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THE INFLUENCE OF POSITIVE EMOTIONS ON BEHAVIOR
REPRESENTATION: PERSPECTIVES FROM ACTION
IDENTIFICATION THEORY

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**THE INFLUENCE OF POSITIVE EMOTIONS ON BEHAVIOR REPRESENTATION:
PERSPECTIVES FROM ACTION IDENTIFICATION THEORY**

By

Kimdy Le

A DISSERTATION

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Michigan State University
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ABSTRACT

THE INFLUENCE OF POSITIVE EMOTIONS ON BEHAVIOR REPRESENTATION: PERSPECTIVES FROM ACTION IDENTIFICATION THEORY

By

Kimdy Le

Previous studies have found that positive emotions are associated with broadening of attention and a focus on long-term goals. From a goals theory perspective, positive emotions within the Action Identification Theory framework could lead to abstract action identifications. The current studies tested how positive emotions affect individuals' cognitive representations of actions. Three studies were conducted to test 1) how positive emotions influence action representation; 2) how positive emotions influence the types of behaviors individuals choose to engage in; 3) whether specific positive emotions have distinct effects on action representation; and 4) how different measures of action representation relate to each other. The studies largely did not provide support for the notion that positive emotions lead to abstract action identificatio

I dedicate this dissertation to my brother, Nam Le.

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Introduction

Individuals constantly pursue goals in various areas of their lives. In fact, William James argued that “How to keep, how to gain, how to recover happiness is in fact for most [people] at all times the secret motive for all they do” (James, 1902, p. 76). That is, James argued that individuals are constantly pursuing goals to make themselves happy. Therefore, the idea that people’s goals influence their emotions is not new. However, much of the research examining the links between emotions and goals has been mainly focused on how goal pursuit affects emotions (Emmons, 1991; Kasser & Ryan, 1993; Nickerson, Schwarz, Diener, & Kahneman, 2003; Sheldon, Ryan, Deci, & Kasser, 2004). Studies that have focused on how emotions influence goal pursuit have often considered negative emotions but not positive emotions (Lerner & Keltner, 2000; Raghunathan & Pham, 1999). Despite calls for more research in this area (Deshon & Gillespie, 2005; Fishbach, Shah, & Kruglanski, 2004), little research has examined how positive emotions influence the way individuals think about or pursue their goals. Further, researchers have not systematically examined how positive emotions influence the way individuals think about their goals. The current studies tested how positive emotions influence various aspects of goal representation.

Instead of testing how positive emotions influence goal pursuit, much of the research linking goals and emotions examine how goals influence emotions. For example, Emmons and Kaiser (1996) argued that approach orientation versus avoidance orientation is related to different emotional experiences. Specifically, individuals who are avoidance oriented (who try to prevent failure rather than approach success) experience more negative emotions than those who are approach oriented. Similarly, Kasser and

Ryan (1993) examined how the pursuit of certain types of goals leads to different emotional experiences. Kasser and Ryan found that individuals who had the goal of financial success experienced lowered well-being later in life. Thus, it is clear that individuals' goals (and the success with which they pursue those goals) are associated with their emotional experiences. However, in addition to goals affecting emotions, emotions should also influence how individuals mentally represent their goals and make decisions about their goals.

There have been a number of theories posited about how emotions should influence goal-striving behavior. Goal striving behaviors include planning, reflecting, deciding, and acting toward some end state that the individual desires. Thus, within this framework emotions should influence how individuals orient themselves toward their goals. Emotions should help determine which goals people choose to pursue and how they pursue them. One prominent theory of emotions suggests that individuals' feelings inform them about the environment. According to Mood-as-Information Theory (Schwarz & Clore, 1996), individuals use their feelings to make judgments and decisions in their environment. However, much of the research testing these ideas focuses on negative instead of positive emotions.

Many theories posit that emotions bias how individuals make decisions. For example, Lerner and Keltner (2000) were interested in the ways that specific negative emotions influence risk assessments. According to Lerner and Keltner, negative emotions indicate that a threat exists in the environment and needs to be resolved. However, different negative emotions provide distinct information and lead to distinct behaviors. Some negative emotions should bias the individual to prefer risky decisions whereas

other negative emotions should bias the individual to be cautious. For example, fear should inform individuals that a threat exists and they need to withdraw from the situation to ensure safety. Therefore, individuals experiencing fear should be risk-averse to prevent themselves from being exposed to more danger. On the other hand, anger should inform individuals that they need to actively engage with the environment to improve the situation. Thus, rather than being averse to risk, anger should cause individuals to actively approach the threat and attempt to resolve it (see Harmon-Jones, 2003, for similar evidence that anger is related to approach tendencies and aggression). Instead of leading to risk-averse behavior patterns, this should lead individuals to make risky decisions. Lerner and Keltner (2000) found that fearful participants were more likely than angry participants to be risk-averse, whereas angry participants were more likely than fearful participants to make risky decisions. Thus, there is evidence that different emotional states influence the decisions people make and level of risk they tolerate.

Despite this focus on the ways that negative emotions influence goal pursuit, relatively few studies have tested how positive emotions influence how individuals think about and engage in goal-related activities (but see Carver and Scheier, 1981, 1998, for exceptions). Thus, it is unclear how positive emotions influence goal pursuit and whether specific positive emotions could have distinct effects, similar to negative emotions. However, certain predictions can be drawn from existing goal and emotion theories. One prominent goal theory that can incorporate the effects of emotions is Action Identification Theory (Vallacher & Wegner, 1985, 1987; Wegner & Vallacher, 1986). Therefore, I will

test how positive emotions influence action representations within the Action Identification Theory framework.

Action Identification Theory

When people think about behaviors in which they might engage, they can represent these behaviors in different ways. One dimension that could be used to represent behaviors is the abstractness of the descriptions. A person could either think about the details of the behavior or the abstract qualities of that behavior. For instance, when considering the behavior of studying, a student might consider the specific actions that he or she would need to go through to complete the behavior. The student, representing actions at a detailed level, might think: “I have to study tonight and therefore must go to the library, open my book, go over my notes, and create note cards.” In other words, the student’s thoughts would be focused at a relatively concrete level. Alternatively, it is possible for the student to think about more abstract features of the same behavior, including the distal outcomes that will result from the behavior or the broad goals that the behavior will achieve. When in this mindset, the student might think: “I have to study tonight to do well in this class to increase my GPA and to get a good job after I graduate.”

