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DO POSITIVE MOODS LEAD TO A FUTURE ORIENTATION?

By

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ABSTRACT

DO POSITIVE MOODS LEAD TO A FUTURE ORIENTATION?

By

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In her Broaden-and-Build model, Fredrickson (1998) posited that positive affect leads to a broadening of cognition. This expansive thinking should allow the individual to build resources that assist in coping. The present studies tested and extended Fredrickson's model. Specifically, I examined whether positive affect, in addition to causing broadened attention and cognition, also leads to future orientation. This could be a mechanism through which positive affect leads to better self-regulation and positive outcomes. Study 1 examined whether positive affect is associated with future orientation and abstract thinking. Two laboratory studies (Studies 2 & 3) examined whether induced positive mood lead to future-oriented, broad-minded, and abstract thinking. Study 4 attempted to establish a directional relationship between broadened attention and abstract thinking. There was partial support for the notion that positive emotions are associated with abstract thinking and future orientation. However, the laboratory studies failed to reveal evidence for these associations.

I would like to dedicate this to my family.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Introduction

Many positive outcomes come about through good decisions, diligent effort, and effective self-regulation. People must forego momentary pleasures and work to obtain things they want or a standard of living they desire. For example, when people earn money, some, instead of spending it, save it wisely for their future. Similarly, those who are on diets must resist indulging in sweets so that they can accomplish the goal of a healthier lifestyle. How do individuals develop the ability to see options, make decisions, and enact behavior that lead to long-term positive outcomes? Two motivating factors that influence people's thoughts and behaviors are goals and emotions. People's goals and emotions interact and conspire to either lead them toward desirable outcomes or away from them. Thus, in trying to understand the conditions under which good decisions are made, it may be useful to examine the role of emotions on decision-making through a goals framework.

The idea that one's goals, defined here broadly as internal representations of desired states (Austin & Vancouver, 1996), influence outcomes is not new. In fact, Lewin (1935, 1943), in his seminal discussion of goals, suggested that goals exert a major influence on current behavior. His ideas are still influential to social psychological theory, and the goals framework has been a major component of many social and personality theories (e.g. Carver & Scheier, 1990, 2000; Deci & Ryan, 1985; Higgins, 1997; Mischel & Shoda, 1995; Liberman & Trope, 1998; Vallacher & Wegner, 1987). There are a number of factors that can influence the outcome of goal-striving behaviors. The type of goals people choose to pursue as well as how people choose to think about

their goals can affect how effective their behaviors are in moving them towards beneficial outcomes. In this paper, I examine how emotions influence goal-striving processes, which, in turn, affect the outcomes in people's lives. In other words, do emotions, particularly positive emotions, systematically affect the way people think about and pursue their goals?

Conceptualizing Goals

The way people think about their goals can impact their behaviors during goal pursuit. People can differ in how abstract they conceptualize their goals and in the time frame with which they think about their goals. Vallacher and Wegner (1987), in their Action Identification Theory, suggested that any behavior could be identified at differing levels of abstraction. Thus, behaviors, objects, and events could be conceptualized by their defining features and characteristics or by the specific elements that make up the behavior, object, or event. For example, a spoon can be identified abstractly as an eating utensil, as the category of "eating utensils" is super-ordinate (higher in a hierarchical structure) compared to the category of spoon. One can also identify a spoon as a "small, silver rounded eating utensil with a flower pattern on the handle." This identification is lower in the hierarchical structure because the category of this specific spoon is sub-ordinate to that of a general category of spoons. In this hierarchical structure, abstract identifications are at higher levels whereas concrete identifications are at lower levels.

There are various reasons why someone would identify behaviors at a particular level. Vallacher and Wegner (1987) argued that thinking about behaviors at relatively abstract levels allows the person to see meaning, purpose, and coherence to his or her

actions. They argued that individuals usually prefer abstract identifications because people prefer to think of the implications of their actions and how their actions influence self-conceptions. However, when the action someone is performing is ineffective or when the task is difficult, thinking about the behaviors in concrete terms allows for the close monitoring of the effectiveness of the behaviors. Thus, choosing between abstract versus concrete identifications reflects a trade-off between concerns about meaning and concerns about effectiveness of current behaviors. However, inherent in the model is a natural inclination to move up in level of abstraction. Thus, if people are not experiencing difficulty in their goal pursuits, they will think about their actions in relatively abstract terms. Encountering difficulties will cause people to move down to more concrete levels to focus on specific behaviors that would overcome the difficulties, but after successful navigation through problems people are hypothesized to again move up in level of abstraction.

For example, the specific behavior "going to work" could be conceptualized at a relatively abstract level as "doing something meaningful with one's life". On the other hand, going to work could also be described at a more concrete level as "performing specific tasks in an office building." In this example, going to work could be thought of at the higher level as long as it gives the individual meaning without interfering with performance of the goal. So, when a boss notifies a person that his or her job is at stake because quotas were not met, thinking about going to work "doing something meaningful with one's life" does not help the person move towards the goal. If the current behavior is not working, re-identifying the behavior at a lower level can help determine the behaviors that can lead to more effective goal-pursuit. Thus, it is during times of difficulty that

people construe behaviors in concrete terms. Whereas abstract descriptions might give insight into the purpose of a person's action (or coherence for a person's set of actions), concrete descriptions more accurately describe the steps or specific behaviors the person would perform to complete the goal. Different people may prefer different levels of abstraction, but particularly difficult situations or obstacles to a person's goals may prompt the person to think about the behavior in more concrete terms to closely monitor whether the specific behaviors will lead to the ultimate goal.

In Vallacher and Wegner's (1987) model, the dynamic movement within the hierarchy of goal identification is already built-in. That is, the researchers argue that individuals will move up in abstraction level until difficulty arises. They will move down in abstraction level to handle the difficulty, but will move back up once the difficulty is over. Thus, their Action Identification model does not incorporate emotions. However, it still remains unclear how people perceive the difficulty of a particular task or the effectiveness of their current behaviors. It is possible that this perceptual process occurs completely through higher-order cognition. However, it seems likely that this would tax the cognitive system and use up limited cognitive resources. Thus, emotions could function in the system to more efficiently inform the individual of their current performance and how it relates to desired end states. In this system of self-regulation, emotions would facilitate the individual's perception of progress towards goals and motivate his or her behavior towards those goals quicker and more efficiently than cognitive mechanisms might.

Benefits of Abstract Thinking

Although there are situations where thinking at concrete levels is necessary, Vallacher and Wegner (1987) argue that relatively more abstract identifications are usually more effective for goal-striving behaviors than concrete identifications. The researchers found evidence that abstract identifications led people to be more effective at maintaining their long-term goals, both at a trait level and when the researchers manipulated abstraction level in the lab. For example, when examining abstraction level and real-world outcomes in a number of samples, Vallacher and Wegner (1989) found that concrete thinking was associated with impulsivity, less temporal stability in behavior, lower motivation, higher self-monitoring, and higher external locus of control. Also, concrete thinkers were more likely to have criminal records and trouble in school. Thus, at a trait level, abstract thinking may be associated with more effective orientation towards goals and more positive outcomes.

There is also evidence that abstract thinking leads to decisions and behaviors that are more consistent with one's ideals and self-identity. Wegner and Vallacher (1986) conducted two experiments demonstrating the beneficial effects of identifying behaviors at abstract levels. The researchers asked participants to identify behaviors in an earlier interaction at either concrete or abstract levels. In one experiment, participants who identified their behaviors at concrete levels were more likely to accept false feedback. In a second experiment, concrete thinkers not only believed false personality feedback more readily than did abstract thinkers, but they also chose to volunteer for future experiments that were consistent with the false feedback. This shows that participants who identified their actions at concrete levels were more likely to reinterpret their personality and were

more likely to perform future behaviors that may have been inconsistent with their personality. Abstract identifications may protect the individual from external influences and serve as a constant reminder of people's original goals and intentions. Using the above work example, identifying work behavior as earning money might allow someone to see various ways to successfully achieve his or her goal. Thus, the person can integrate diverse behaviors such as networking during a social event and working hard in the office as behaviors that will move him or her towards professional development. However, thinking about work as performing specific tasks in the office may block the person from seeing these various behaviors as beneficial to move up the work ladder. Thus, thinking at abstract levels gives the person a perspective to see how specific actions serve higher-level pursuits.

The Association between Abstract Thinking and Future Orientation

Some people may be able to regulate their behaviors more effectively to achieve positive outcomes not only because they think more abstractly, but also because this abstract thinking is associated with a future orientation. Future orientation and time perspective have been conceptualized differently by various researchers (e.g., Strathman, Gleicher, Boninger, & Edwards, 1994; Zimbardo & Boyd, 1999). In this paper, I conceptualize future orientation as the tendency to make decisions and enact behaviors that are consistent with one's long-term goals and wishes. Specifically, those who have a future orientation seriously consider long-term outcomes of their behaviors when making decisions, and they weigh these long-term outcomes more heavily than short-term ones.

Although abstract thinking may lead someone to see various alternatives that may

be beneficial for decision-making, it may still be unclear how abstract thinking would lead to more effective self-regulatory behaviors. For example, thinking about work as doing something meaningful might allow a person to see various ways that he or she can achieve this goal, but how does that lead to more effective decisions? If the person examines how each alternative influences distant future goals, and then and makes decisions that are consistent with those goals, his or her decisions could be consistent with those future outcomes. The association between abstract thinking and future orientation could explain not only how people see various courses of action, but also how people decide which course of action is most effective. People who more often or more seriously consider their future outcomes may be more likely to carry out behaviors that are consistent with those distant future goals.

Liberman, Trope, and their colleagues have conducted a number of studies and found evidence supporting their Construal Level Theory (Liberman, Sagristano, & Trope, 2002; Liberman & Trope, 1998; Sagristano, Trope, & Liberman, 2002). These researchers argue that distant future considerations are associated with abstract thinking, and decisions made at this abstract level are based more on desirability than feasibility aspects of the goal. Desirability aspects of a goal include considerations of *why* the goal is performed. Feasibility aspects of a goal include considerations of *how* the goal is performed. For example, Liberman and Trope (1998) presented participants with the situation of needing a new word processor either in the near or distant future. In addition to manipulating the time frame of the scenario, the researchers varied how up-to-date or good (desirable) the programs were or how easy it was to use various word processors (feasibility). Liberman and Trope found that participants made decisions based more on

desirability rather than feasibility when the events were in the distant future; however, the pattern was reversed when participants considered these same events with the same information in the near future.

