the experience sampling method (ESM). ESM utilizes random sampling of individuals' experience in their environment through the use of pagers or personal organizers.

Method. Following previous ESM study designs we paged schizophrenia patients and controls, seven times a day for seven days (49 pages) between the hours of 8 a.m. and 10 p.m. In all, 15 patients who met criteria for schizophrenia or schizoaffective disorder (but no current mood disorder) completed the study. 12 nonpatients similar in age, gender, years of schooling, marital status, employment status formed our control group. Participants rated their emotional state at the time of the page, responding to 30 emotion adjectives selected to be an adequate sample from all octants of the circumplex of emotion. This was followed by questions of environmental context.

Results. Hierarchical Lineal Modeling (HLM) (Bryk and Raudenbush, 1992) was used for data analysis of this study. In all, the combined patient and control responses rate was to 88.5%, which is quite good when compared to previous ESM studies. In terms of a overall positive rating for the week we found no significant differences between patients and controls. Further, in terms of specific environmental contexts, there were only a few differences in what patients were doing and who they were with. Specifically, patients were alone more often than controls, and when around others, tended to interact less than controls. We also found that patients and controls reported similar amounts of enjoyment in response to whatever they were doing. In addition, patients and controls reported looking forward to, or anticipating, the same number and types of activities. However, when we asked patients and controls how much enjoyment they anticipated that they would get from the activity they were looking forward to doing, patients tended to report anticipating less enjoyment from those activities.

Discussion. Far and away the results indicate that in their everyday life patients with schizophrenia tend to experience very similar amounts of positive emotion relative to controls. This seems consistent with findings from laboratory-based studies, which have indicated that patients tend to report as much positive emotion as controls when faced with positive emotion-eliciting stimuli. We also found that patients reported anticipating less enjoyment from activities than controls. This finding has ramifications for research on anhedonia in this population. Specifically it calls into question our understanding of the experience of pleasure more generally. In fact, recent research on the experience of pleasure has indicated that it is not just the experience that one has on-line, but that it also exists in anticipation, memory, and in approach motivation. By empirically investigating these components of the experience of pleasure in individuals without psychopathology we may be able to get a clearer understanding of how the experience of pleasure functions and how it may, for some, go awry.

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**Melanie Green Research Summary: The Restorative Function of Transportation into a Narrative World: Stories and Self-Regulation**
How do narratives affect individuals? The power of narratives, even fictional ones, has often appeared to be limitless, yet scientific understanding of this power is in its infancy.

My research has focused on the phenomenological experience of being absorbed in a story-a process we call "transportation into a narrative world"--as a mechanism of narrative impact. Most people have had the sensation of being "lost in a book" (Nell, 1998), swept up into the world of a story so completely that they forget the world around them. Instead of being aware of their physical surroundings, transported readers see the action of the story unfolding before them. They react emotionally to events that are simply words on a page. A transported individual is cognitively and emotionally involved in the story, and may experience vivid mental images.

The current study extends the investigation of transportation into the realm of self-regulation. In particular, we suggest that transportation into narrative worlds may be a means by which individuals can restore depleted ego strength. Baumeister and colleagues have highlighted the executive function of the self, which controls acts of volition and choice. They have presented evidence that self-regulation resembles a muscle (Baumeister, Bratslavsky, Muraven, & Tice, 1998). It requires energy to exert self-control, and thus, the executive function may become depleted after use. In this framework, self-control efforts draw upon a common resource.

Acts that require effort involving the self are thought to deplete ego resources. However, we propose that transportation, although demanding of cognitive capacity, may be more effective in restoring self-regulatory resources than simple rest. Individuals who are transported are removed from a self-focused state. Engagement in a narrative world likely has effects beyond mere distraction, however; the flow-like properties of transportation may provide a replenishing boost to ego functioning. We tested this idea experimentally by exposing people to ego-depletion tasks followed by either a transportation experience or a filler task, and then measuring persistence at a dependent measure (solving difficult anagrams). We used a neutral-toned narrative to avoid effects of positive or negative emotion.

This initial experiment did not support our hypothesis. In retrospect, however, it appears that other aspects of the experimental situation (e.g., highly motivated participants) may have masked any effects transportation might have had. Further studies are planned to address these issues. In particular, we will use a dependent variable task that is not intrinsically motivating to participants. We also plan to extend our investigation to stories of differing emotional valence.