Action Identification Theory was developed to explain the effects of representing actions at these different levels. In Action Identification Theory, action representations are structured hierarchically. Vallacher and Wegner (1987) argued that action identification is an automatic process that serves two different functions. Actions identified at relatively abstract levels reveal the motivations and intent of the behavior. Actions identified at relatively concrete levels reveal the steps necessary to carry out the intended behavior. For example, at an abstract level, “writing a paper” could be thought

of as “communicating knowledge” or “fulfilling a class requirement.” At a concrete level, writing a paper can also be thought of as “typing sentences on the screen” or “pressing the keyboard keys.” Again, abstract identities specify the goals of behaviors and *why* they are performed. For instance, one writes a paper *because* one wants to communicate knowledge or *because* one wants to fulfill a class requirement. Concrete identities specify *how* behaviors are performed; they specify the mechanics associated with actions.

Although any particular action can be identified either abstractly or concretely, Vallacher and Wegner (1987) argued that individuals automatically identify actions at relatively abstract levels unless there is a need to be aware of the specific steps necessary to complete a behavior. According to Action Identification Theory, individuals are constantly trying to balance concerns for comprehensive understanding and meaning behind their actions with concerns about effective performance. Without any obstacles, Vallacher and Wegner argued that individuals should prefer identifications that convey meaning and purpose in their actions.

Vallacher and Wegner also suggested that the levels at which individuals identify their actions should influence the decisions individuals make and the effectiveness of their behavior. Action Identification Theory asserts that effective goal pursuit should be associated with fluctuations in abstract and concrete action identifications and that each level of action identification is useful under specific circumstances. Specifically, Vallacher and Wegner (1987) argued that abstract identifications highlight the motivations behind certain actions. Therefore, individuals should be motivated to consider abstract identifications when they are not encountering difficulties during goal pursuit. During these times, individuals should want to be aware of the reasons to engage

in certain actions; therefore, abstract identifications would reveal the purposes behind different activities. On the other hand, concrete identifications make salient the specific steps necessary to complete an action. The more difficult the action, the more likely it is that individuals would need to think about the very detailed aspects of their actions to effectively complete the goal. Thus, easy situations should call for abstract identifications and a continuation of current behaviors, which should lead to successful goal completion. On the other hand, difficult situations should call for concrete identifications, which should motivate a change in behaviors to become more effective at goal completion.

There are a number of studies that have supported various aspects of Action Identification Theory. One key idea in Action Identification Theory is that easy tasks are associated with relatively abstract action identifications and difficult tasks are associated with concrete identifications. Vallacher, Wegner, and their colleagues conducted a number of studies that were consistent with the idea that easy tasks were associated with abstract identifications. For example, Vallacher and Wegner (1987) described an experiment where participants were given coffee in either normal cups or unwieldy cups. Presumably, drinking coffee out of an unwieldy cup is more difficult than drinking it out of a normal cup. After drinking the coffee, participants were asked to rate how well a series of phrases accurately described their behavior. Participants who drank out of the normal cup were more likely to describe that act in abstract terms whereas participants who drank out of the unwieldy cup were more likely to describe that act in concrete terms. For example, individuals in the normal cup condition were more likely to describe drinking the coffee as “getting energized” or other high-level identifications. In contrast, individuals who drank from the unwieldy cup were more likely to identify the act as

“lifting a cup to my lips,” a relatively low-level identification. Similarly, in another study participants were asked to eat chips either using their hands (easy) or using chopsticks (difficult). The pattern of results were similar in that individuals who used chopsticks were more likely to describe their actions using concrete identifications such as “moving my hands” and putting food in my mouth” than abstract identifications such as “reducing hunger.” Individuals who used their hands were more likely to describe their actions using abstract identifications (Vallacher & Wegner, 1987). Thus, in this study, easy tasks were associated with abstract identifications and difficult tasks were associated with concrete identifications.

In addition to the associations between difficulty and action identifications, Action Identification Theory also predicts that once an action is identified at a certain level, it should have consequences for performance. Specifically, abstract action identifications should facilitate performance on easy tasks but not difficult ones, whereas concrete identifications should facilitate performance on difficult tasks but not easy ones. To successfully complete a difficult action, individuals need to focus on the specific steps required to move them towards their goal. Therefore, concrete action identifications focus on these steps and inform individuals whether their actions will lead them to their goal. On the other hand, easy or familiar tasks should occur relatively automatically. Focusing on the mechanics and details of performing the action should get in the way of the automatic process.

An experiment conducted by Vallacher, Wegner, and Somoza (1989) tested how action identification affects performance. Vallacher and his colleagues manipulated the difficulty of a task as well as action identification to test the effects these have on

performance. The researchers asked participants to give a speech for an audience that was described as either “easy-to-persuade” (relatively easy task) or “hard-to-persuade” (relatively difficult task). Then participants were asked to either be mindful of their volume of their speech (low level identification) or not. The researchers predicted that individuals giving the easy speech would do better when not focusing on the volume of their speech, but that individuals giving the difficult speech would do better when focusing on the volume of their speech. Focusing on concrete aspects of behavior should be more effective during difficult tasks than when performing easy tasks. Again, easy tasks should be facilitated by focusing on the abstract properties of the action.

In this study, participants were recorded and coders examined the number of speech dysfluencies participants made during the speech. For example, coders counted the number of stammers, long periods of silence, and “ums” within the speech. In addition, participants reported on how satisfied they were with their own performance after they gave the speech. The pattern of results was consistent with the predictions from Action Identification Theory using both objective and subjective measures of performance. Participants whose action identification level did not match the difficulty of the task (abstract identification with difficult task or concrete identification with easy task) were less satisfied with their performance and coders indicated they made more speech dysfluencies during the speech than participants whose action identification level matched the task difficulty. Therefore, it seems as if identification levels interact with the difficulty of situations to facilitate performance in certain situations. However, in all of these studies, abstraction level or task difficulty was explicitly manipulated by the researchers. Outside the lab, other factors could influence abstraction level without an

explicit manipulation. One factor that could move individuals up or down in abstraction level is how far in the future the event is expected to happen. Liberman and Trope (1998) tested how Action Identification Theory is related to events taking place in the near versus distant future.