Liberman, Sagristano, and Trope (2002) also found evidence consistent with the idea that a future orientation is associated with abstract thinking. In their study, Liberman et al. again presented participants with a scenario that was to happen in either the near or distant future. Participants were given a list of objects that could be used for a certain task and then asked to group the objects into meaningful categories. For example, participants were asked to consider a list of objects that could be used on a camping trip either in one week or in one year. Participants were asked to separate the objects into as many categories of similar objects as they felt necessary. Participants that considered the trip in the distant future categorized the objects in fewer categories compared with participants in the near future condition. Categories that are higher in level of abstraction are more inclusive and thus include more objects. Categories at lower levels of abstraction make more defined definitions between objects, and so are less inclusive. Thus, participants' use of fewer groupings to categorize objects is evidence that they are thinking at a high level of abstraction. These studies provide evidence that thinking abstractly is associated with a future orientation. Thus, goal-relevant decisions and self-regulatory behavior may benefit not only from abstract thinking, but also through more serious consideration of long-term consequences.

Goals Summary

Taken together, Action Identification Theory and Construal Level Theory both

suggest that thinking abstractly is beneficial for decision making. Action Identification Theory suggests that abstract identifications of behaviors are less susceptible to re-identifications that are inconsistent with the original purpose of the behavior. Construal Level Theory links abstract thinking with a temporal perspective, or future orientation. Abstract identifications are associated with distant future events, whereas concrete identifications are associated with near future events. One may conclude from these goal theories that relatively abstract goals that incorporate distant future desires lead to better self-regulation and positive outcomes because they imbue actions with meaning and are more consistent with one's long-term goals. However, another question remains. What factors influence abstract thinking and future orientation to bring about these positive outcomes?

The Role of Positive Emotions

Positive emotions (defined here as emotions that are pleasant in nature) have been theorized to have a variety of effects on thoughts and decision-making behavior. Although many theorists would accept that positive emotions have *some* influence on thoughts and behaviors, the precise nature of these effects is still debated. Early theorists argued that positive emotions lead to a variety of cognitive deficits that have negative implications for decision-making and goal-striving behaviors. However, more recent empirical evidence challenges these views and shows that positive emotions can be beneficial on a variety of tasks under certain circumstances. It is important to understand what these cognitive effects are to predict how positive emotions could influence goal-striving behaviors.

Positive Affect's Detrimental Effects on Self-Regulation

A long line of research suggests that positive affect has detrimental effects on information processing and decision making. For example, research from the judgment and decision-making literatures often finds that individuals in positive moods overemphasize rewards and underestimate risks (e.g., Johnson & Tversky, 1984; Schwarz & Bohner, 1996). Johnson and Tversky (1984) conducted an experiment where they induced participants into either a positive or negative mood. The researchers then asked participants to judge how likely it was that a series of bad events would happen. Happy participants underestimated the likelihood that bad events would happen to them. Thus, Johnson and Tversky demonstrated that being in positive moods might lead to biased

processing and judgment. As one can imagine, underestimating the likelihood of negative events could be detrimental for goal-pursuit. Using information in an inappropriate manner or processing information in a biased fashion could affect goal selection, goal setting, as well as goal-related behaviors.

Other researchers have argued that positive affect not only leads to biased processing, but an inability to consider information carefully. That is, people in positive moods, in addition to avoiding negative information, might also lack the capacity to think carefully. For example, Mackie and Worth (1989, 1991) argued that positive affect primes a large set of associations, which acts to distract people from careful information processing. In one set of studies, Mackie and Worth (1989) asked participants in a happy or neutral mood to read persuasive messages that varied in quality. With time pressure, they found that participants in a neutral mood processed the messages systematically and were able to differentiate between strong and weak arguments. Happy participants, on the other hand, did not differentiate between strong and weak arguments; they were equally persuaded by weak arguments as they were by strong ones. In addition, when there was no time pressure, happy participants read the messages for a significantly longer amount of time compared to neutral participants. These results were consistent with Mackie and Worth's argument that positive affect leads to a reduced capacity to process information. Happy participants needed more time than neutral participants to process the information to a same degree. Other researchers have also found that positive mood leads to more heuristic processing or less processing of information overall (Bless & Schwarz, 1999; Clore, Schwarz, & Conway., 1994; Eagly & Chaiken, 1993). That is, positive affect may lead to an inability to process information carefully, which could cause individuals to

make nonoptimal decisions. These results support Mackie and Worth's contention that positive affect primes a large set of knowledge, which takes up cognitive resources and reduces information processing capacity.

Researchers have also provided evidence that positive moods lead to ineffective self-regulation. Isen and her colleagues (e.g., Isen & Simmonds, 1978) and Wegener and Petty (1994) argued that people act to maintain or preserve positive moods while repairing negative moods. For instance, Wegener and Petty (1994) found that happy participants preferred to perform activities that would maintain their current positive mood. Happy participants paid more attention to the affective consequences of their actions more than neutral or sad participants did. Thus, Wegener and Petty concluded that positive moods lead people to make decisions that are based on whether the action will maintain their mood. However, ignoring information and activities that might spoil positive affect could lead to poor self-regulation. For example, ignoring or avoiding negative information about one's health could prevent one from taking action to correct or improve any problems one may have. In fact, performing health maintenance behaviors might not be fun; therefore, happy people might not choose to perform these behaviors. To attain accurate information and make effective decisions, one must know both the positive and negative consequences and possibilities of an action. If certain moods lead to a systematic avoidance of one type of information, it would be detrimental to decision-making and self-regulation.

Positive Affect's Beneficial Effects on Self-Regulation

Although results from these diverse areas suggest that positive moods

compromise one's ability to process information, make decisions, and regulate one's behavior more recent evidence has brought this conclusion into question. Researchers found a crucial factor that seemed to change the effects of positive mood. Whether positive mood had beneficial or detrimental effects seemed to change depending on the self-relevance of the task participants were asked to perform (see Aspinwall, 1998; Forgas & Fiedler, 1996). Specifically, happy participants seemed to behave like cognitive misers. When they were performing unimportant tasks or processing information that was not self-relevant, they seemed to process information heuristically, make nonoptimal decisions, and perform behaviors to maintain their good mood. However, when they perceived that the task or information was important, happy participants were able to perform effectively.

For example, Trope and Neter (1994) and Aspinwall and Brunhart (1996) showed that positive affect does not always lead to avoidance of negative information. Specifically, Trope and Neter (1994) gave participants a social sensitivity test, and told them that they did poorly on one part of the test. The authors demonstrated that participants who were initially induced into a positive mood were more interested in feedback from the part of the test they failed than on the parts they passed. Presumably, happy participants in this experiment were interested in and motivated to find out their deficits in social sensitivity skills, a finding that contradicts the idea that positive affect leads to avoidance of information that would undermine their good mood and that positive affect leads to ineffective self-regulation. Aspinwall and Brunhart (1996) also found evidence that positive affect does not lead to avoidance of negative information in a different domain. They examined the types of health information optimistic people

attend to. Although optimism is not the same as positive moods, it shares many features with trait-level positive emotions. Aspinwall and Brunhart found that when the health information was not relevant to the optimistic participants, participants were less interested in the health risk information. This is a conceptual replication of Wegener and Petty's (1994) findings. However, when the information was directly self-relevant, optimists were more interested in and attentive to information about liabilities and health risks. This demonstrates that, under certain conditions, happy participants (either through temporarily induced mood or trait level assessment) are able to pay attention to threatening information and to process that information carefully. Participants in these studies were not only able to perform these behaviors, but they were also interested and motivated to engage in them. Instead of trying to enhance or maintain their positive mood, individuals were willing to sacrifice their mood to gain useful but negative information that might be beneficial in the long-term. This is further evidence that positive mood, under certain conditions, can be beneficial for self-regulation behaviors.

Although evidence from studies like the Aspinwall and Brunhart (1996) suggest that positive affect can be beneficial for decision-making and self-regulation, it does not suggest that positive affect leads to future orientation. There is some evidence that emotions do in fact cause us to pay attention to different time spans in relation to our goals. However, most of this research has been devoted to examining negative emotions. A number of studies by Baumeister and his colleagues (e.g., Baumeister, 1990; Tice, Bratslavsky, & Baumeister, 2001; Twenge, Catanese, & Baumeister, 2003) show the consequences of negative affect. Tice et al. (2001) found that negative affect undermines self-regulation and is associated with focusing on immediate needs instead of future

gains. In a series of studies, Tice et al. showed that people induced into a negative mood tried to repair the bad mood by eating more, focusing more on short-term rewards at the cost of long-term gains, and procrastinated more. In other words, they paid more attention to the present and they focused on behaviors that could change their present mood. Negative affect is associated with paying more attention to current needs and less attention to possible future outcomes and consequences. Although the effects of negative mood on temporal focus may be well understood, the effects of positive moods on temporal focus are still unclear.

Broaden and Build: From Positive Emotions to Positive Outcomes

Despite the lack of evidence linking positive affect with future orientation, this idea would be consistent with some current theories that suggest positive emotions lead to positive outcomes. It simply provides one mechanism by which this link between positive emotions and positive outcomes could operate. There have been a number of theories developed to explain how positive affect can lead to positive outcomes. For example, Isen (1999) developed a theory of positive emotions that is based on associative network memory models. According to this model, each node in memory, representing the memory of an object or event, is associated with various positive and negative emotions. Isen argues that because people experience positive emotions more often than negative emotions, many more of these nodes are associated with positive emotions than with negative emotions. Thus, experiencing positive emotions activates a wider network of nodes, and a person is able to see and make connections between concepts that s/he would not otherwise see. For instance, Isen et al. (1987) showed that happy participants

were able to see more unusual connections and were more creative in their problem solving strategies. Thus, happy participants were more effective at solving various problems that required novel solutions. Building on Isen's ideas, Fredrickson (1998, 2001) has proposed a general model of how positive emotions could lead to positive outcomes.

In her Broaden and Build Model of positive emotions, Fredrickson (1998, 2001) posited that positive emotions play a different role than negative emotions in motivating behavior. Whereas negative emotions have been found to narrow people's action tendencies, Fredrickson argued that positive emotions broaden cognitions and behaviors. She called this the broadening of thought-action repertoires. Instead of focusing attention on an obstacle or threat confronting an individual, positive emotions may broaden thought-action tendencies by expanding the individual's attention to diverse stimuli in the environment and by motivating social interaction, exploratory behavior, and playful behavior. These types of behaviors would cause the individual to build physical, mental, and social resources that could be used to deal with outcomes the person may confront in the future. For example, forming friendships during good times can lead to an available network of social support that one could rely on during bad times. Thus, the resources that a person gains from experiencing positive emotions are hypothesized to outlast the temporary emotional experiences that a person has. In Fredrickson's model, people benefit from experiencing positive emotions because it allows them to think about their environment in broader, more novel ways and to enact behaviors that build resources they could use later to cope with problems.

A growing body of research provides support for various aspects of the model.

For example, Fredrickson and Joiner (2002) conducted a longitudinal study and found that initial levels of positive affect facilitated effective coping strategies 5 weeks later. In addition, Tugade and Fredrickson (2004) conducted a set of studies and found evidence that positive affect promotes resilience, or recovering from stressful experiences, at a cardiovascular level. Further, participants who experienced positive emotions also found more meaning from their stressful experience. Thus, it seems that positive emotions facilitate recovery and coping processes at both physical and psychological levels. This evidence supports the notion that positive affect leads beneficial outcomes, due to more effective coping processes being activated after positive emotional experiences.