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Green, M.C., & Brock, T.C. (2000). The role of transportation in the persuasiveness of public narratives. Journal of Personality and Social Psychology, 79(5), 701-721.
Green, M.C., Strange, J.C., & Brock, T.C. (Eds.) (in press, expected publication Dec. 2001). Narrative Impact: Social and Cognitive Foundations. Mahwah, NJ: Lawrence Erlbaum Associates.

Melanie Green's Web page: [www.psych.upenn.edu/~mcgreen](http://www.psych.upenn.edu/~mcgreen)

**Derek Isaacowitz Summary: An adult developmental perspective on Positive Psychology wellsprings**
Are human strengths static across the life-span, or do they vary in both their mean levels and individual adaptive function across adulthood and old age? Anecdotal evidence suggests that behaviors considered as reflecting strengths at one age may be considered neutral or negative when done by individuals of other ages. The goal of this study was to conduct a preliminary investigation of differences between young, middle-aged, and older adults in both mean levels of human strengths, as well as in the relationship between each strength and a measure of well-being.

While no age differences were found for hope or wisdom, younger individuals tended to score higher on originality and appreciation of beauty. Older adults scored higher on self-control and spirituality. Higher levels of most strengths correlated with higher self-reported life satisfaction among young and older adults. In contrast, the correlations between strengths and life satisfaction were weaker and less consistent among middle-aged adults. It appears that young adulthood may be a time when individuals use strengths to choose life paths, and late life a time when individuals are freed from sociocultural constraints and can use their strengths to structure their lives in satisfying ways. In contrast, midlife may be a time when individuals are too busy with family and work-related commitments to utilize their strengths in an adaptive fashion. Future work will need to develop better measurement tools for each strength, and evaluate behaviors individuals of different ages engage in that reflect or build strengths.

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Much of my own research has focused on the related issue of how individuals successfully regulate their emotions in adulthood and old age. For more on that:

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Web site: [www.brandeis.edu/departments/psych/isaacowitz.html](http://www.brandeis.edu/departments/psych/isaacowitz.html)  or [www.brandeis.edu/~dmi](http://www.brandeis.edu/~dmi)

**Leslie Kirby Summary: Personality, Physiology and Performance: The Effects of Optimism on Task Engagement**
The aim of this program of research is to examine how trait optimism affects the amount of effort people expend when confronted with a behavioral challenge. This is an extremely important area of research, since it offers a glimpse at what inspires people to persevere and succeed in the face of obstacles, instead of examining why they fail, as does much of the research on task engagement.

The research designs and hypotheses are guided by three propositions: (1) effort increases with the difficulty of a challenge up to the point at which success is viewed as impossible or not worthwhile, and is low at all difficulty levels thereafter; (2) people who are low in optimism will perceive the challenge as more difficult than will people who are high in optimism; and, (3) sympathetic nervous system (SNS) effects on the heart and vasculature are proportional to task engagement, or effort.

Together, these propositions lead to three specific hypotheses: (H1) those low in optimism should show greater effort and CV responsivity than those high in optimism so long as success is viewed as possible and worthwhile; (H2) those low in optimism should disengage at a lower difficulty level than those high in optimism and hence sometimes show reduced CV responsivity relative to those high in optimism; (H3) if difficulty is high enough, even highly optimistic people should disengage - at that point, they should show the same low level of CV response as people low in optimism.

Two studies have begun to address the first two of these predictions. Subjects high and low in trait level optimism were randomly assigned to either a difficult or an easy sequence of anagrams. Subjects were told they could avoid a penalty (a loud burst of noise) at the end of the experimental session by solving at least half of the anagrams correctly. In both studies, results revealed the predicted interaction ^m in the easy condition, subjects who were low in optimism expended more effort (demonstrated by greater changes in blood pressure), while in the difficult condition, subjects with low optimism expended less effort.

Further studies are planned to replicate and extend these findings in several important ways by examining optimism and difficulty at multiple levels, by manipulating different types of outcomes, and by including additional physiological measures. Selecting subjects based on their levels of optimism, rather than doing a simple median split from the sample will allow an examination of how much optimism is necessary in order to impact task engagement. Assigning subjects to multiple difficulty levels, rather than just high vs. low, will allow an explicit test of the third hypotheses mentioned above. Manipulating outcome expectancy by offering positive, in addition to negative, outcomes will allow an examination of whether or not the effects of optimism differ whether one is working toward a goal or trying to avoid a punishment. And adding impedance cardiography techniques to the physiological assessments will offer a more complete picture of CV responsivity. This research will shed light on the underlying motivational implications of optimism, with applications to both mental and physical health. I will use this as a step toward building a research program dedicated to examining positive responses to life's challenges.