Construal Level Theory

Action Identification Theory is one prominent goal theory that specifies how action representations influence decisions and behavior. However, similar predictions can be made from other goal theories. For example, Liberman and Trope (1998) presented Construal Level Theory, which posits that thinking about distant future events versus near future events influences abstraction level. Specifically, Liberman and Trope asserted that distant future events should be associated with abstract action identifications, whereas near future events should be associated with concrete identifications. Distant future events should be associated with abstract identifications because when individuals construe things that are far away, they focus on the core aspects of the event and the reasons why they would want that event to occur. However, obstacles and situations surrounding the event, along with competing motives, become salient.

Liberman and Trope (1998) also argued that abstract and concrete identifications were associated with different concerns. Specifically, within Construal Level Theory, abstract identifications should be associated with concerns about whether the individual wishes to engage in the behavior. They called these desirability concerns. Individuals that have desirability concerns should consider how their actions help them meet their goals. For example, when choosing a major, students focused on desirability concerns could attend to job prospects after graduation or the status gained from the degree. These are potential reasons why individuals might want to choose a specific major. On the other hand, concrete identifications within Construal Level Theory are associated with concerns about how the behavior can be successfully completed. Liberman and Trope

called these feasibility concerns. Individuals focused on feasibility concerns when choosing a major might attend to their ability to successfully complete degree requirements or successfully balance school and family needs. Liberman and Trope explicitly link desirability features to abstract action identifications and feasibility features to concrete action identifications in the Vallacher and Wegner's (1987) framework. Thus, Liberman and Trope argue that abstract identifications are more likely to highlight desirability concerns than feasibility concerns. In contrast, concrete identifications should highlight feasibility concerns.

Liberman and Trope (1998) conducted a number of studies to test whether distant future events were associated with desirability concerns whereas near future events were associated with feasibility concerns. The researchers presented participants with a series of actions and were told that it would take place either "a year from now" or "a week from now." For example, participants were asked to imagine and write down descriptions of "having a party at your apartment" and "spending time with your family" either tomorrow or in the next year. Judges coded how abstract or concrete these descriptions were. Specifically, judges coded descriptions that fit the structure "[description] by [activity]" as abstract and descriptions that fit the structure "[activity] by [description]" as concrete. For example, an abstract description of moving into a new apartment might be "starting a new life." This would be coded as concrete because individuals start a new life by moving into a new apartment. Flipping those phrases would not make sense. One would not describe that action by saying "moving into a new apartment by starting a new life." On the other hand, a concrete description of the same activity might be "packing and carrying boxes." One moves into a new apartment by packing and carrying boxes

rather than packing and carrying boxes by moving into a new apartment. Using these criteria, judges were able to classify descriptions into one of these two structures in 78% of the cases. In addition to the free response task, participants also completed a modified form of Vallacher and Wegner's Levels of Personal Agency questionnaire (1989). In this task, participants were presented with an action, such as "locking the door." They were asked to choose which description best matched the original action. For example, locking the door might be alternatively described as "securing the house (abstract)" or "turning the key (concrete)." Each action was also described as taking place either in the near future (tomorrow) or in the distant future (next year). In both tasks, Liberman and Trope (1998) found that participants were more likely to describe distant future events using abstract descriptions and near future events using concrete descriptions. Thus, Liberman and Trope asserted that individuals represent action abstractly when thinking about them far in advance, but represent action concretely as it nears.

Trope and Liberman (2003) argued that this pattern of action representation made sense for the types of concerns individuals should have in these different situations. When thinking about a goal in the distant future, individuals should be concerned with whether they are motivated to attain the outcomes of the action. However, those concerns about desirability should become less important as the event nears because individuals should have already made the decision of whether to pursue the goal; instead, individuals should turn to thinking about the concrete steps necessary to successfully reach those goals. In addition, these cognitive representations have consequences for behavior. Specifically, Trope and Liberman argued that abstract action representations made salient the core goals associated with the actions and individuals should make decisions

consistent with these core goals. On the other hand, concrete action representations made salient the steps needed to complete the action and potential obstacles and individuals thinking at this level should make decisions based on this information.

For example, the abstract description of moving into a new apartment, “I start my new life by moving into a new apartment,” reveals the motives behind the action. The individual is moving into the new apartment because s/he wants to start a new life, and the abstract description reveals this goal. Feasibility concerns should be less salient to individuals identifying actions abstractly. On the other hand, the concrete description of the same activity (e.g., “I move into a new apartment by packing up and carrying boxes”) reveals the specific actions necessary to achieve the goal of moving. Thus, if one were lacking in the supplies necessary to move, construing the behavior abstractly would not reveal these problems whereas construing the behavior concretely would make these obstacles salient. Therefore, individuals who construe events concretely should be focused on whether they could successfully navigate the sub-goals necessary to achieve their ultimate goal. In sum, abstract action identifications should reveal motives and intents. In contrast, concrete identifications should be associated with concerns about what steps are necessary to complete the action.

Construing actions abstractly and concretely should have decision-making consequences because the descriptions should highlight specific concerns that may or may not appeal to the individual. Individuals who construe actions abstractly should pay particular attention to desirability aspects of behaviors; and, these individuals should be most persuaded by abstract identifications because these identifications reveal more desirability information than concrete identifications. In contrast, individuals who

construe actions concretely should be persuaded by information about the feasibility of the behavior. In a series of studies, Trope and Liberman (2000) tested these ideas. The researchers showed that individuals who represented actions abstractly were more likely than individuals who represented actions concretely to base their decisions on core aspects of their goals. For example, individuals in one study were asked to think about taking a language course. They were given the option of taking one of two courses: A high-quality course that was relatively difficult or a low-quality course that was relatively easy. Individuals who were induced to represent this goal abstractly (i.e., they were asked to think about the event taking place in the distant future) were more likely to choose the high-quality but difficult course compared to individuals who represented the goal concretely (those who were asked to think about the event taking place in the near future). Individuals who were induced to represent the goal concretely were more likely to choose the low-quality-but-easy alternative. Thus, there is evidence to suggest that abstract identifications are associated with reasons for performing the action whereas concrete identifications are associated with concerns about how to carry out the action. Further, action representation influences the decisions that people make such that abstractly represented actions can lead to decisions that are more consistent with one's high-order goals than concretely represented actions.