Fredrickson and Branigan (2005) also provided evidence for the broadening aspect of her model. In two studies, the researchers showed that induced positive affect led to a broadened focus of attention and an increased motivation to explore and interact with the environment. Participants were first exposed to mood inductions and then asked to complete a triangles-squares task that assessed broadened thinking. The task presented participants with an overall shape made up of smaller shapes (i.e., a triangle made up of squares). Participants had to choose which of two alternatives was most similar to the original shape (i.e., a square made up of squares or a triangle made up of triangles). Their decision could be based either on the overall shape of the original stimulus or on the more specific elements that made up the original stimulus. They also completed a revised "I am..." task that assessed what activities they were interested in doing. Participants in the happy mood condition showed more evidence of a broadened focus in the triangles-squares task, and also indicated that they wanted to do more activities in the second task. Thus, there is some evidence supporting the idea that positive affect leads to a broadening

of attention and thought-action repertoires.

Isen's and Fredrickson's research suggests that positive affect influences attention to and perception of incoming information. They show that this affects how people think, how they act, and how successful they are at dealing with problems in their environment. However, evidence for the processes spelled out in these models is still incomplete. For example, although it may be reasonable to hypothesize that play, exploratory behaviors, and friendships would lead to positive outcomes in some domains, it is more difficult to see how it would do so in others. Many goal pursuits require not only creativity and exploratory behaviors, but also effective decision-making abilities and self-regulation strategies. Existing models of emotion do not empirically demonstrate how positive affect may increase self-regulatory behaviors. For example, it is uncertain whether mechanisms specified in the Broaden and Build Theory could explain how and why people would be more interested in threatening health information. In the current set of studies, I will test whether the positive outcomes may come partly through positive affect's influence on cognition. Specifically, I will test whether positive emotions lead to abstract thinking and future orientation.

According to this model, positive affect leads to positive outcomes partly through its effect on goal-striving processes. Specifically, I hypothesize that positive affect leads to abstract thinking and a future orientation. In the Action Identification Theory framework, positive emotions could cause an individual to interpret his or her current task as easy or current behaviors as effective. The interpretation of the task as easy or behaviors as being effective would lead to abstract identifications. Alternatively, in the Broaden and Build framework, positive emotions could cause both a perceptual

broadening of attention and a cognitive change in abstract thinking. Thus, positive affect is hypothesized to lead to more abstract thinking. Liberman and Trope (1998) showed that abstract thinking and a future orientation are linked. Thus, positive affect could lead to effective decision-making through its influence on abstract thinking and future orientation.

Integration of Positive Emotions Literature

The studies proposed in this paper will use the goals framework to investigate the functions of emotions and to test possible mechanisms that might be responsible for the beneficial effects of positive mood. An important contribution of integrating theories in these areas is the ability to reconcile diverse findings in the literature. For example, as reviewed above, research on positive emotions has shown that positive emotions can have both negative and positive consequences on cognition and behavior. If the current prediction holds true and positive emotions lead to a future orientation, that association could explain under which conditions positive emotions would lead to the specific effects. If positive emotions lead people to consider long-term consequences, they may not devote the time or resources to carefully process information when current activities have no bearing on future outcomes. This would be consistent with the pattern of results in the literature suggesting negative consequences of positive mood. However, people who see that their current activities and decision will influence their goals or desires would process information carefully and devote energy to current demands. Thus, integrating the emotions literature with the goals literature not only allows researchers to conclude that positive emotions can have both detrimental and beneficial effects, but it

also specifies why and under what conditions individuals would display the different patterns of responding. When individuals recognize that their current actions have future self-relevant consequences, they should process information effectively. However, when individuals believe that their current actions have no self-relevant consequences, they may not process information effectively. Positive emotions, through its influence on abstraction and future orientation, may offer individuals the perspective to see this. Thus, the current research moves beyond dual process theories that suggest positive emotions can have both effects to specify when and why these effects occur.

Also, much of the existing research has focused either on negative or positive emotions, but fewer studies have focused on both simultaneously. Results from studies focusing on one valence do not allow researchers to generalize their findings to emotions of the other valence. Thus, to be complete and show the whole picture of how emotions influence abstract thinking and future orientation, the current studies will assess and induce both positive and negative moods. The negative mood conditions will be informative on how positive and negative emotions can have separate effects on various outcomes.

Hypotheses

I will first investigate whether 1) positive affect, broadening, abstract thinking, and future orientation are correlated with one another before attempting to more closely examine the process in the lab. Also, I will investigate whether 2a) positive affect leads to a future orientation and whether 2b) positive affect leads to weighing desirability concerns more heavily than feasibility concerns. In my second study, I will be able to investigate whether 3a) positive affect leads to abstract thinking and/or 3b) broadened focus of attention. I will be able to test 4a) whether and how broadened focus and abstract thinking are associated, and 4b) whether there is a directional relationship between the two constructs.

Study 1

Study 1 was conducted online to assess whether positive affect, abstract thinking, and future orientation were related. Although various combinations of these three constructs have been studied in the past, they have not been studied simultaneously. Thus, before I tried to manipulate these constructs in the lab, I wanted to establish that they were associated at a trait-level.

Participants

One hundred one undergraduate psychology students at Michigan State University participated in this study. They received course credit for their participation. The demographics questionnaire was accidentally omitted from the materials included in the study. Therefore, I cannot report on the demographics of the participants in this study. However, they are likely similar to the demographics of participants who were included in Studies 2 and 3.

Procedure

Students signed up to participate in this study through an online subject pool at MSU. After they agreed to participate, they were taken directly to a website where they answered the questionnaires. Participants first completed a 50-item International Personality Item Pool (IPIP) personality test, which assesses the Big Five personality traits. Each item consisted of a behavioral description, which respondents rated on a scale from 1 (very inaccurate) to 5 (very accurate). Participants next completed the 24-item Intensity and Time Affect Scale (ITAS; Diener, Smith, & Fujita, 1995). The ITAS assesses how frequently respondents experience a number of positive and negative

emotions in general, and it has been demonstrated to be a reliable measure of dispositional affect. Participants rated how frequently they experienced each emotion on a 1 (very slightly or not at all) to 5 (extremely) scale. Next, participants completed the 12-item Consideration of Future Consequences (CFC; Strathman, Gleicher, Boninger, & Edwards, 1994) scale. The CFC scale asked participants to rate how characteristic each description was of them on a 1(extremely uncharacteristic) to 5 (extremely characteristic) scale (see Appendix 6). For example, one item asks participants to rate how characteristic the following state is of them: I consider how things might be in the future, and try to influence those things with my day to day behavior. Another item reads: I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes. Finally, participants completed the 19-item Behavioral Identification Form (BIF; Vallacher & Wegner, 1986) that assessed abstract thinking. The BIF presents respondents with an action (i.e., "brushing one's teeth") and asks participants to choose which of two restatements most closely resembles the original action ("moving the toothbrush around one's mouth"; "preventing cavities"). For each original statement, one restatement is lower in abstraction and one is higher in abstraction. Participants receive one point for every abstract re-identification, and their responses are summed across the 19 items to create their abstraction score. Thus, participants' responses to the general affect questionnaire (ITAS), the future orientation scale (CFC), and abstraction measure (BIF) were correlated with one another.

Results

Positive affect ($M = 3.84$, $SD = .61$) was significantly associated with future orientation ($M = 3.49$, $SD = .60$), $r = .20$, $p < .05$, and associated with abstract thinking

(M = 30.89, SD = 4.15), r = .19, p < .057. Abstract thinking was significantly associated with future orientation, r = .20, p < .05. Thus trait happy people were more likely to consider future consequences of their actions than people who were not happy. Happy people were also more likely to think abstractly compared to people who were not happy. Although these correlations of about .20 are not large, it was consistent with what may be expected. There are, admittedly, many factors that influence abstraction and future orientation, positive affect being one of them. For example, experience with the situation, conscientiousness, or various situational demands may pull for abstract thinking and/or future orientation. Despite this, finding a correlation of r = .20 among these constructs with 101 participants was promising support for the hypotheses. Thus, I continued to conduct the lab studies to examine whether these mechanisms could explain the association between positive affect and positive outcomes.

Study 2

Study 2 was conducted in the lab, and tested whether positive affect caused participants to be future-oriented. Although there has been empirical evidence from different research paradigms supporting this prediction, there are no studies that test this specific prediction.

Participants

Participants included ninety-six students from the undergraduate psychology subject pool at Michigan State University. Of those who responded, 80% were female, 98% were between 18 and 25 years old, 80% were White, 15% were Black, 4% were Asian and 1% Hispanic. Participants received course credit for their participation.

Procedure

The study was conducted using groups of up to 6 people. After giving informed consent, participants completed the mood manipulation procedure. They were asked to read a set of negative, neutral, or positive stories and to vividly picture the events in the story happening to them. They were asked to imagine how they would feel. Each participant spent 4 minutes focusing on each story. The computer displayed the story and did not move forward until the 4 minutes were up. Each participant received a set of 2 positive stories, 2 neutral stories, or 2 negative stories. The two positive stories depict going on a vacation in Hawaii and winning the lottery. The two neutral stories describe going for a drive and going to the grocery store, and contain no emotion words. The two negative stories describe being expelled from school in an embarrassing manner and having a close friend die from a painful and incurable disease. The stories are presented

in Appendix 1, and this task was adopted from the task that Larsen and Ketelaar (1991) used in their study.

After the mood induction, participants were asked to perform a writing task. They were presented with instructions to write about a goal that they wanted to accomplish. They were asked to think about this goal in great detail, to think about what they want to happen, when they want to accomplish the goal, and how they will go about achieving it. They were also asked to write about how they thought it would make them feel. They wrote about this goal for 10 minutes on the computer. After the 10 minutes were up, they were given a short questionnaire that asked them what they wrote about and the time frame of the event that they chose. One question asked them when they planned to start working on the goal that they chose to write about. Another question asked them when they thought they would complete, or achieve, that goal. This task served as a dependent measure on how future-minded participants are across the mood conditions. I expected that participants in the positive affect condition would write about plans and goals that are in the more distant future compared with participants in the neutral or negative conditions.