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Web sites: <http://www.dpo.uab.edu/~lkirby/> or [http://kirby.socialpsychology.org](http://kirby.socialpsychology.org/)

**Chantal Levesque Summary: Autonomous motivation as an implicit and an explicit disposition: Relation to daily life and well being**
Implicit attitudes and motives are the ones that have been consistently linked to representations of situations over time. We propose that implicitly/non-consciously regulated and explicitly/consciously regulated motivations will not necessarily overlap. We propose that implicit and explicit motives will predict different outcomes in some situations. Considered together, implicit motives would best predict spontaneous long-term behavior or automatically regulated perceptions whereas explicit motives would be better predictors of consciously regulated intentions and perceptions. However, when taken individually, implicit and explicit motives would serve the same function by being associated with positive outcomes and well being. The Implicit Association Test (IAT) was used to assess implicit individual differences in motivational orientations. Then participants completed a 14-day experience sampling study.

Results showed that implicit motives predicted daily autonomous motivations and that explicit motives were associated with retrospective accounts of reasons for behaving. Interestingly, the discrepancy between implicit and explicit motives predicted daily negative emotions, thus lack of subjective well being. Mindfulness, the ability to be in touch with the self and ones own emotions and actions, was associated with a reduced discrepancy between implicit and explicit motives. Future work will examine the psychological meaning of the large discrepancy observed between implicit and explicit motivations. What are the different antecedents of the discrepancy as well as the investigation of the psychological and behavioral outcomes associated with this self-discrepancy. Future work will also examine the interaction between implicit individual differences in motivational orientations and social context.

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**Debra Lieberman Summary: The cognitive mechanisms mediating kin-directed altruism**
Over our species' evolutionary history, the deleterious consequences of inbreeding and the fitness enhancing effects of helping close genetic relatives were two selection pressures that led to the evolution of psychological adaptations dedicated to recognizing close kin. To the extent that different cues reliably correlated with an individual being a particular type of close kin (i.e., sibling, parent, or offspring), different recognition mechanisms are expected to exist. One of the cues hypothesized to be relevant for recognizing siblings is close physical association during early childhood. To investigate whether stronger cues to sibling-ship predict the level of sibling-directed altruism, 163 undergraduate students at UCSB filled out a survey asking about length and age of coresidence with each sibling and how likely they would be to help (i.e., lend money and donate a kidney to) each sibling.

Analyses indicated a significant positive correlation between length of childhood coresidence and willingness to help a sibling. In addition, those individuals who did not reside with their sibling during childhood were significantly less likely to help their sibling than those individuals who resided with their sibling during this time period. Evidence from this study along with an ongoing research project investigating the cues governing the development of a sexual aversion between siblings will help identify the kinds of information used by a sibling recognition system, thereby helping to understand why sexual aversions sometimes fail to develop between siblings as well as the patterns of sibling-directed altruism.

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Web site: <http://www.psych.ucsb.edu/~lieberma/>

**Eric Lindsey Summary: Social Determinants of Young Children's Optimism**
The present study examines correlates of young children's optimism. Preschooler's optimism was assessed using a interview procedure (Preschooler's Optimism Interview) in which two hand puppets presented two-part, contrasting descriptions of themselves (e.g., "I'm a happy kid," "I'm not a happy kid"), and the child was asked to state which of the two puppets was most like him/her. Two scores were created representing: (a) big optimism, general expectations about positive outcomes, and (b) little optimism, specific expectations about positive outcomes related to social relationships.

Both mothers and fathers completed the Life Orientation Test (LOT) (Scheier & Carver, 1987) to assess their dispositional optimism. Teachers completed the Teacher Checklist of Peer Relations (Dodge & Somberg, 1987) to assess children's social competence and sociometric interviews were conducted to assess children's peer acceptance. Finally, each child was videotaped in a 15-min play session with a friend from his/her class to assess his/her peer play behavior. Twenty-six preschoolers (14 males, M age = 55 m) and their parents participated in this study.

There was a significant positive correlation between mother's optimism and children's big optimism. There was no association between father's optimism and children's optimism. Children with high levels of big optimism were rated by teachers as more competent and were better liked by peers. Children with high levels of little optimism were more involved with their play partner and had more synchronous play behavior during the peer-play session. Father's who were more optimistic had children who displayed more synchronous play behavior.