Connections with Action Identification Theory

These ideas from Liberman and Trope (Liberman & Trope, 1998; Trope & Liberman, 2000) are consistent with the ideas expressed in Action Identification Theory. Although Liberman and Trope (1998; see also Trope and Liberman, 2003) presented a new theory in Construal Level Theory, many of their ideas and predictions overlap with

Action Identification Theory. For example, in both theories actions are represented hierarchically. Further, abstract representations are associated with the core motives behind an action whereas concrete representations are associated with sub-goals and obstacles that need to be overcome to reach the goal. In Construal Level Theory, distant future events are associated with abstract representations whereas near future events are associated with concrete representations. In Action Identification Theory easy actions are associated with abstract representations whereas difficult actions are associated with concrete representations. It is quite possible when individuals construe distant future events they do not consider or estimate the difficulty of these events very well. As an event nears in time, the difficulty of the behavior would become more apparent as it might conflict with other events in individuals' schedules. The different ways individuals construe difficulty as an event nears can begin to reveal how the Temporal Construal Theory relates to Action Identification Theory. Thus, ideas from Construal Level Theory converge with predictions from Action Identification Theory to suggest that abstract action identifications include information about the intent of the action, whereas concrete action identifications include information about how to carry out the action. These identifications should influence the goal-related decisions individuals make as they are presented with options.

Different situations should elicit relatively abstract or concrete identifications as described above. According to Action Identification Theory, individuals should default to abstract identifications when there are no difficulties, and should only move down to concrete identifications to overcome obstacles. According to Construal Level Theory, individuals should construe actions abstractly when the actions are to take place in the

distant future, but they should construe actions concretely as the event approaches. In addition, both theories suggest that once an action is identified at a certain level, concerns associated with that level should become salient. Therefore, abstract action identifications should lead to concerns with the central goals of the behavior, whereas concrete action identifications should lead to concerns with the steps needed to successfully complete the behavior. There is some evidence that identifying actions at a specific level is associated with concerns at that level (Liberman & Trope, 1998).

Research about priming has shown that individuals' momentary thoughts and concerns influence their behavior. For example, Bargh and Chartrand (1999, 2000) have argued that individuals' conscious thoughts about a behavior or their perceptions of that behavior in the environment influence the likelihood of individuals enacting that behavior. Bargh, Chen, and Burrows (1996) provided evidence showing that priming influences behavior in an experiment where some individuals were exposed to words associated with rudeness, others to words associated with politeness, and still others to neutral words. The researchers found that in a later part of the study, participants primed with rudeness were more likely to interrupt an ongoing conversation relative to the neutral participants. Participants primed with politeness were less likely than neutral participants to interrupt the ongoing conversation. These results suggest that individuals' momentary thoughts and concerns influence their behavior. Thus, from the ideas and research in Action Identification Theory and Construal Level Theory, one could predict that the extent to which individuals construe a behavior abstractly should influence their decisions and behaviors. Action identifications should influence what activities individuals would choose to engage in. The studies described above offer some support

for this notion. For example, Trope and Liberman (2000) found that high-quality-but-difficult classes (high desirability, low desirability) appealed more to individuals who identified actions abstractly rather than concretely. In contrast, low-quality-but-easy classes appealed to individuals who identified actions concretely rather than abstractly. Presumably, participants in Trope and Liberman's study would have made similar decisions had they been looking through an actual list of courses and were choosing classes to take. Thus, although Trope and Liberman asked participants to make decisions based on hypothetical situations, the same process should occur outside the lab. Individuals' momentary concerns should influence the relative importance of desirability or feasibility information. Individuals should choose actions that highlight information consistent with these concerns.

The current studies will test whether factors that affect the tendency for individuals to identify actions abstractly also affect preferences for behaviors described concretely or abstractly. In addition, individuals who identify actions concretely should also prefer to engage in activities described concretely. To test this, individuals will be presented with pairs of activities in which they can engage. Each pair will pit an abstractly described activity with a concretely described activity. Individuals who represent actions abstractly should be more likely to choose the activity described abstractly because it matches their current concerns. For similar reasons, concretely described activities should be more appealing to individuals that represent actions concretely. Most studies have measured individual differences in action representation (see Vallacher & Wegner, 1987) and some have manipulated it directly (Vallacher, Wegner, & Somoza, 1989). However, the current project will try to move individuals in

action identification by manipulating emotions, which should naturally influence identifications outside the lab.

Emotions

Emotions inform individuals about the environment and spur them to action.

These functions have been a part of many emotion theories from classical theories such as Schachter and Singer's (1962) to current theories such as Mood as Information (Schwarz & Clore, 1996) and Broaden and Build (Fredrickson, 1998). If emotions influence both cognition and motivation—key components of Action Identification Theory—they should also influence action identification behavior. The role of emotions within the Action Identification Framework should be especially important given that researchers have argued that emotions evolved to facilitate behavioral responses, even before conscious thought affects behaviors (Frijda, 1986; Tooby & Cosmides, 1990). Therefore, emotions should be an efficient way for individuals to rapidly perceive and respond to situations, influencing both cognition and behavior. This idea was expressed by psychologists as far back as William James, who argued that emotions arise before deliberate reason and conscious awareness (James, 1890). Thus, within Vallacher and Wegner's model, emotions should influence the dynamic movement between levels of abstraction. Certain emotion theories lend themselves well to understanding what role emotions might play in this system. One of these theories is Mood-as-Information Theory (Schwarz & Clore, 1996).