Finally, participants read a series of scenarios that pit feasibility (short-term) considerations against desirability (long-term) considerations. They were forced to make a choice where they had to put more weight either on short-term or long-term consequences. Choices based on desirability would indicate a future-orientation, whereas choices based on feasibility would reflect more immediate concerns. For example, participants were asked to imagine that a guest lecturer would be coming, and they were to indicate how likely it was that they would go to the lecture on a 7-point scale. The

guest lecture was either at a convenient time (high feasibility) or very interesting and related to their major (high desirability). Participants read 4 of these scenarios, attached in Appendix 2. Each participant was randomly assigned to read either the high desirability or high feasibility version of each scenario. The type (high desirability vs. high feasibility) of scenario was counterbalanced such that every participant received two high desirability scenarios and two high feasibility scenarios. In addition to asking participants how likely they would go to the lecture, I asked them how important the timing (or the relevance) of the lecture would be in their decision. Again, they rated the importance of the feasibility or desirability on a 7-point scale. High feasibility concerns, according to Liberman and Trope (1998) reflect an immediate future orientation, whereas high desirability concerns reflect a distant future orientation. All responses were recoded so that higher values indicated concerns with, and higher importance of, desirability. Participants' responses were averaged across the scenario to create a scale depicting their focus on desirability concerns. This served as another measure of future orientation.

After all participants completed the final task, they used an adjective list to rate how they felt after reading the sets of scenarios (mood manipulation). They rated how much they felt each emotion on a scale from 1 to 7. This served as a manipulation check to test if the mood induction worked. The manipulation check was placed after the dependent measure to minimize the time between the mood induction and the dependent measures. I wanted to minimize this period of time because researchers are not sure how long mood inductions last in the lab. After all participants completed the tasks, the experimenter went through the debriefing procedures and dismissed the participants.

Results

First, I performed a manipulation check to make sure that the mood inductions worked as intended. To do this, I performed an ANOVA to test for differences in the means across the negative, neutral, and positive conditions. As shown in Table 1, participants in the different mood conditions reported different levels of positive affect, $F(2,93) = 42.92$, $p < .05$. As Table 1 reveals, post hoc comparisons revealed that participants in the positive mood condition reported higher levels of positive affect than participants in both the neutral (mean difference = 1.95, $p < .05$) and negative mood (mean difference = 2.64, $p < .05$) conditions. Tukey tests revealed that participants in the neutral and negative mood conditions did not differ from each other on reported positive affect (mean difference = .69, ns). Also, participants in the negative mood condition ($M = 4.95$, $SD = 1.53$) reported more negative affect after the mood induction compared with participants in the positive ($M = 1.36$, $SD = .67$) or neutral mood conditions ($M = 1.42$, $SD = 1.04$), $F(2,93) = 104.20$, $p < .05$. Again, post hoc comparisons revealed that participants in the positive and neutral conditions did not differ from each other on reported negative affect (mean difference = .06, ns). The mood manipulation worked as intended.

Since the mood induction worked, I went on to test whether mood influenced the time frame of the goal that participants were asked to write about. Participants were asked three questions designed to assess the time frame of the particular goal they wrote about. The first question asked participants when they thought the goal would happen. The second question asked participants when they thought they would start working towards the goal. The third question asked participants when they thought they would achieve their goal. To test whether people in the positive mood condition were more

future-oriented, I examined the time frame of their goal by performing a one-way between-subject ANOVA for each temporal focus goal question.

To code the time frame for each goal question, I had raters independently code each response on a 1 (Current) to 11 (Between ten and fifteen years from present) scale. The raters coded when the goal would take place (goal timing), when participants planned to start working on it (goal start), and when participants planned to achieve the goal (goal end). Initial inter-rater reliabilities were $r = .89$, $r = .98$, $r = .96$ for goal timing, goal start, and goal end, respectively. After completing initial ratings, raters then discussed items on which they did not agree until agreement was reached. Analyses were performed on this final set of items for which time could be coded and agreed upon. Some responses did not provide enough detail to conclude what time frame participants had in mind. For example, some participants had a goal they wanted to achieve "after marriage." However, since the coders could not determine how far in the future this event was expected, these responses could not be coded. Raters were able to code 88% of the goal timing items, 95% of the goal start items, and 74% of the goal end items. Table 2 shows results from the analysis.

As can be seen in the first column, there was a significant effect of mood on goal timing, $F(2,79) = 3.24$, $p < 0.05$. Post-hoc comparisons revealed that responses in the positive condition differed significantly from those in the neutral condition (mean difference = 2.05, $p < .05$). The effect size for this difference was $d = .65$, indicating that this is a moderate to large effect. Interestingly, participants in the positive mood condition did not differ from participants in the negative mood condition (mean difference = 1.46, ns). Participants in the negative and neutral mood conditions also did

not differ from each other (mean difference = .60, ns).

As can also be seen in Table 2 with the goal start item, participants wrote about goals that they were working on or planned to work on in the very near future. Thus, there were no differences between the three mood conditions on when they planned to start their goal, perhaps due to a floor effect. In support of this interpretation, the mean for the goal start item was below 2 for participants in all three conditions, and the standard deviations were also below 2, which was smaller than the variation for the other items.

In contrast, the results for goal end were similar to goal timing. There was a significant effect of mood on when participants thought they would achieve their goal, $F(2,70) = 3.35$, $p < 0.05$. Post-hoc comparisons revealed that participants in the positive mood condition wrote about goals that were to end further in the future compared to neutral mood condition participants (mean difference = 2.06, $p < .05$). The effect size for this difference was $d = .72$. However, the participants in the positive and negative mood conditions did not differ from each other (mean difference = .65, ns); and participants in the neutral and negative mood conditions did not differ from each other (mean difference = 1.41, ns). The hypothesis that positive affect would lead to a future orientation in this task was supported; however, the prediction that negative affect would lead to a current focus of attention was not supported.

Next, I examined whether mood leads to a future orientation using the feasibility-desirability task. Again, this task presented participants with various scenarios and asked them to make decisions based on the feasibility or desirability of the situation. Decisions based on feasibility indicated an immediate future orientation, whereas decisions based

on desirability indicated a distant future orientation. Scores were recoded so that higher scores indicated high-desirability responses. For example, if a participant indicated that s/he were very likely (7) to accept furniture in a high feasibility scenario, this was coded as indicating very low (1) desirability. To create a desirability score for each participant, I averaged participants' desirability ratings across the scenarios. Thus, participants' desirability scores ranged from 1 to 7. Participants across all three mood conditions rated desirability ($M = 5.58$, $SD = .81$) as more important than feasibility ($M = 4.41$, $SD = .94$) in affecting their decision, $F(1,64) = 47.92$, $p < .05$. However, There were no significant differences in importance ratings for participants between the different mood conditions, $F(2,64) = .29$, ns. Participants across the mood conditions viewed both desirability and feasibility similarly. There was, however, a significant difference in how likely participants were to accept the items high in desirability, $F(2,93) = 4.68$, $p < 0.05$. Tukey post hoc comparisons revealed that happy participants were more likely than neutral participants to accept items that were high in desirability (mean difference = .63, $p = .07$), although this difference did not reach traditional levels of statistical significance. Basing decisions on desirability is again an indication of future orientation. Thus, similar to the findings using the goal-writing task in the previous study, happy participants seemed to be more future-oriented compared to neutral participants on this item. Also similar to the previous study, sad participants were also more likely to accept items that were high in desirability compared to neutral participants (mean difference = .85, $p < 0.05$), but not compared to happy participants (mean difference = .22, ns). Finally, there were no significant differences in how likely participants across the conditions were to accept items high in feasibility, $F(2,93) = 0.40$, ns.

Thus, the results of Study 1 indicate that happy participants are more future-oriented. Happy participants wrote about goals that were more distant in the future compared to neutral participants. However, contrary to predictions, sad participants were not more focused on the present; instead, they seemed to be somewhere in between neutral and happy participants in their future orientation. I will address possible reasons for this in the general discussion. Also, participants across the three conditions generally did not differ in their decisions on the feasibility-desirability task. This may be due to a number of reasons that will also be addressed in the general discussion.

Study 3

Study 3 was designed to examine whether positive affect leads to a broadening of attention and abstract thinking. Although popular notions of these two constructs are similar, researchers have investigated each using different techniques. Therefore, broadening of attention and abstract thinking are conceptually distinct, and positive affect could affect each independently. In this study, I measured abstract thinking using Vallacher and Wegner's (1987) Behavioral Identification Form. In addition, I measured broadening of attention using Fredrickson and Branigan's (2005) operationalization. I assessed whether the two measures were related and whether positive affect influences each. I hypothesized that being in a good mood would not only lead to broadened attention (Frederickson, 1998; Fredrickson & Branigan, 2005), but also more abstract thinking. I also administered trait-level personality and affect questionnaires online to see whether the results of the online study could be replicated, and whether any of these trait measures could explain the associations found in the lab. Again, the purpose of this study was to reveal how closely related these two constructs are, and how positive affect influences each of them.

Participants

Two hundred twenty-three participants were recruited from the undergraduate psychology subject pool at Michigan State University to participate in this experiment. However, forty-six students completed the online part of the study without continuing their participation in the lab. Therefore, 177 participants completed both the online and lab parts of the study. Most of the analyses for this study were based on the 177

participants for whom I had complete data. Participants received course credit for their participation. Of those participants who responded to the demographic questions, 79% were female, 84% were White, 7% were Black, 5% were Asian, and 2% were Latino.

Procedure

Participants signed up online for the study, entitled "Imagination and Vivid Thinking," and entered the laboratory in groups of up to 6 participants. Participants completed the IPIP (big 5 personality inventory), the ITAS (trait affect), and the CFC (measure of future orientation) before coming into the lab. These were the same questionnaires administered in Study 1. In the lab, experimenters first read the consent procedures and explained that the study examined how imaginative and vivid thinking affects writing skills and memory. After the consent procedure, participants were seated at a computer to complete the rest of the experiment individually.

Participants started by reading a set of vignettes and were instructed to imagine themselves in the scenarios. This served as the mood induction, as it did in Study 2. Next, participants completed a test of broadening of attention and abstract thinking. For the test of broadening of attention, I used the triangles-squares task that Fredrickson and Branigan (2005) used in their study to assess global versus local visual processing. Participants were presented with a stimulus triad that contained a standard figure on top of two comparison figures below it, and they were instructed to give their first, most immediate impression of which comparison figure looked more like the standard figure. A sample of the items appears below in Figure 1. Participants indicated which comparison figure, A or B, they thought was most similar to the standard figure. Judgments could have been based on global aspects of the figure or on local elements

comprising it. For example, one standard figure has a set of triangles that was configured as a square. The comparison figures were either A) a set of squares in a square configuration or B) a set of triangles in a triangle configuration. If participants matched on the basis of configuration (overall square shape), they would have chosen 'A', and this would be evidence of global processing. On the other hand, if they paid more attention to local elements, they would have chosen 'B' because the individual elements were the same as the standard figure's elements. The test consisted of 4 critical items embedded within similar filler items. Each item appeared twice, with the options reversed the second time to counterbalance the available options. Therefore, the entire test consisted of 8 items.

To measure abstract thinking, I asked participants to complete Vallacher and Wegner's Behavior Identification Form. This questionnaire presents participants with a description of a behavior, along with two restatements of the original behavior. One of the restatements describes the behavior in terms of how one performs the action, whereas the other restatement describes the behavior in terms of why one performs the action. For example, one behavior presented to participants was 'locking the door.' The restatements of this behavior included 'turning the key' and 'securing the house.' Participants were instructed to choose which of the two restatements better described the first behavior. If participants chose the first option, it was evidence that they were thinking more concretely, preferring to describe the specific behaviors necessary to complete the action. On the other hand, if participants chose the second option, it was evidence that they were thinking more abstractly. Items for the Behavior Identification Form are presented in Appendix 5.