The findings of this study suggest that individual differences in children's levels of optimism are associated with their social competence. In addition, connections were observed between parental optimism, children's social competence and peer play behavior. Future research should focus on identifying social factors that may be determinants, as opposed to consequences, of children's optimism, and the mechanisms linking parent optimism to children's social competence.

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**Paulo Lopes Summary: Emotional Intelligence and the Perceived Quality of Social Relationships**
This study evaluated the convergent, discriminant and predictive validity of emotional intelligence, measured as a set of abilities, using the Mayer, Salovey, and Caruso Emotional Intelligence Test (MSCEIT). In a sample of 103 college students, we found that emotional intelligence correlated modestly with verbal intelligence, and some personality traits. Emotional intelligence explained self-reported quality of social relationships over and above personality traits and verbal intelligence. Quality of social relationships was assessed using Ryff's (1989) scale of Positive Relationships with Others, and Furman and Buhrmester's (1985) Network of Relationships Inventory.

These findings provide preliminary support for the convergent, discriminant, and predictive validity of emotional intelligence, measured as a set of abilities. Our findings suggest that we may need to take into account both emotional skills and personality traits in order to better understand social and emotional adaptation. Future research will explore the correlates of emotional intelligence and seek converging evidence to establish its predictive validity. In a study that is already underway, we will evaluate whether emotional intelligence predicts people's capacity to establish positive relationships with others, as assessed through peer ratings.

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**Tracy McLaughlin-Volpe Summary: The Hidden Rewards of Cross-Group Friendships: Self-Expansion across Group Membership**
According to the self-expansion model (Aron & Aron, 1997; Aron, & McLaughlin-Volpe, 2001), people who enter into close relationships should experience what they perceive as self-expansion. Self-expansion is the desire to enhance potential self-efficacy by gaining or increasing one's access to physical and social resources, perspectives, and identities. This expansion should be larger and potentially affect more aspects of the self when the close relationship partner is a person who belongs to an out-group and/or is experienced as very different from self. Consistent with this argument, the present study was designed to test the hypothesis that cross-group relationships as compared to intra-group relationships offer a higher potential for self-expansion as indicated by the achievement of an expanded and richer sense of self, an increased sense of self-efficacy, and a change in world-views. I conducted a longitudinal prospective study using 61 first and second year college students during the beginning of the spring term. Aspects of the participants' self concept were measured every 2 weeks over a 6-week period. At each testing session, participants engaged in a spontaneous adjective generation task (McGuire & McGuire, 1988) in response to the question "who are you today?"

Participants also filled out measures of self-esteem, self-efficacy, and a measure intended to assess the nature of participant's world views. Finally, participants were presented with a "life events check list" asking them to check off whether a number of different life-events occurred since the last testing session. If participants indicated that they had developed one or more close friendships, they were asked to report for each person how close they felt to this person and how satisfied they were with this relationship. At the end of the 6-week period, participants were asked to provide additional information about each of their new friends. Among other items, they were asked to report each person's sex, ethnicity/race, religious and party affiliations. They also listed three ways in which they felt each friend "is different from you" and rated on a 7-point scale- how meaningful they perceived each difference to be.

Analyses revealed that the extent to which a new friend was perceived as different from self was positively related to continuous self-concept change over the 6-week period and to the continuous recognition of new self-attributes. This association appeared to be partially mediated by relationship closeness. A second set of analyses revealed that the more new cross-group friendships a person developed over the 6-week period the more they endorsed a dynamic view of self and others.

Support for the hypothesized relationship between the development of new cross-group friendships and improvement in self-efficacy and self-esteem over time was inconsistent across analyses. Thus, expansion of self may not be consistently related to well-being. It is possible that expansion, while exciting, is also experienced as unsettling. Periods of self-expansion may need to be followed by periods during which a person can integrate the new experiences into their self-concept.

Planned extensions of this line of work include the addition of additional measures of self-concept change (for example, measures of cognitive complexity) and a longitudinal follow-up study to examine whether or not any changes in self-concept are permanent, and whether (or when) changes in well-being follow changes in self-expansion.