According to Mood-as-Information Theory (Schwarz & Clore, 1996), emotions should inform individuals about current situations and they should help determine what actions are necessary. People often use emotions to make decisions, sometimes when it is appropriate to do so and other times when it is not (Oishi, Schimmack, & Colcombe,

2003; Schwarz & Strack, 1999). In addition to influencing cognition, emotions should also influence behaviors in specific ways. In Mood-as-Information Theory, negative emotions inform individuals that obstacles or threats in the environment exist and need to be attended to. Therefore, negative emotions should lead individuals to pay careful attention to their environment and to process incoming information systematically. Positive emotions, on the other hand, inform individuals that the environment is safe and that no changes need to be made to current tactics and behaviors. Therefore, individuals who experience positive emotions should be less motivated to expend large amounts of energy paying careful attention to the environment. Instead, positive emotions should lead individuals to conserve their energy, maintain their current emotions, and avoid negative information. Thus, negative emotions should lead individuals to expend energy and carefully process information to improve their situation whereas positive emotions should lead individuals to be relatively passive and to use automatic processes to process information.

A number of studies support these notions. For example, Martin, Ward, Achee, & Wyer (1996) tested how the information individuals get from their moods influence task persistence. The researchers first induced participants into positive or negative moods. Then participants were asked to complete a listing task; for example, participants in one study were asked to list all the birds they could think of. In one condition, participants were asked to complete the list until they felt they had listed all the possibilities. Participants in the other condition were instructed to perform the listing task until they stopped enjoying the task. Martin et al. (1996) predicted that these different instructions would lead participants to interpret their moods differently. Specifically, when asked to

perform the task until they felt they had listed all the options, positive moods should indicate to participants that they have finished, whereas negative moods should inform participants that they have not done an adequate job. However, when told to engage in the task until they have stopped enjoying it, participants should interpret positive moods as information that they are still enjoying the task whereas negative moods should inform participants that they have stopped enjoying the task. Martin et al. (1996) found that when participants were asked to list all the options, positive moods led to earlier disengagement than negative moods. However, when asked to complete the task until they stopped enjoying it, positive moods increased persistence relative to negative mood. Thus, Martin et al. (1996) provided support for the notion that individuals use their moods as information to decide on how long to persist on a task.

Additional evidence suggests that individuals use their moods when making judgments. Schwarz and Clore (1983) called participants and asked them to rate their life satisfaction on sunny days and on cloudy days. The researchers found that the weather, which presumably should be uncorrelated with life satisfaction judgments, did indeed influence ratings of life satisfaction. Thus, the researchers argued that participants' moods were influenced by the weather, and their life satisfaction ratings were affected because participants' moods were influencing life satisfaction judgments. Consistent with this explanation, when Schwarz and Clore (1983) brought participants' attention to the weather, the weather conditions no longer influenced life satisfaction ratings. Thus, Schwarz and Clore (1983) found that participants' moods can influence judgments about their life satisfaction, but only when participants were unaware of its influence.

As discussed above, a number of studies have provided support for the predictions from Mood-as-Information Theory. In addition, a study conducted by Bless, Bohner, Schwarz, and Strack (1990) begins to bridge ideas within Mood as Information Theory with those in Action Identification Theory. Bless et al. (1990) argued that positive moods cause individuals to process information using heuristics whereas negative moods cause individuals to process information systematically. Heuristics are general knowledge structures that provide individuals an overall schematic structure to make decisions (Bless & Schwarz, 1999). Positive emotions should signal that the environment is safe and careful attention is not necessary. Therefore, positive moods should cause individuals to use heuristics to make decisions. On the other hand, systematic processing occurs when individuals pay careful attention to their environment without relying on general knowledge structures to make decisions. Negative emotions should inform individuals that a threat exists and to monitor the environment carefully. Therefore, negative emotions should be associated with systematic information processing.

To test these ideas, Bless et al. (1990) presented happy and sad participants with strong and weak persuasive arguments. They predicted that when participants are presented with persuasive messages, positive moods would lead participants to rely more on heuristics than on argument strength. On the other hand, they predicted that negative moods would lead participants to process information systematically and therefore be swayed only when arguments were strong. Bless et al. found that participants in the negative mood condition were only persuaded when argument strength was strong, but positive mood participants were swayed by both strong and weak arguments. The results

of this study support the argument that positive mood leads to heuristic processing whereas negative mood leads to systematic processing.

Heuristic and systematic information processing are not identical to abstract versus concrete action representation, but the two ideas share important similarities. Both models of information processing specify similar effects of cognition on behavior. For example, systematic information processing occurs when individuals pay close attention to details and think carefully about the information presented to them. Concrete action identification is associated with thinking about the details of an action and the steps necessary to complete a goal. Thus, both of these theories would predict that processing information systematically or identifying actions concretely should lead individuals to pay careful attention to the details of their actions. Similarly, processing information heuristically or identifying actions abstractly makes salient the core, schematic features of the behavior. Thus, positive and negative emotions can serve as one mechanism that is responsible for movement within the hierarchy of action representation.

In addition to changing how individuals identify behaviors, positive emotions also influence cognitive processes in other ways. Some theories predict that positive emotions should be associated with a broader set of nodes in an individual's associative network of information (Isen, 1999). Relative to positive moods, negative moods occur infrequently, often when obstacles prevent individuals from attaining their goals. Therefore, much fewer knowledge structures and information should be associated with negative moods than with positive moods. Isen (1999) argued that positive moods benefit creativity because of the vast array of connections between diverse ideas that all are associated with positive moods. Thus, positive moods should facilitate making connections between

diverse concepts and lead to increased creativity (see also De Dreu, Baas, & Nijstad, 2008, for a review).

Some research has provided support for the association between positive mood and increased creativity (Isen, 1999; De Dreu et al., 2008) and better self-regulation (Aspinwall, 1998). Individuals who experience positive emotions are more likely to see similarities and make connections between diverse concepts (Isen, 1999). Across a wide range of studies, positive moods led to more creativity relative to neutral moods (De Dreu et al., 2008). The association between positive mood and creativity provides a framework that could explain how feeling happy can benefit individuals. For example, creativity could lead to efficient problem solving strategies or highlight how different goals are related to one another. Solving problems successfully and seeing how diverse goals are related to one another should allow individuals to more effectively pursue their goals.

The link between positive mood and creativity should have implications for how individuals pursue their goals and how successful they are at accomplishing their goals.

As mentioned above, creativity should help provide individuals with strategies to cope with problems and obstacles that arise in their environment (Fredrickson, 1998).