Finally, participants completed a brief questionnaire that asked them to rate the extent to which they felt a number of emotions after reading the set of stories earlier in the experiment. This again served as a manipulation check to make sure that the mood manipulation worked as intended. The manipulation check was performed at the end to minimize the time between the mood induction and the dependent measures. After all participants completed this final task, they were be debriefed together. The experimenter explained the purpose of the experiment, addressed any questions or concerns, gave them a written debriefing, and dismissed them.

Results

The trait-level analysis revealed that general positive affect ($M = 3.77$, $SD = .68$) was associated with future orientation ($M = 3.50$, $SD = .58$), $r = .12$, $p = .09$, but this effect was unreliable. Although weaker, this replicates the association between positive affect and future orientation in the preliminary study. No measure of abstract thinking was included in the trait-level analysis because participants completed the BIF in the lab.

To test whether the mood inductions worked, I performed an ANOVA to test for differences in the means across the negative, neutral, and positive conditions. Table 4 reveals that the mood manipulation worked as intended. Participants reported a significant difference in how much positive affect they experienced after reading the set of stories, $F(2,168) = 80.97$, $p < 0.05$, and in how much negative affect they experienced after the mood induction, $F(2,168) = 217.72$, $p < .05$. Post hoc comparisons revealed that participants in the positive mood condition reported experiencing significantly more positive affect compared to neutral participants (mean difference = 1.74, $p < .05$), who reported experiencing significantly more positive affect compared to negative participants

(mean difference = .96, $p < .05$). Participants in the negative mood condition also reported experiencing more negative affect than happy (mean difference = 3.47, $p < .05$) or neutral participants (mean difference = 3.48, $p < .05$). However, happy and neutral participants did not differ in how much negative affect they experienced (mean difference = .02, ns). The mood manipulation worked as intended.

To analyze whether positive affect led to a broadening of attention, I first calculated participants' score on the broadening task by summing how many global responses they gave on the task. Each global response was given one point, and the scores ranged from 0 to 8. The reliability of this measure was $\alpha = .82$, indicating that this measure of broadening has adequate reliability. However, a one way analysis of variance revealed that there were no differences in how broad the different mood groups viewed the items, $F(2,168) = 1.01$, ns. Thus, happy participants were not any more likely than neutral affect participants to see the global elements

Similar to results from Fredrickson and Branigan (2005), I did not find a narrowing of focus for those in the negative mood condition; in fact the mean broadening scores for those in the negative mood condition ($M = 6.42$, $SD = 1.87$) were nonsignificantly higher than those in the positive mood condition ($M = 6.07$, $SD = 2.20$). Thus, I failed to replicate Fredrickson and Branigan's finding that positive affect leads to a broadening of attention using the triangles-squares task.

Next, I created a level of abstraction score by giving one point for each abstract answer, and then summing across the items. The reliability of the Behavioral Identification Form was $\alpha = .82$, indicating adequate reliability. I correlated this score with participants' score on the broadening measure. The correlation between abstraction

scores and broadening scores was r = 0.06, ns. This supports the notion that level of abstraction and broadening of attention are distinct constructs that can be independently affected by positive affect and can separately affect cognition and behavior. Similar to the analysis for the broadening measure, I conducted a between-subjects ANOVA predicting level of abstraction from mood condition. The results indicated that there were no significant differences in level of abstraction across the three mood groups, $F(2,168) = 0.77$, ns.

Although I did not find evidence that participants in the different mood conditions had different levels of broadening and abstraction, I examined the associations between normally fluctuating mood and broadening and abstraction within the neutral mood condition. Within the neutral mood condition, higher levels of positive mood was associated with abstract thinking, $r = .25$, $p = .05$, and negative mood was associated with broadening, $r = -.26$, $p < .05$. The correlation between negative mood and broadening was contrary to my prediction, and I will address this in the general discussion. Trait-level affect was not associated with either abstract thinking, $r = -.02$, ns, or broadening, $r = .04$, ns, in the lab.

Study 4

Study 4 examined whether broadened attention causes more abstract thinking, and whether this leads to a future orientation. Because Fredrickson and Branigan's (2005) notion of broadened attention and cognition seem to be conceptually different from Vallacher and Wegner's (1987), it is important to test whether one leads to the other. Whereas Study 3 tested whether there is an association between abstraction and

broadening, Study 4 tested whether manipulated broadened attention leads to abstract thinking. I also examined whether this broadened attention and abstract thinking leads to a future orientation.

Participants in both conditions were asked to think about two people they met at MSU and to write down both persons' initials at the top of the page. Then, participants in the broadening condition were asked to list as many commonalities as possible between them and either one or both of the people listed at the top of the page. Thinking about commonalities between people should induce participants to think about connections across boundaries and characteristics. This should lead to a broadening of attention since participants are drawing connections between boundaries. Blurring the distinctions between different categories (or people) to create a single bigger category should induce a broadening of attention.

Participants in the concrete condition, on the other hand, were asked to list characteristics or qualities that differentiate them from one or both of these people. Focusing on differences should induce the participants to pay more attention to details and specific characteristics. This should make boundaries between the individuals salient, and narrow the individual's focus to specific qualities that differentiate the different people. Strengthening or reinforcing the boundaries between categories should induce a narrowing of attention.

This task was designed to be similar to the task used by Liberman, Sagristano, and Trope (2002) where they asked participants to list objects into as many or as few categories as made sense. In that study, participants induced into a distant-future mindset used fewer, more inclusive categories, whereas participants induced into a near-future

mindset categorized the objects into more categories. Instead of inducing temporal focus, the task in the current study was designed to induce broadening of attention. However, participants were asked to think about and categorize people they knew instead of objects to make the induction more self-relevant and stronger.

Participants

One hundred seven participants were be recruited from the undergraduate psychology subject pool at Michigan State University. They received course credit for their participation. The demographics questionnaire was again inadvertently omitted from the set of questionnaires included in the study. Therefore, I cannot report on the specific demographic characteristics of participants in Study 4.

Procedure

The study was conducted in groups of up to 6 students. After giving informed consent, participants completed the study at individual computers. Participants were randomly assigned to the broadened attention or narrowed attention conditions. Each participant received one questionnaire at a time with instructions at the top of each screen. After participants received the inductions, they answered a few questions that examined whether the manipulation worked, and whether they had a broadened or narrowed focus. The questions included: "During the last task, how detail-oriented were you?" "During the last task, how much did you think about less detailed, more abstract qualities of the people?" These questions were imbedded into other questions, such as "How difficult was the task you just performed?" and "How interesting was the task you just performed?" All questions were answered on a 1(not at all) to 7 (very much) scale.

After participants completed the induction, they were asked to complete the BIF

that was used in the previous studies to assess abstract thinking. Finally, participants completed the same feasibility-desirability task that was used in Study 2 to assess future orientation. Participants were presented with a number of scenarios that pit short-term feasibility considerations against long-term desirability considerations. Decisions based on desirability are indications of a future orientation. After participants completed this final task, they were debriefed and dismissed.

Results

A manipulation check revealed that the broadening and narrowing inductions did not work. An independent samples t-test revealed that participants in the two conditions did not differ in their abstract thinking, $t(105) = 0.18$, ns. Participants' ratings on the two questions that assessed how detail-oriented they were also revealed no significant differences, $t(105) = 1.05$, ns, and $t(105) = 0.36$, ns. This indicates that the broadening induction did not work. Participants in the broaden condition did not think more broadly compared with participants in the concrete condition. Thus, I continued to analyze the data to examine whether there were any differences in abstraction or temporal focus, but I did not expect any differences.

To create a score for abstract thinking, participants received one point for every response corresponding to the abstract re-statement of the action. Participants received no points for concrete responses, so abstraction scores could range from 0 to 19. The means and standard deviations are presented in Table 6. One can clearly see from the means that there is no significant difference between the two conditions on their abstraction scores, and the t-test confirms this, $t(105) = 0.05$, ns.

Participants were asked a number of questions for each scenario in the feasibility-

desirability task that assessed future orientation. After being presented with each scenario that varied in how desirable the object in question was or how feasible it would be to acquire the object, participants were asked to make a few decisions about acquiring the object. The first question in each scenario asked them how likely it was that they would accept the item. If participants indicated that they were likely to accept an item high in desirability, they would score high on future orientation. If, on the other hand, participants were more likely to accept items high in feasibility, then they would score low on future orientation. Participants were also asked how important desirability and feasibility were for each item. This was a more direct measure of desirability- or feasibility-focus. The scores for each variable ranged from 1 to 7, and the means and standard deviations are presented in Table 6. To create desirability-feasibility scales for each of these questions, participants' responses were averaged across the four scenarios.

Participants in the two conditions did not differ in how likely they were to accept the items in the different scenarios. As can be seen in Table 7, the t-values did not reach significance in any of the scenarios, all t's < 1.20, ns. On the importance items, a paired-samples t-test revealed that participants rated desirability as more important than feasibility, $t(106) = 7.67$, $p < .05$. However, participants in the two conditions did not differ from each other in how important they thought either desirability information or feasibility information was, $t(105) = 0.36$, ns, and $t(105) = 0.92$, ns, respectively. Also, participants in the two conditions did not significantly differ from each other on how likely they were to accept high desirability items, $t(105) = 0.13$, ns, or high feasibility items, $t(105) = 1.68$, ns. Although none of the analyses indicated that the groups differed in how they used desirability and feasibility information, this may be due to the

fact that the broadening manipulation did not seem to work.

Discussion

The current set of studies was designed to test underlying mechanisms that might be responsible for the association between positive affect and positive outcomes. According to the Broaden-and-Build model of positive emotions, the benefits of positive emotions come from a broadened focus of attention and a motivation to explore the world. However, the precise mechanisms by which broadened attention lead to positive outcomes is still unclear. One possible mechanism for this association that has not been explored is that positive affect leads to abstract thinking and a future orientation, which would allow individuals to think about their goals and regulate their behavior in a way that would be more congruent with their long-term desires. In the studies here, I investigated whether this proposed process could be one explanation of how positive affect can lead to positive outcomes.

Some of the major predictions for the current studies were supported. Positive affect was associated with future orientation in a number of the studies. In Study 1, trait-level positive affect was significantly associated with future orientation. In Study 2, induced positive mood caused participants to write about goals that were more distant in the future compared to neutral affect participants. Also, happy participants were more likely than neutral affect participants to accept desirable items. The acceptance of items high in desirability in this task is indicative of a distant future orientation (Liberman & Trope, 1998). In Study 3, general positive affect was again associated with future orientation when assessed at the trait level. Thus, the main prediction that positive

emotions may lead individuals to consider distant future consequences was supported across the studies.