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**Judith Tedlie Moskowitz Summary: The experience of positive emotion in parents of children with chronic illness**
Stress and coping research has long focused on the association between coping and negative emotion. However, data from two studies of caregivers indicate that positive emotion co-occurs with negative emotion, even when levels of depressive mood are high. In a longitudinal study of care giving partners of men with AIDS, positive emotion was as frequent as negative emotion, with the exception of the period immediately surrounding the death of the partner. Similarly, in a sample of women providing care for a child with HIV or other chronic illness, positive emotion was more frequent than negative emotion, even though levels of depressive mood were in the clinical range. In the study of female caregivers, the finding was replicated using two different measures of emotion (the Bradburn Affect Balance Scale and the PANAS) so the finding does not appear to be dependent on a specific measure of emotion.

These findings led to several questions: What are the processes by which positive emotions are generated under conditions of stress? What are the functions of positive emotion under these conditions? Are the processes that generate positive emotion or the functions of positive emotion different under conditions of chronic stress? Is the ability to attain positive emotion under stress dispositional? If not, how does it develop?

The FAP study is designed to explore these questions. FAP (Familial Adenomatous Polyposis) is an inherited disorder which, if left untreated, leads to colorectal cancer. Children with the FAP gene undergo difficult and invasive screening and treatment procedures and current guidelines recommend prophylactic colectomy in the teen years. In this exploratory study, I am conducting in-depth interviews with 10 mothers of children with the FAP gene who are currently undergoing an extensive screening procedure at the UCSF Pediatric Clinical Research Center. Data from this study will provide information on the following specific questions: Are mothers aware of their experiences of positive emotion even when they are experiencing high levels of stress? Can they report on the experiences of positive emotion? What are their ideas about how positive emotion is brought about? What function does positive emotion serve for them? What is the best way to ask questions regarding the experiences of positive emotion in the context of stress? Results of this study will serve as pilot data for an R01 on the role of positive emotion in coping with chronic illness.

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**Jeanne Nakamura Summary: Sustaining Engagement**
Vital engagement, an enduring relationship to the world that is characterized by both subjective significance and experiences of flow, occurs in many domains: art, science, religion, and interpersonal relations. This study explored how vital engagement is sustained over time in creative work. In the canonical narrative of the creative life, a purpose or mission is formed before adulthood, often with origins in trauma, then animates and unifies endeavors throughout life. How well does this pattern describe creators' engagement?

In Part I of the study, I analyzed retrospective data from 40 interviews with eminent scientists and artists still active in later life (mean age, 72). Less than half of the subjects' narratives fit the canonical pattern. Other subjects described the pursuit of a series of goals rather than a single lifelong program and some deliberately embraced periodic changes of direction rather than one guiding purpose. However, the data suggested that regardless of pattern, the creators' lives shared an underlying dynamic of emergent motivation, with goals arising from the individual's ongoing interactions with art or science.

In Part II of the study, four subjects (mean age, 82) were re-interviewed to pilot a longitudinal approach. Ten years had elapsed since the original interviews. Subjects reported engagement both at Times 1 and 2. All had shifted the focus of their work between Times 1 and 2. Longitudinal analysis provided evidence for the dynamic of emergent motivation that the retrospective accounts had suggested. I plan to continue the follow-up study in order to examine vital engagement longitudinally with a larger sample that includes representatives of each pattern of engaged life.

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**Jack B. Nitschke Summary: Neural Circuitry of Positive Emotion: An fMRI Study of Mothers Viewing Pictures of Their Infants**
One characteristic shared by all mammals is that after giving birth mothers devote considerable time and energy into caring for and nurturing their offspring. The maternal care-taking response is accompanied by powerful emotional responses in new mothers and this emotional response likely serves to motivate and organize the maternal behavioral response. In the present study, fMRI was employed with new mothers while they viewed photographs of their own infants in an attempt to uncover the brain systems involved in the positive emotional responses that infants induce in their mothers. Seven primiparous mothers served as participants in this study. Photo shoots with a digital camera were conducted with their 3-5 month old infants and with an adult acquaintance identified by each subject to control for effects of familiarity. Whole-brain (23 7-mm coronal slices, 1-mm gap) BOLD fMRI was performed on a 1.5 T GE magnet with a TR of 3000ms, a TE of 50ms, and a flip angle of 90 degrees.

A block design was employed, alternating between the participant's own and an unfamiliar infant in two runs and between the participant's identified and an unfamiliar adult in two additional runs. The stimulus sets for each participant served as control stimuli for one other participant, such that each mother of a pair was presented with their own and the other's infant/adult photographs. Runs were comprised of eleven half-cycles, each containing five 6-s photographs and lasting 30 s. Emotional potency of photograph presentation was assessed via brief rating scales presented at the end of each run. Areas activated while mothers viewed their own relative to an unfamiliar infant included bilateral orbital and inferior frontal cortex, right dorsolateral prefrontal cortex, right precentral gyrus, right parahippocampal gyrus, widespread areas of the occipital lobe, and bilateral cerebellum. In contrast, the familiar adult induced much less activation confined primarily to the occipital lobe.