Fredrickson argued in her Broaden-and-Build model that positive emotions promote play and other activities that help individuals build skills they can use at a later time when confronted with obstacles. In addition, she argued that positive emotions lead to broadening of attention. That is, when perceiving objects in their environments, individuals should pay more attention to the bigger picture rather than the details.

Fredrickson (1998) argued that positive emotions lead to a broadening of attention because no threats exist in the environment where individuals need to narrow their focus.

Thus, Fredrickson argued that positive emotions lead to play, exploratory behaviors, and broadening of attention. Although broadening of attention is not the same as representing actions abstractly or processing information heuristically, it also shares important similarities with the other theories discussed above. A commonality between these theories is that positive moods should lead individuals to see the bigger picture and to glean meaning from their actions whereas negative moods should cause individuals to narrow their focus to the details.

A number of studies provide evidence for the link between positive mood and creativity. For example, in one study Isen, Daubman, and Nowicki (1987) induced participants into positive or neutral moods and presented participants with a problem-solving task that required creativity. Individuals in the positive condition were more likely than those in the other condition to successfully solve these problems. This suggests that positive emotions may lead to more creativity relative to neutral emotions, which could facilitate problem-solving.

In addition, a growing body of research provides support for various aspects Fredrickson's model. For example, Fredrickson and Branigan (2005) provided evidence for the broadening aspect of her model. In two studies, the researchers showed that induced positive mood led to a broadened focus of attention and an increased motivation to explore and interact with the environment. Thus, positive moods lead to creativity, a broadened focus of attention, and a desire to explore the environment. Fredrickson (1998) argued that these positive mood effects should have real world implications. Fredrickson and Joiner (2002) conducted a longitudinal study and found that initial levels of positive mood facilitated effective coping strategies for at least five weeks. Individual differences

in positive mood not only benefited individuals in the lab, but also helped individuals deal with problems outside the lab. Consistent with this, Tugade and Fredrickson (2004) conducted a set of studies and found evidence that induced positive mood promotes resilience, or recovering from stressful experiences, at a cardiovascular level. In addition, participants who experienced trait-level positive moods found more meaning from stressful experiences. Deriving meaning from one's actions is consistent with abstract action identifications but not concrete action identifications. Within Action Identification Theory, abstract identifications are associated with the meaning behind an action. This begins to link ideas and results from Broaden-and-Build Theory to Action Identification Theory.

Positive emotions' influence on coping and self-regulation is especially important because creativity might not play a crucial role in many goal pursuits. Instead, individuals in goal pursuit might often need to sacrifice short-term interests for long-term gains. For example, goals such as saving money, dieting, and getting an education require not so much creativity as a willingness to forgo short-term pleasures to accomplish high-level goals. Aspinwall (1998) conducted a review showing how positive emotions can lead to effective self-regulation. For example, Aspinwall and Brunhart (1996) tested how individual differences in optimism (a construct which shares important similarities with positive emotions) influence the kinds of information people attend to. Aspinwall and Brunhart (1996) presented optimists and pessimists with health threatening and nonthreatening information. Specifically, they presented optimists and pessimists with positive, negative, and neutral information about tanning. They found that when optimistic individuals were presented with negative health-threatening information that

was also self-relevant, they spent more time reading the threatening information, they had superior recall of the information, and they were better able to elaborate on the information relative to pessimists. Thus, optimism benefited the individuals because it led to increased attention to information that could have long-term benefits for the individual. However, the results from Aspinwall and Brunhart (1996) might not generalize from optimism to momentary positive mood.

The finding that optimism could lead to increased attention to threatening information seems to also apply to positive moods. Reed and Aspinwall (1998) tested whether individuals experiencing positive moods can carefully process threatening information instead of avoiding it. The researchers presented happy and neutral participants with information about the health risks of consuming caffeine. Half the participants indicated that they consume caffeine regularly, whereas the other half did not consume caffeine. Happy caffeine consumers (but not happy participants who did not consume caffeine) paid more attention to the negative information, were more critical of the information, and had better memory for the threatening information than neutral mood participants. Thus, under certain conditions such as high personal relevance, positive moods seem to increase attention to potentially threatening information, which can help individuals achieve high-order goals such as being healthy.

Consistent with Reed and Aspinwall (1998), Trope and Neter (1994) argued that positive emotions should lead individuals to focus on the long-term consequences of their actions whereas negative emotions should lead individuals to focus on short-term consequences. They argued that individuals experiencing positive emotions should be willing to sacrifice those emotions if they perceived that their actions would benefit them

in the future. On the other hand, individuals experiencing negative emotions should be motivated to build their emotional resources to be able to cope with problems in the future. One way they can build these emotional resources is to engage in behaviors that make them feel happy immediately, even at the sacrifice of future benefits.

Trope and Neter (1994) provided evidence for these predictions in a series of studies. The researchers gave happy and sad participants a social sensitivity test and told them that they did poorly on one part of the test. The authors found that participants who were initially induced into a positive mood, relative to negative 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 motivated to find out about their deficits in order to improve in the future. Negative mood participants were more likely to be interested in the area of the test on which they performed well. Hearing about this positive information should help their mood, but it would not provide them with important information about how to improve their performance. Thus, this finding is consistent with the idea that positive emotions make abstract, long-term aspects of individuals' goals salient. In turn, this allows individuals to sacrifice immediate desires to move toward those long-term goals.

The current study will test how positive moods will influence action identification. Similar to Trope and Neter's (1994) finding that positive moods lead to decision-making that is more consistent with long-term goals than short-term interests, the prediction in the current study is that positive emotions will cause individuals to represent actions abstractly. Thus, neutral and positive mood participants will be presented with a task that will require them to identify behaviors abstractly or concretely.

Relative to neutral mood, positive moods should cause individuals to identify actions abstractly rather than concretely. This could be another way that positive moods benefit the individual and would be consistent with research from the goals literature as well as the emotions literature.