Results from the current studies partially support the idea that positive affect is associated with abstract thinking. There was an association between positive affect and abstract thinking at the trait level but the association was unreliable, as can be seen in Study 1. However, induced positive mood did not cause participants to think more abstractly. This could be due to a number of causes. It is possible that trait-level affect leads to characteristic styles of thinking that is difficult to override with the lab mood induction. The positive mood induction may have been too weak, or the specific task of reading the scenarios may prevent participants from thinking too abstractly. Finally, it is possible that happy participants were thinking abstractly but that the Behavior Identification Form was insensitive to it. Future studies could include more, and perhaps better, measures of abstract thinking.

One of the goals of the current studies was to examine how the constructs of broadening and abstract thinking were related. Although these two constructs seem similar, each was developed within distinct research traditions, and no studies have examined the two constructs simultaneously. In fact, they two constructs seem to be unrelated to one another, as can be seen in Study 3. Performance on the BIF and the triangles-squares task were unrelated. The above results may have implications for current theories of positive emotions and future studies in this area.

Implications

The present studies have the potential to clarify and integrate the diverse findings

about the consequences of positive mood in the emotions literature. Overall, the results of my studies support the notion that positive affect leads to a future orientation. This finding is consistent with existing research examining the cognitive effects of being happy. Previous researchers have found that positive emotions lead to less careful processing (Mackie & Worth, 1989, 1991), more stereotyping (Forgas & Bower, 1987), and biased processing (Johnson & Tversky, 1984). Positive mood has also been associated with creativity (Isen, Daubman, & Nowicki, 1987), better self-regulation (Aspinwall, 1998), and more resources to cope with difficult situations (Fredrickson, 1998, 2001). Each of these theorists has his or her specific theory to explain why positive emotions would lead to each particular cognitive outcome. However, to more effectively integrate knowledge about positive emotions and to more clearly understand its effects, researchers will eventually need to test the processes responsible for these diverse effects and come up with theories that can explain these outcomes. The present set of studies attempted to move in this direction.

If positive emotions cause individuals to think more abstractly and be oriented towards the future, then outcomes associated with positive emotions may come about through this more effective way of thinking and making decisions. That is, happy people may become happy, and then stay happy, partly because they make good decisions that lead to beneficial outcomes for themselves. Examining the diverse findings in the literature from this perspective may illuminate the reasons behind each finding. For example, there have been findings that positive emotions lead to less careful processing, more stereotyping, biased processing, or instances where these effects reverse themselves. When the task at hand is uninteresting and inconsequential to one's outcomes, it could be

beneficial to reserve one's resources and energy for activities that have more impact on one's future outcomes. Thus, under these circumstances, an effective strategy could be to use heuristics and stereotypes to conserve processing time and energy. This is consistent with the earlier findings that argued for the detrimental effects of positive mood.

However, when the stakes are high and one's decisions influence future outcomes, it would be beneficial to use one's resources to make the good decisions. In Bodenhausen, Kramer, and Susser's study (1994), this is precisely what participants seemed to do. Participants were asked to make judgments about the guilt or innocence of a stereotype-consistent or stereotype-inconsistent individual. When the consequences to their judgments were low, happy participants in Bodenhausen et al.'s study used their stereotypes to make the decisions. This result supports the argument that positive affect has detrimental effects on judgment and decision-making because it leads to heuristic processing and increased stereotyping. However, when happy participants were held responsible for their decisions (they were told that they would have to defend their decisions afterwards), they were as careful and systematic in their processing as less happy participants. Thus, the reliance on stereotypes disappeared when participants believed that their decisions would have further implications. One could argue that this is an effective use of one's limited cognitive resources. When current tasks are unrelated to one's outcomes, it could be better to conserve resources instead of using one's energy to process unimportant information. Bodenhausen et al. show that happy participants *can* process information carefully when the situation calls for it. Thus, in addition to showing the flexibility in information processing, the pattern of results reveal under which conditions happy individuals will work to maintain their mood or sacrifice their mood for

their future benefit. Thus, being happy does not *prevent* the individual from carefully considering information; it simply allows the person to see under which conditions it is relevant to do so. Presumably, happy individuals could process information carefully and overcome any processing deficits if they viewed incoming information as important and self-relevant. In fact, Forgas and Fiedler (1996) also found this to be the case in their study. When incoming information was viewed as self-relevant, participants processed information carefully and were no longer biased. Further, Aspinwall and Brunhart (1996) even found that happiness can be associated with more attention towards threatening health information.

Each of these authors posit their own theory as to why positive affect would have that particular effect. Mood congruence, mood maintenance, mood-as-a-resource, and mood-as-information are some of the theories that have been presented to explain how emotions affect decision-making and general cognitive processes. Although a goals framework is not better than (nor would it nullify) the merits of these theories, a goals perspective has the potential to integrate our limited but diverse knowledge of this area. For example, if positive affect leads to abstract thinking and a future orientation, then researchers might predict that happy individuals would be more creative due to their abstract thinking, more attentive to information that might be beneficial in the long term due to future orientation, or a decreased motivation to engage in tasks that have no future benefits and an increased motivation to engage in tasks that have future benefits. In fact, previous research has revealed that happy individuals do indeed solve problems more creatively (Isen et al, 1987), are less focused and attentive (Mackie & Worth, 1991) unless there are consequences (Bodenhausen et al, 1994), and try to ignore information

that might reduce the positive mood (Johnson & Tversky, 1984) unless it is self-relevant (Aspinwall & Brunhart, 1996). Thus, the goal perspective suggests that theorists may not need to invoke various theories that suggest different mechanisms to understand the effects of positive affect. Instead, examining the underlying processes using this goal perspective can help researchers understand the literature, integrate the diverse results, and make novel and specific predictions.

The main hypothesis that positive affect leads to a future orientation was supported in a number of studies; however, some of the other associations that were hypothesized were not supported in the current set of studies. Although happy participants in the first study wrote about goals that were more distant in the future, I did not find that happy participants wrote about goals that *started* in the more distant future compared to neutral participants. This difference may reveal whether participants are focused on the distant future in a tunnel-vision-like way or whether they incorporate distant future outcomes into their current concerns. The latter possibility would be more consistent with a broadening explanation. Since both happy and neutral participants seemed to write about goals that started in the immediate future, it is likely that all participants focused on goals that they were thinking about and possibly working towards in the very near future. The means and standard deviations reported in Table 2 support this interpretation. With a possible range of 1 through 11, the mean for each group was less than two. This indicates that most participants were writing about goals that were to start within the immediate future. Although this task was not designed to assess whether positive affect leads to broadening, the results support this interpretation. Happy participants did not restrict their attention and focus on goals in the distant future.

Instead, it seems as though they broadened their attention to include long-term implications of their plans. Thus, participants in both conditions were concerned with activities in the immediate future, but happy participants extended their attention and plans to include distant implications.

Interestingly, happy participants did not differ from sad participants in future orientation on this task. Happy participants and sad participants both wrote about goals in the same time frame. This result may seem inconsistent with other research on negative affect such as Tice, Bratslavsky, and Baumeister's study (2001), which found that participants in negative moods engaged in eating more fattening foods, engaged in more immediate gratification, and procrastinated more than participants in positive moods. The researchers argued that participants engaged in these behaviors to repair their negative moods, and that it was evident that negative emotions lead to a focus on immediate gratification over long-term gains. Although the task in the current study is very different from Tice et al.'s tasks, sad participants in this study did not focus on the immediate any more so than happy participants. However, there are a few key differences between studies designed to specifically examine negative moods and this one.

In Tice et al.'s study (2001), participants believed that their activities could elevate their negative mood. In fact, when participants were told that their moods could not be changed during the course of the study, participants ceased to engage in these behaviors. However, participants in the current study had no reason to believe that broadening of attention on the triangles-squares task would reduce negative affect. It may be the case that negative affect leads to a narrowing of focus to a particular stimulus when 1) that stimulus is the cause of negative affect; or 2) if it is believed that the stimulus can

elevate positive affect. Neither of these conditions was met in the present study. In Tice et al.'s study, participants engaged in mood-enhancing activities only when they believed they could change their negative mood. The results of the current studies are also consistent with other studies that used the broadening task.

Fredrickson and Branigan (2005) also did not find that negative affect led to a narrowed focus of attention. Although positive affect led to a broadened focus of attention compared to neutral affect, negative affect was not significantly different from neutral or positive affect. Thus, future studies could examine whether presenting participants with the cause of their negative affect would lead to a narrowed focus of attention. Although results of the current studies could have implications for existing and future work, more work is needed to examine how robust these effects are and why some of the predicted associations were not found.

Lack of Support

Throughout the studies, positive affect was not associated with broadening and only found marginal support for the association between positive affect and abstract thinking. It is possible that minor details about the experimental situation led to the differences in the current results and results by Fredrickson and Branigan (2005). For example, the means for broadening task were high in Study 3, suggesting that the lack of differences between mood conditions could be due to a ceiling effect. However, Fredrickson and Branigan (2005) used the same task and found that happy participants showed a broadened focus of attention compared to neutral participants. One difference between Study 3 and Fredrickson and Branigan's study was that participants in Study 3

did not receive sample items before the task. In Fredrickson and Branigan's study, participants received a few items where the experimenters emphasized that there were no correct answers. In Study 3, the instructions explained to the participants that there were no correct answers, and to answer according to their initial impressions, but no practice trials were administered. Participants in Study 3 may have been less likely to change their patterns of responding because the experimenters did not emphasize to them that there were no correct answers and to follow their initial impressions for each stimulus.

Also, participants in Fredrickson and Branigan's study sat 7 feet away from the stimuli, and viewed them on a television screen. Participants in the current study viewed the stimuli on a computer screen in front of them. Other researchers (e.g., Basso, Schefft, Ris, & Dember, 1996) have noted the sensitivity of this task to minor variations on size and location of the stimuli. Basso et al. discussed conflicting results in the literature using the global-local task. They argued that differences in results may be due to the precise location participants perceive the objects in their field of vision. Participants who view the images in the center instead of the periphery of their visual field may be more likely to focus on the details. Also, objects made up of bigger local elements are less likely to be integrated than objects made up of smaller local elements (Kimchi & Palmer, 1985; Kimchi, 1998). Thus, if the local elements were too small, participants would be much more likely to perceive the overall shape, whereas local elements that are too large would produce the opposite effect. Therefore, it would not be unreasonable to conclude that bringing the stimuli from the television screen 7 feet away to a computer monitor in front of the participants may have changed response tendencies in this task.

Study 3 may not have revealed an association between positive affect and

broadening for a third reason. The broadening items were not presented randomly between participants. It is possible that the first items presented to participants (which were filler items) primed participants to respond to all of the items in a global manner. In fact, Fredrickson and Branigan (2005) stated that participants usually saw the global configuration in the filler items. Thus, the most variance in responses occurred for Fredrickson and Branigan in the 8 critical test items with 3-4 local elements making up the global configuration. However, if participants received a few filler items before reaching the critical items (as they did in Study 3), the filler items may have primed participants to respond globally rather than locally. Future studies could examine this possibility by randomizing the presentation of the items in the broadening task, presenting some of the critical items first, or discarding the filler items altogether.