These results suggest that a mother's response to her infant involves the recruitment of a diverse array of brain structures dedicated to emotional responsiveness (orbitofrontal cortex, dorsolateral prefrontal cortex), visual processing (occipital cortex), motor behavior (precentral gyrus, cerebellum), and memory (parahippocampal cortex). A number of key regions hypothesized to be involved could not be imaged due to susceptibility artifact often seen at bone-tissue boundaries that results in signal loss (nucleus accumbens, vast majority of the orbitofrontal cortex) and to inadequate spatial resolution (medial preoptic area).

To examine these areas, we plan to conduct a similar study on our newly acquired 3 T magnet using parameters that will allow us to better image these areas. Another future direction is the isolation of circuitry devoted to the anticipation of strong positive emotion by employing a warning symbols that predict whether one's own or another infant or another emotional picture will be presented. Another planned study will examine whether such positive, interpersonal stimuli result in a diminution of amygdalar response commonly seen in response to aversive stimuli.

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**Ginger Pennington Summary: Self-Congruencies and the Positive Consequences of Self-State Representations**
Theorists in the field of psychology have long recognized the important role of the self-concept in emotional experience (e.g., Freud, 1923, James, 1890), as well the fundamentally social nature of the self (Cooley, 1902; Mead, 1934). The present research is concerned with the way in which the standpoint of significant others can serve as an emotionally significant basis for self-regulation. Of particular interest are the conditions under which self-standards from the "other standpoint" give rise to positive affective responses.

Self-discrepancy theory (Higgins, 1987) proposes that individuals evaluate the self by comparing the "actual self" with one of four distinctive types of "self-guides." Self-guides differ along two dimensions-domain and standpoint. Along the domain dimension, individuals strive to achieve congruence between the actual self and the "ideal" self (wishes, aspirations) or the "ought" self (perceived duties, obligations). The standpoint dimension refers to whether these guides are based on one's own standpoint or the internalized standpoint of significant others. Previous research has placed a particularly strong emphasis on negative emotions that arise when individuals feel that the self is discrepant from self-guides, as opposed to positive emotion arising from congruency (e.g., Higgins et al., 1995; Strauman, 1989, 1990, 1992). Further, the standpoint dimension of the theory has received relatively scant attention in past research overall, and the other standpoint on the self has been assumed to be relatively inconsequential for emotional experience.

The present research suggests that the other standpoint is, in fact, consequential in producing positive emotion, particularly when individuals construe the self interdependently (Markus & Kitayama, 1991). Interdependent self-construal refers the tendency to view the self as embedded in relationships and social groups. In contrast, individuals with a salient independent self-construal view the self as autonomous and relatively distinct from others. In order to examine the influence of self-construal and standpoints on positive emotion, 48 participants were primed to think of the self in either an interdependent or independent manner (using the subtle pronoun circling prime, Brewer & Gardner, 1996) prior to receiving feedback from a personality test. Earlier in the term, participants had completed the "Selves Questionnaire" (Higgins et al., 1985) in mass testing. Responses to this questionnaire enabled the researcher to provide positive feedback relevant either to participants' "own" self-guide or "other" (parental) self-guide.

As predicted, a significant interaction between standpoint and prime (p < .03) revealed that positive affect in response to the satisfaction of "own" self-guides was greatest following independence priming, whereas feedback related to the "other" self-guide resulted in heightened positive affect following the interdependence prime. A mediational analysis supported the role of perceived interrelatedness with others in determining this effect. Further research is needed to examine the moderating role of domains of the self, as well as to investigate the significance of self-guides based on the perspective of individuals other than parents (e.g., spouse, close friend). Furthermore, emotional responses to other self-guides may also be moderated by the extent to which these self-guides overlap with self-guides from the own standpoint.