Studies that examine the effects of positive moods (and related constructs) appear to converge on the notion that positive mood can benefit the individual and it can do so partly because positive mood leads individuals to make decisions that are consistent with their long-term goals. Thus, many of the findings from various perspectives can also be explained using Action identification Theory. Abstract identifications should be associated with categories that are larger and more inclusive relative to concrete identifications. Almost by definition, abstract ideas should include more diverse objects and ideas than the concrete ideas that are located within the abstract categories. Because of the broad, inclusive nature of the categories, abstract identifications should highlight similarities between objects rather than their differences, and making salient these similarities should foster creativity. For example, focusing concretely on the specific parts of a camel and a car, individuals may have a hard time seeing how these two objects would be categorized into the same group. However, an abstract label of vehicle might connect the two items. In this way, abstract identifications should facilitate creativity in linking diverse ideas. Therefore, an alternative mechanism by which positive emotions can lead to creativity would be through its association with abstract action identification. If positive emotions activate abstract action identifications, it should also lead to more linkages between diverse ideas and lead to more creativity as Fredrickson (1998, 2001)

and Isen (1999) argued. In sum, Action Identification Theory provides another mechanism through which findings within the emotions literature can be explained.

In addition to providing an alternative explanation for the link between positive moods and creativity, Action Identification Theory can also explain how positive moods lead to better self-regulation. The ability to incorporate the results from various perspectives is important given that many of the effects from positive mood are not through creativity. Therefore, Action Identification Theory could potentially provide a broad framework to understand the benefits of positive moods. For example, although play, exploratory behaviors, and friendships should lead to positive outcomes in some domains, it is more difficult to see how creativity would be beneficial in other situations. Many goal pursuits require not only creativity and exploratory behaviors, but also effective decision-making abilities and self-regulation strategies.

Often during goal pursuit individuals need to forego short-term pleasures for long-term gain. As discussed above, Reed and Aspinwall (1998) and Trope and Neter (1994) showed that positive moods could lead individuals to attend to unpleasant, threatening information if they believed there were long-term benefits. This could explain how positive emotions are positively related to health outcomes (Pressman & Cohen, 2005). Although it would be hard to account for these results using the positive moods-creativity link, one could account for these results using Action Identification Theory. Positive emotions' link to abstract action representation should make salient individuals' high-level goals. Being salient of one's high-level, abstract goals and making decisions that are consistent with these goals should result in behavior consistent with findings in self-regulation studies. For example, individuals who have the goal to maintain good

health would be wise to focus on information that would help them towards that goal. Having that abstract goal in mind, happy individuals should be more willing than unhappy individuals to attend to information about how they can improve their health even when the information might be threatening. That is, abstract action representation should lead individuals to make decisions consistent with their high-level goals even when they conflict with immediate concerns.

The Role of Specific Emotions

Emotions should play an important role within Action Identification Theory because they quickly inform individuals about the effectiveness of their behaviors. If their behaviors are effective, individuals should experience positive emotions, whereas they should experience negative emotions when their behaviors are ineffective. Positive emotions should lead individuals to represent actions abstractly and make salient the meaning behind behaviors. Negative emotions should lead to concrete action identifications and should focus individuals' attention to specific actions they can enact to improve their actions.

Considering that moods provide individuals with information, then specific emotions should provide individuals with specific information. That is, specific emotions such as anger versus sadness should provide individuals with different information and motivate different behaviors. There is some evidence that suggest specific emotions lead to specific behavioral tendencies. For example, Raghunathan and Pham (1999) tested whether anxiety and sadness lead individuals to perceive risks differently in a gambling task. According to Raghunathan and Pham (1999), anxiety is associated with goals of reducing risk. Thus, anxious individuals should be less likely to make risky decisions in a gambling task. In contrast, sadness should be associated with goals of becoming happier. Therefore, sadness should instead motivate individuals take risks as long as they believe it could increase their happiness. Raghunathan and Pham found support for these ideas. They found that anxious participants were less risky in a gambling task whereas sad participants were more risky. Thus, not all negative emotions provide the same

information or spur the same behavior patterns. This is consistent with other emotions researchers who argued that specific negative emotions have distinct effects (see Fredrickson, 1998; Harmon-Jones, 2003; Lerner & Keltner, 2000). Still, little research has tested how these ideas extend to positive emotions. It is possible that different positive emotions could influence action identification differently.

Contentment and Excitement

Recent evidence from the emotions literature suggests that there could be specific effects for distinct emotions. This should be especially plausible from a Mood-as-Information framework. Within this perspective, emotions should serve to quickly inform individuals about their environment. Distinct negative and positive emotions should provide different information (Lerner & Keltner, 2000). Therefore, each type of emotion should influence cognition and behavior differently. Thus, distinct positive emotions may influence action representation in specific ways that could be predicted from the Action Identification Framework. Two positive emotions that might motivate different patterns of thought and behavior are contentment and excitement.

Contentment and excitement occur at different times during goal pursuit. Contentment usually occurs after individuals accomplish a goal. Individuals at this stage of goal pursuit should physiologically feel contentment, which is defined as a state of relaxation and pleasantness. Therefore, contentment should signal that the environment is safe and no immediate threats exist in the environment. After goal completion, individuals should feel motivated to focus on other unrelated goals (Carver, 2003). Carver argued that positive emotions such as contentment should benefit the individual by spurring them to work on other goals instead of unnecessarily pouring resources into

the current goal. Therefore, the effects of contentment should be consistent with predictions from Action Identification Theory as well as other theories (Carver, 2003). Specifically, contentment should motivate individuals to think broadly and abstractly, it should inform them that they have the time and resources to consider various abstract goals, and it should indicate how concrete actions relate to high-level goals. Thus, contentment should move individuals towards abstract action representation.

Although the effects for contentment should be consistent with predictions of the Action Identification Framework, the effects for excitement may be different. Unlike contentment, excitement usually occurs as individuals approach their goals (Carver & Scheier, 1990). Therefore, excitement should provide different information to the individual than contentment. Excitement should serve as a signal that a goal is almost achieved. Instead of broadening attention or leading to abstract thinking, excitement should focus attention more precisely on the steps needed to accomplish that goal. This is distinct from the pattern of response that would be predicted from contentment. Excitement should motivate individuals to engage in behaviors that will ensure success and should therefore lead to concrete action representations.