There was also only partial support for the association between positive affect and abstract thinking. As mentioned above, the lack or results in the lab for the BIF may be due to a number of factors. It is possible that the specific mood induction, while inducing positive mood, may have prevented abstract thinking. Participants were asked to reread the scenario during the 4 minutes, to imagine themselves in the situation, and to memorize the scenario because they would be tested on it later in the study. Because the task was presented as a memory task, participants may have focused on the details of the situation to increase recall. While this deeper processing may lead to facilitation of the mood induction, it may also have facilitated concrete thinking. Thus, future studies could address this issue by using multiple mood inductions.

Other aspects of the mood induction could also have led to null results. For example, an important question that is still unresolved is how long mood inductions last,

and how mood fluctuates after performance on tasks have begun. Although preliminary evidence suggested that positive emotions are associated with abstract thinking at the trait level, positive mood manipulations did not reliably change participants' level of abstraction. This could have resulted from effect mood inductions that wore off before the BIF was completed. Future studies examining the strength and duration of various mood inductions could lead to the implementation of better inductions for specific tasks.

It is also possible that individual differences in positive affect and abstract thinking could have overwhelmed any effects that a mood induction may have had. The fact that individual differences in positive affect was associated with abstract thinking while laboratory mood inductions did not may suggest that the association is there, but the specific lab situation failed to detect the effect. Thus, more empirical evidence using a variety of mood inductions and tasks assessing abstract thinking is needed before any conclusions can be drawn.

One of the questions of the current studies was whether broadening would lead to abstract thinking and future orientation. The results did not support this idea. However, it would be difficult to draw conclusions based on these results because the induction did not seem to work. In Study 4, participants in the two conditions did not differ in the self-reported breadth of thinking. Therefore, the participants did not differ in level of abstraction or future orientation. However, if the broadening inductions were more effective, one would be more likely to find associations between broadening and abstract thinking and future orientation. In future studies, it will be necessary to develop and use better broadening inductions that do not simultaneously induce abstract thinking. That is, it will be important to induce participants into a state where they pay more attention to a

more diverse set of stimuli but that will not simultaneously contain content indicative of moving up on hierarchical thinking. To this end, future studies may employ a signal detection task, or reward participants in the various mood conditions for paying attention to either central or peripheral areas of the screen.

Limitations

One of the major shortcomings of the present study is that only mixed results were found in the lab. The association between positive mood and future orientation was found both in the trait-assessments and in the lab. However, induced mood did not lead to differences in level of abstraction or broadening. Thus, although there is a theoretical basis from a number of existing theories for making these predictions, it is possible that these associations are too weak to be meaningful or practically significant. The pattern of results found in the current studies may have been due to the specific measures used to assess each construct. Thus, future research should use multiple measures of each construct to test whether the current findings (and lack of findings) are partly due to the specific measures chosen. Despite these shortcomings, the current studies were designed to be the start of a program of research in this area. The mixed results give reason to pause and reevaluate the strengths and weaknesses of both the conceptual and measurement parts of this research program; however, future studies improving upon the work done here could address many of the concerns and be informative as to the fruitfulness of future research in this area.

Although the current study is an important first step in examining and linking diverse areas of research, there are a number of other limitations that future studies could

address. For example, it is difficult to assess the benefits of positive affect on behavioral self-regulation in the present studies. I tested whether positive affect leads to a cognitive orientation towards the future and towards abstract thinking; however, the present studies do not show how this cognitive state affects behavioral outcomes. Thus, future researchers could use information from studies examining cognitive effects to make specific predictions about how positive affect would affect self-regulation behaviors.

Another limitation of the present set of studies is its reliance on short-term laboratory studies. Future studies could examine whether positive affect, through future orientation and abstract thinking, can provide important real-life benefits. However, this type of study would be time and resource intensive, so a good starting point was to gain a clear understanding of the processes involved through lab studies. I am currently using large-scale longitudinal data to examine whether positive emotions lead to important outcomes, and whether these associations could be explained by a future orientation.

Finally, abstract thinking and broadening were assessed in the current studies with one task. Studies 2 and 3 also only used one type of mood induction. Thus, results could be limited to these specific tasks. Future studies could examine whether these associations would hold using a variety of tasks and inductions.

Conclusion

If asked, almost everyone would say that happiness is an important, if not the most important, goal of their life (Diener, Suh, Lucas, & Smith, 1999). Therefore, it is important to understand the cognitive and behavioral consequences of being happy. Perhaps people want to be happy because it gives them meaning, integrates their strivings

and goals, or it offers a unique perspective of how people's present actions can lead to their future wants and desires. Perhaps the lack of positive affect (or the presence of negative affect) leads people to lose meaning in their lives or perspective of why they are engaging in current activities. Examining how emotions influence cognition and decision-making could answer some of these questions. Researchers could also better understand how to maintain fleeting positive emotions and use it to people's benefit if we can better understand the mechanisms behind people's experience. Hopefully, future studies will continue to examine the consequences of happiness for one's thoughts and behaviors to better answer how positive emotions influence decision-making, goal-striving activities, and important life outcomes.

Table 1. Means and Standard Deviations for Mood Induction in Study

	Reported Positive Affect	Reported Negative Affect
Positive Condition	4.59[a] (1.08)	1.36[a] (.67)
Neutral Condition	2.64[b] (1.25)	1.42[a] (1.04)
Negative Condition	1.95[b] (1.25)	4.95[b] (1.53)

N = 96; Values in parentheses are standard deviations

Table 2. Future Orientation for Goal Items in Study 2

	Goal Frame	*Goal Start*	*Goal End*
Positive Condition	6.97[a] (3.42)	1.67 (1.65)	8.14[a] (2.50)
Neutral Condition	4.85[b] (3.03)	1.61 (1.50)	6.13[b] (2.80)
Negative Condition	5.61[a,b] (3.23)	1.03 (0.19)	7.21[a,b] (2.91)

N = 96; Values in parentheses are standard deviations.

Table 3. Desirability and Feasibility Responses in Study 2

	Desirability Importance	***Feasibility Importance***	***High Desirable Accept***	***High Feasible Accept***
Positive Condition	5.39 (0.79)	4.26 (1.05)	$5.23^{a,b}$ (1.09)	4.00 (1.27)
Neutral Condition	5.53 (1.00)	4.68 (0.88)	4.59^{a} (1.23)	3.78 (1.50)
Negative Condition	5.68 (0.70)	4.32 (0.79)	5.45^{b} (1.11)	4.07 (1.21)

N = 96; Values in parentheses are standard deviations.

Table 4. Means and Standard Deviations for Mood Induction in Study 3

	Reported Positive Affect	***Reported Negative Affect***
Positive Condition	4.78^{a} (1.05)	1.47^{a} (0.92)
Neutral Condition	3.04^{b} (1.34)	1.46^{a} (0.86)
Negative Condition	2.09^{c} (0.97)	4.94^{b} (1.23)

Total N = 171; Values in parentheses are standard deviations.

Table 5. Broadening and Abstraction Responses Across Mood Conditions

	Broadening	***Abstraction***
Positive Condition	6.07 (2.20)	10.07 (4.43)
Neutral Condition	6.60 (2.10)	10.98 (4.16)
Negative Condition	6.42 (1.87)	10.88 (4.55)

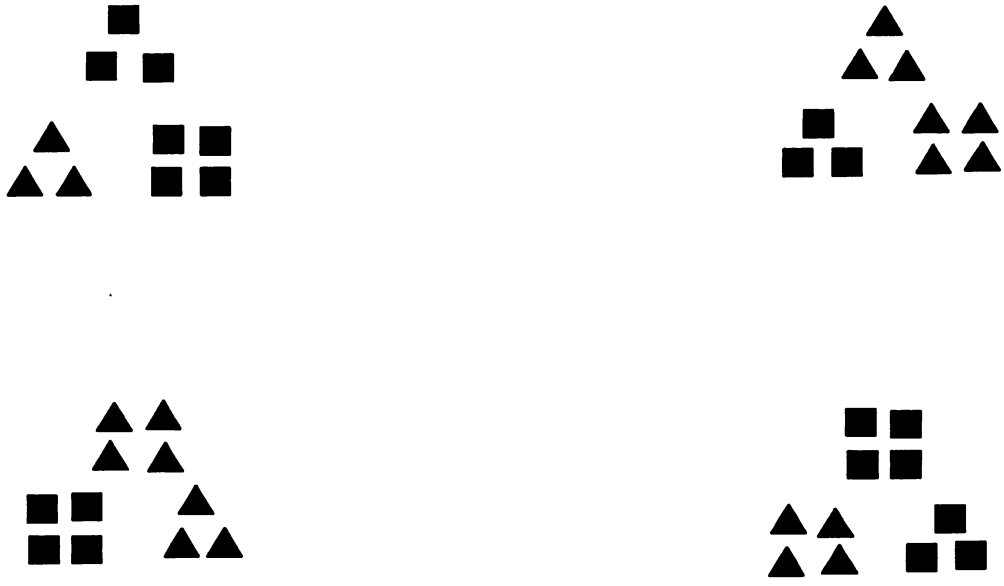
N = 171; Values in parentheses are standard deviations.

Table 6. Manipulation Check and Dependent Measures for Study 4

	Broad	***Detail1***	***Detail2***	***Abstract***	***Desire Import***	***Feasible Import***	***Desire Accept***	***Feasible Accept***
Concrete	3.33 (1.37)	3.90 (1.31)	4.23 (1.39)	11.67 (4.90)	5.53 (0.87)	4.68 (0.76)	4.79 (1.00)	4.69 (1.32)
Broaden	3.29 (1.26)	3.63 (1.33)	4.14 (1.33)	11.63 (3.53)	5.47 (0.86)	4.53 (0.92)	4.82 (1.28)	4.28 (1.19)

Total N = 107; Values in parentheses are standard deviations.

Figure 1. Global-Local Processing Task



Appendix 1. Stories for Reading Task

Instructions: The following is a scenario describing an event that could possibly happen in your own life. Imagine the situation as vividly as you can. Picture the event happening to you. Try to imagine all the details of the situation. Picture in your "mind's eye" the surroundings as clearly as possible. See the people or objects; hear the sounds; experience the event happening to you. Think the thoughts you would actually think in this situation. Feel the same feelings you would feel in this situation. Let yourself react as if you were actually there. This should help you recall the details later when we test your memory for this material. The more vivid you can imagine the events, the easier it will be to recall later. People who take this task seriously also tend to find it more interesting.

Please take about 4 minutes reading this story thoroughly. Use this time to think about and feel what is described in the scenes. Try to feel what it would be like to be in the situation.