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**Moria Smoski Summary: Laughing Matters: Antiphonal Laughter between Friends and Strangers**
Laughter has been linked to numerous social functions, including the strengthening of social bonds. A single laugh in itself may impact a social interaction, but the pattern of laughter between two social partners may further influence and reflect the development of that relationship. Our research to date has shown that social context, specifically the sex and familiarity of one's social partner, are related to the rate of laugh production. Specifically, males laugh more with friends, especially male friends, whereas females laugh more with males. Additionally, the temporal pattern of antiphonal laughter (sometimes referred to as contagious or reciprocal laughter) has been shown to differ between friends and strangers, with friends displaying higher rates of antiphonal laughter. Antiphonal laughter may serve to both index an ongoing cooperative relationship, with higher rates of concurrent laughter indicative of an established cooperative relationship, and as a tool in friendship development, with laughter from one partner used to induce positive affect in the other individual.

In the current study, first-year college students enrolled in introductory psychology classes were assigned to either a "friend" or "stranger" condition. Participants in the friend condition were asked to bring one of their dormitory hall mates to the experiment. As all participants were in their first year of college and data collection began in the first week of classes, these friendships were quite new. Those in the stranger condition were matched to an unknown partner. Partners were either of the same or opposite sex. A total of 114 participants have completed or are currently enrolled in the study. Data from 38 participants (11 male-male pairs and 8 female-female pairs) are reported here.

Participants were audio recorded over three sessions, each 1 month apart, while playing games designed to promote laugh production. At the end of each session, participants completed questionnaires designed to measure friendship closeness, relative dominance, and affect. An antiphonal index was computed for each individual using sequential analysis techniques. Aggregating over all three sessions, friends produced more antiphonal laughter than strangers, but no sex differences were detected. Across sessions, there was a three-way interaction between sex, familiarity, and time. This was driven by sex differences in the amount of antiphonal laugher produced by friends in the first session. Female friends produced significantly more antiphonal laughter than male friends in the first session, but by the second session this difference was no longer observed. Strangers did not differ in the amount of antiphonal laughter produced across sessions.

Overall, these results suggest that social partner familiarity influences not only the total amount of laughter produced, but also the temporal relationship between partners' laughs. The sex difference in the amount of antiphonal laughter produced by friends in the first session may reflect heightened intra-sex competition between males. It may take longer for males to overcome such competitive influences in their friendships, and therefore take longer for males to consistently use antiphonal laughter. Females use antiphonal laughter quite early in their friendships, producing equally high levels of antiphonal laughter when the friendship is a few weeks old as they do when the friendship is several months old.

Future directions for the study include completion of data collection and analysis. Results from opposite-sex pairs are of particular interest, as they may further illustrate sex differences in the use of antiphonal laughter. Future studies may examine the use of antiphonal laughter as an index of satisfaction in romantic relationships. This study is part of a larger program of research examining the social functions of laughter.

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Web site for samples of laughter: <http://www.psy.vanderbilt.edu/faculty/bachorowski/laugh.htm>

**Ty Tashiro Summary: Personal Growth Following Relationship Dissolution**
Most research on romantic relationship breakups has focused on distress and its correlates. Very few studies have investigated the possibility of positive changes that may lead to increased competence and satisfaction in subsequent relationships. Growth following relationship breakups is a promising area of research because (1) relationship breakups are one of life's most common distressing events and (2) unlike other stressors most people will experience numerous relationship breakups over the course of their lifetime. Thus, growth experienced following a relationship breakup may actually improve the quality of future romantic relationships.

We identified three factors that may be related to levels of growth and distress: attributions regarding the breakup, personality, and gender. Attributions were examined because individuals? success in correcting problems across relationships relies upon the causes they identify for why their previous relationship declined and dissolved. Attributions were categorized into Person (e.g., my mood), Other (e.g. ex-partner's mood), Relational (e.g., power struggles) and Environment (e.g., work stress). Personality is a critical variable in the study of responses to stressful life events and was assessed with the Big Five. Gender differences in levels of growth were also explored. Participants were 92 undergraduates who had experienced a breakup within the previous 6 months. On average the relationships had lasted 14 months. Participants completed qualitative and quantitative measures of growth, causal attributions, and personality.

Results and Discussion. Growth is a common experience following breakups, with participants reporting five positive changes on average that they think may serve to improve future relationships. Regarding correlates of growth and distress, participants who attributed their relationship breakup to Other factors reported more distress, Person attributions were associated with less growth, and Environmental attributions were associated with more distress and more growth. Other attributions may be associated with more distress because they involve external factors that are beyond one's control after the relationship dissolves. Why are Environmental attributions are associated with more distress and more growth? One possibility is that individuals who can identify modifiable environmental problems from the previous relationship are more able to attain positive outcomes from the event that can improve the quality of future relationships.