Reread the scenario as often as you feel is necessary for you to "feel like you are there."

Scenario: (Neutral)
Imagine you are pushing your shopping cart up and down the supermarket aisles, stopping at times, starting up again. You notice different things in the supermarket, the other people there, the arrangement of the store, and all the items on the shelves. You are just trudging along through the store. In short, you're not really feeling much of anything. You are just there.

When you push strongly on the cart it moves quickly. You use your arm muscles to turn the cart. Steering the cart requires wrist movements and guidance as well. Others around you are doing the same thing as you are. They're pushing their carts and looking for groceries on the shelves. You notice that this store is similar to others you have been in. The fruits and vegetables are near the entrance, meat is along the back wall, and the dairy section is near the exit of the store. In between these things are endless aisles of shelves, stacked six feet high and two feet deep with items. Signs above the aisles let you know where to find particular items. You are just going through the supermarket. In short, you're not feeling much of anything.

Scenario: (Neutral)
Imagine you spend an hour going for a drive through both city and rural areas. Along the way you are focused on the performance of the car, the passing vehicles, road conditions, and things along the road. You think of and notice little else. You are just driving for an hour. In short, you're not feeling much of anything. You are just there.

You can hear the engine churn as you speed up and slow down. It is coordinated with the pressure from your foot on the gas pedal. You notice the cars in front of you and the cars behind you. Some cars look clean and new, others appear dirty and drab. The road is narrow at points and wide at others. Some of the landscape is hilly, although at times it's as flat as can be. Every now and then you go over a few potholes and bumps in the road. Signs along the side of the road indicate when to slow down, pass, and the speed limit. In town you pass businesses and houses. Some houses look interesting, others are rather plain

looking. You're just driving, in short you are feeling nothing.

Scenario: (Positive)
Imagine that you have just arrived in Hawaii for the vacation of your dreams. You will spend the next three weeks on the island sightseeing, shopping, relaxing, and being entertained. And because you have saved for this trip for a long time, you have no concerns about how much money you can spend. In short, these paradise islands are waiting for your indulgence.

During your stay you will explore everything from metropolitan museums and native villages, to remote areas full of vegetation and quiet sandy beaches with exciting surf. You will be able to shop at some of the island's finest stores, where you can purchase almost anything from fine clothing to souvenirs of your dream trip. You are finally able to relax, knowing that your problems are behind you and nothing but pleasure awaits. And you can explore things at your own pace, sleeping in if you like on some days and rising with the sun on others. Finally, the best in entertainment awaits you, such as exciting night clubs with cosmopolitan flair and authentic luaus with tropical drinks, feasts, and dancers. You feel better than you have felt in a long time.

Scenario: (Positive)
Imagine that you have just won a lottery that pays you $50,000 a month for the rest of your life. You will be able to pay off all your debts, build your dream house, start your own business, and travel lavishly. From now on, your material needs are of no concern. In short, you will be able to lead a life of comfort and indulgence.

As a student you've been in debt to almost everyone. Now you will be free from financial burdens. You can pay back your parents and pay off your credit card debts and student loans. Plus, the house you've always wanted is yours. You can design a luxurious home in an exotic locale, complete with fireplace and climate controlled bathroom. Whatever you want to include, tennis courts, a pool, ...it's all possible. Anything is possible for you now. You can start your own business in your area of specialization. And because you are in charge, you can determine your schedule, allowing for weekend get-aways or long lavish vacations. You can travel to a cabin in the woods, a penthouse in Manhattan, dine at the best restaurants in the world. You feel better than you have felt in a long time.

Appendix 2. Adapted from Liberman and Trope's (1998) Feasibility and Desirability Scenarios

The high desirability-low feasibility condition is presented below. The low desirability-high feasibility condition is presented in parentheses.

All questions will be answered on a 1-7 scale where 1 = not very likely/important and 7 = very likely/important.

Guest Lecture: Imagine that a guest lecture will be given on campus. Your professor advised you to attend the lecture, and you think that it might be interesting and relevant for your future work [but you don't think it will be too relevant to your future work]. However, the lecture is scheduled for the afternoon, which is inconvenient: You finish classes at noon, and will have a few free hours before the lecture where you would like to be spending at home [However, the lecture is scheduled for the afternoon, which is a convenient time: You do not have any classes during this time.]

In this situation, how likely is it that you'll attend the lecture?
How important would it be for your decision whether or not the topic of the lecture is interesting?
How important would it be for your decision whether or not the lecture is given at a convenient time?

Word Processor: Imagine that you will receive a new computer, and will decide to install a word processing program. A friend will offer you his word processor, which is updated and very quick, and seems to suit your needs. [which is old and slow, but seems sufficient for your needs.] However, you are not familiar with the program, and won't be able to start working right after you install it. You will first have to spend a few hours learning it. [However, you know this program well: Since you have worked with it before, you won't need too much time to learn it. You can start working right after you install it.]

In this situation, how likely is it that you'll install the word processing program?
How important would it be for your decision whether the program is quick and updated?
How important would it be for your decision how much time it takes to learn to use the program?

Tickets for a show: Imagine that a friend will offer you two tickets for a concert of a band that you like very much. [a concert of a new band that you are not very familiar with and you are not sure you'll like the kind of music they play.] Your friend cannot go to the concert himself because of an unexpected event, and offers you his tickets. However, the tickets are more expensive than you thought, and more than what you would usually pay. [Since he had a special deal for the tickets, they cost significantly less than what you would normally have to pay for them.]

In this situation, how likely is it that you'll buy the tickets?
How important would it be for your decision whether or not the concert is by a band you like?
How important would the price of the ticket be for your decision?

Furniture: Imagine that you will move into a new apartment and you will need furniture for the living room. A friend will offer you his living room set, and you like the design and the color of the furniture. [but you don't like the design and color of the furniture.] However, you don't have a truck and the friend cannot deliver the furniture to your place. [However, your friend has offered to deliver the furniture to your place for you.]

In this situation, how likely is it that you would accept the living room set?
How important would it be for your decision whether or not you like the design and color of the furniture?
How important would it be for your decision whether or not the friend can deliver the furniture to your place?

Appendix 3. International Personality Item Pool

On the following pages, there are phrases describing people's behaviors. Please use the rating scale below to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself, in relation to other people you know of the same sex as you are, and roughly your same age. So that you can describe yourself in an honest manner, your responses will be kept in absolute confidence. Please read each statement carefully, and then fill in the bubble on the scantron that corresponds to the number on the scale.
Please use the scale below.

Very Inaccurate	Moderately Inaccurate	Neither	Moderately Accurate	Very Accurate
1	2	3	4	5

There are no right or wrong answers, and you need not be an "expert" to complete this questionnaire. Describe yourself honestly and state your opinions as accurately as possible.

1. Am the life of the party.
2. Feel little concern for others
3. Am always prepared
4. Get stressed out easily
5. Have a rich vocabulary
6. Don't talk a lot
7. Am interested in people
8. Leave belongings around
9. Am relaxed most of the time
10. Have difficulty understanding abstract ideas
11. Feel comfortable around people
12. Insult people
13. Pay attention to details
14. Worry about things
15. Have a vivid imagination
16. Keep in the background
17. Sympathize with other's feelings
18. Make a mess of things
19. Seldom feel blue
20. Am not interested in abstract ideas
21. Start conversations
22. Am not interested in other people's problems
23. Get chores done right away
24. Am easily disturbed
25. Have excellent ideas
26. Have little to say
27. Have a soft heart
28. Often forget to put things back into their proper place
29. Get upset easily
30. Do not have a good imagination
31. Talk to a lot of different people at parties
32. Am not really interested in others
33. Like order
34. Change my mood a lot
35. Am quick to understand things
36. Don't like to draw attention to myself
37. Take time out for others
38. Neglect my duties
39. Have frequent mood swings
40. Use difficult words
41. Don't mind being the center of attention
42. Feel others' emotions
43. Follow a schedule
44. Get irritated easily
45. Spend time reflecting on things
46. Am quiet around strangers
47. Make people feel at ease
48. Am exacting in my work
49. Often feel blue
50. Am full of ideas

Appendix 4. Intensity and Time Affect Scale

To what extent do you experience each of the following emotions **in general**?

1 = Very slightly or not at all
2 = A little
3 = Moderately
4 = Quite a bit
5 = Extremely

51. Affection
52. Joy
53. Fear
54. Anger
55. Shame
56. Sadness
57. Love
58. Happiness
59. Worry
60. Irritation
61. Guilt
62. Loneliness
63. Caring
64. Contentment
65. Anxiety
66. Disgust
67. Regret
68. Unhappiness
69. Fondness
70. Pride
71. Nervous
72. Rage
73. Embarrassment
74. Depression

Appendix 5. Behavior Identification Form

The order in which they receive the high identification and low identification is randomized in the questionnaire.

Action	High Identification	Low Identification
Making a List	getting organized	writing things down
Reading	gaining knowledge	following lines of print
Washing clothes	removing odors from clothes	putting clothes into the machine
Measuring a room for carpeting	getting ready to remodel	using a yardstick
Cleaning the house	showing one's cleanliness	vacuuming the floor
Painting the room	making the room look fresh	applying brush strokes
Paying the rent	maintaining a place to live	writing a check
Caring for houseplants	making the room look nice	watering plants
Locking a door	securing the house	putting a key in the lock
Filling out a personality test	revealing what you're like	answering questions
Toothbrushing	preventing tooth decay	moving a brush around one's mouth
Taking a test	showing one's knowledge	answering questions
Greeting someone	showing friendliness	saying hello
Resisting temptation	showing moral courage	saying "no"
Eating	getting nutrition	chewing and swallowing
Traveling by car	seeing countryside	following a map
Having cavity filled	protecting your teeth	going to the dentist
Talking to a child	teaching a child something	using simple words
Pushing a doorbell	seeing if someone's home	moving a finger

Appendix 6. Consideration of Future Consequences Scale

For each of the statements below, please indicate to what extent the statement is characteristic of you. Please read each question carefully and then select the most appropriate answer.

Scale: Extremely Uncharacteristic
Somewhat Uncharacteristic
Uncertain
Somewhat Characteristic
Extremely Characteristic

1. I consider how things might be in the future, and try to influence those things with my day to day behavior
2. Often I engage in a particular behavior in order to achieve outcomes that may not result for many years
3. I only act to satisfy immediate concerns, figuring the future will take care of itself
4. My behavior is only influenced by the immediate (i.e., a matter of days or weeks) outcomes of my actions
5. My convienience is a big factor in the decisions I make or the actions I take
6. I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes
7. I think it is more important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years
8. I think it is more important to perform a behavior with important distant consequences than a behavior with less-important immediate consequences
9. I generally ignore warnings about possible future problems because I think the problems will be resolved before they reach crisis level
10. I think that sacrificing now is usually unnecessary since future outcomes can be dealt with at a later time
11. I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date
12. Since my day to day work has specific outcomes, it is more important to me than behavior that has distant outcomes

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