Exploratory analyses revealed that individuals perceived Environmental factors to be more controllable than other factors (e.g., trying to change a partner's characteristics). In addition, Environmental factors do not necessitate being in a new relationship. Personality dispositions influence how individuals respond to stressful events. Consistent with other research, Neuroticism was associated with more distress. Only Agreeableness was associated with more growth, perhaps because individuals high in Agreeableness are able to more easily draw upon social support. Women reported more growth than did men which may be because women are able to forecast the decline of the relationship earlier and are better able to prepare for the breakup.

We are currently working on developing a measure of growth and more importantly, testing the predictive validity of this measure by assessing whether individuals who report more growth actually fare better in their subsequent relationships. We will also be conducting a prospective study in which individuals are assessed at Time 1 in ongoing relationships and then at Time 2 following the dissolution of that relationship. This will allow us to compare reports of growth following breakups with change scores from Time 1 to Time 2.

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**Michele Tugade Summary: The Effects of Positive Emotions on Coping Flexibility for Low and High Resilient Individuals**
Coping flexibility is defined as modifying one's coping strategies in response to the demands of different situations and/or in response to the same situation as the demands change over the course of that situation (Compas, Forsythe, & Wagner, 1988). As such, coping flexibility might reflect the ability to select and utilize the most-appropriate coping strategies to handle a variety of situations. Interestingly, resilient individuals have been characterized by coping flexibility (Block & Kremen, 1996; Lazarus, 1993).
Drawing from the broaden-and-build theory of positive emotions (Fredrickson, 1998), it was predicted that positive emotions foster coping flexibility for resilient individuals. Indirect support for this hypothesis can be found in studies showing that individuals with positive emotional dispositions report more flexible coping (Martin, Kuiper, Olinger, & Dance, 1993; Lyubomirsky & Tucker, 1998). Moreover, positive affect is related to cognitive flexibility, creativity, and innovation (Estrada, Isen, & Young, 1997; Isen, 1999; Isen & Means, 1983; Isen, Rosenzweig, & Young, 1991; see also Aspinwall, 1998 for a review). Thus, it is plausible that positive emotions also foster greater flexibility when considering and implementing strategies to cope with negative emotional experiences.

The present study used a 2 X 3 (Resilience Group: Low, High X Emotion: Positive, Neutral, Negative) factorial design to test the hypothesis that positive emotions foster coping flexibility. First, participants provided self-report ratings of psychological resilience (Block & Kremen, 1996). Then, participants read about, and imagined themselves in two different stressful scenarios. Immediately afterwards, participants were randomly assigned to experience positive, neutral, or negative emotions via film presentation after. Finally, participants provided ratings of coping flexibility. Finally, participants provided ratings of coping control to indicate how much control they felt in response to the strategies they endorsed.

Findings revealed that individual differences in resilience were evident in the positive emotion condition. When experiencing positive emotions, Low Resilient participants demonstrated greater coping flexibility compared to High Resilient participants. In addition, despite being less flexible with the strategies they employed in different situational contexts, when experiencing positive emotions, the High Resilient group demonstrated greater coping control, compared to the Low Resilient group. Finally, in line with the broaden-and-build theory of positive emotions, findings indicate that those who experienced positive emotions demonstrated greater coping flexibility, compared to those who experienced neutral emotions. In other words, positive emotions appear to foster coping flexibility -- interestingly, however, this effect was only evident for Low Resilient individuals.

Findings indicate that a positive emotion intervention within a negative emotional context appears to be particularly useful for Low Resilient individuals, while High Resilient individuals appear to fare well regardless of the emotional context in which they are placed. The difference between the two groups may lie in their coping knowledge. It is possible that High Resilient individuals in the present study, who are characterized by high positive emotionality (e.g., Block & Kremen, 1996; Klohnen, 1996; Lazarus, 1993), have had opportunities to explore a number of coping possibilities. Through time, they may have developed coping expertise through several and varied attempts at coping (cf., Werner & Smith, 1989). In contrast, for Low Resilient individuals, a positive emotion intervention may serve as a proxy for the trait-like positive emotionality of their High Resilient peers, giving them the opportunity to explore coping options and utilize these options flexibly. Future studies aim to examine the temporal dynamics of positive emotions, resilience, and coping flexibility.

References

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Web site: Positive Emotion Laboratory (University of Michigan): [www.umich.edu/~psychdept/emotions](http://www.umich.edu/~psychdept/emotions)