Thus, general positive moods, relative to neutral moods, should move individuals up on the action identification hierarchy. In addition, specific positive emotions could influence movement within this hierarchy in distinct ways. Two emotions that should lead to specific effects are excitement and contentment. Excitement should lead individuals to act instead of deliberate and therefore should lead to a focus on the details of behavior and concrete identifications. On the other hand, contentment should inform individuals that no imminent threats exist in the environment and should therefore spur

reflection rather than action. Thus, contentment should lead to abstract action identifications.

One aim of this study was to test how excitement and contentment influence action representation. Participants were induced to experience excitement or contentment in a writing task. After the induction participants were presented with behaviors and asked to indicate how likely they would describe each behavior abstractly and concretely. Excited participants should be more likely than contented participants to identify actions concretely whereas contented participants should be more likely than excited participants to identify actions abstractly.

Summary

To summarize the justification for the present line of studies, action identification should influence how individuals perceive information, make decisions, and act.

Emotions should be one mechanism that quickly moves action representation up or down the action identification hierarchy. Mood-as-Information Theory posits that different emotions provide information that individuals use to make judgments and decisions. Positive emotions should be one source of information that tells individuals that they are up to the challenge of current tasks. Individuals should experience negative emotions when they need to focus on specific behaviors to meet success. Therefore, negative emotions should lead to concrete identifications and should be more useful under challenging circumstances than when tasks are easy.

In sum, Action Identification Theory suggests that people arrange cognitive representations of their behaviors in hierarchical structure ranging from very concrete details about how the behavior could be done to very broad and abstract information about the underlying motives for those behaviors. When tasks are easy, people focus on these motivating factors; when tasks are difficult, people move down in the hierarchy to focus on the specific actions that must be undertaken to complete the behavior. One mechanism that can spur movement within this action representation framework is through emotions. General positive moods should spur movement upwards to more abstract action representations, and negative moods should lead to concrete action representations. I propose that through the processes described in Broaden-and-Build theory and Mood-as-Information Theory, positive mood can move people up the

hierarchy to think about abstract, long-term goals and concerns. In turn, this focus on long term goals might promote successful outcomes.

Aims

There were four major aims of the current project. The first goal of the current studies was to test whether positive emotions are in fact related to action representation. Participants were induced into a positive or neutral mood, and then they completed a measure of abstract versus concrete action representation developed by Vallacher and Wegner (1987). If mood influences action identification as predicted, then participants in the positive mood condition should be more likely than participants in the neutral mood condition to identify actions abstractly on Vallacher and Wegner's Behavioral Identification task.

Second, distinct positive emotions should lead to different patterns of action identification. Specifically, because contentment should inform individuals that the environment is safe and no action needs to be taken at that moment, this emotion should lead to abstract action representation. In contrast, excitement occurs when individuals are nearing the successful completion of a goal when paying attention to specific behaviors is important and therefore it should lead to concrete action representation. Thus, the second goal of the current studies was to test how specific positive emotions influenced action identification. Participants were induced to experience contentment, excitement, or a neutral emotion and then completed a version of the Behavioral Identification task.

Third, individuals who represent actions abstractly should prefer to engage in goals described abstractly, whereas individuals who represent actions concretely should prefer to engage in goals that are described concretely. Individuals' action representation should lead to these preferences because the descriptions of various actions should fit

with individuals' current concerns to varying degrees. Thus, the third goal of the present studies was to test whether individuals who experienced positive emotions versus neutral emotions were more likely to choose to engage in activities described at abstract rather than concrete levels. Participants in the different mood conditions were presented with pairs of actions described either concretely or abstractly and were asked to rate how likely they were to engage in each action.

Finally, the last aim of the current studies was to test how the different measures of abstract versus concrete action identifications correlated with each other. Thus, this study will test whether new and different measures of abstract action identifications can be developed.

Study 1

The goal of Study 1 was to test how positive mood, relative to neutral mood, influences action identification. One of the basic tenets of Action Identification Theory is that action identification changes depending on certain features of the situation. One of these factors could be mood. Moods should quickly provide individuals with information about the difficulty of the current situation. Positive mood should be associated with easy tasks whereas negative mood should indicate that the task is difficult. Therefore, positive mood should move individuals up to relatively abstract action identifications rather than concrete identifications. The first study tested how positive emotions impact action identification. Participants were exposed either to a positive or a neutral mood induction, and then they completed the Behavioral Identification Form. This measure was developed by Vallacher and Wegner (1989) to assess individuals' preferences for abstract versus concrete action identifications. Individuals in the positive condition should prefer abstract identifications relative to individuals in the neutral condition.

Methods

Participants

One hundred three participants were recruited; however, due to a computer programming error, the data for the dependent variable was not recorded for 27 participants in the positive mood condition. Therefore, those participants were not included in any analyses. Thus, 76 participants (54 female) from the MSU Psychology Subject Pool were included in the analysis for Study 1. All participants received course credit in return for their participation.

Measures

Mood induction task. The mood induction consisted of asking participants to write about either a positive or neutral event in their lives. In the neutral condition, participants were asked to think about a typical day in their week. In the positive condition, participants were asked to think about the best thing that has happened to them in the past year. In both conditions, participants were asked to take a few minutes to reflect on the event, visualize what happened, and recall their feelings at the time. Then participants were given six minutes to write about this event. The positive condition writing task has been previously used successfully in my lab to induce positive mood (see also Bless et al, 1990). However, the neutral condition induction is new.

Modified behavioral identification task. Abstract action identification was assessed using a modified version of the Behavioral Identification Form (BIF; Vallacher & Wegner, 1989). The original task presented participants with a target action, such as “locking the door.” Participants were instructed to choose which of two re-identifications (one abstract and one concrete) better described the original action. For example, participants were asked whether locking the door was better described as “securing the house” (abstractly) or “turning the key” (concretely). In this study, the questionnaire was modified so that participants were asked to rate how likely they would use each action identification on a 1(not at all likely) to 7(extremely likely) scale in describing the original action.

The BIF was modified in this experiment to test whether abstract and concrete identifications are unidimensional or multidimensional constructs. It is possible that instead of affecting abstraction level, mood affects motivation level. If so, individuals

who are motivated might be more likely to consider both abstract and concrete aspects of goals compared to unmotivated individuals. The original BIF task was a forced choice task such that individuals had to choose which of the two identifications individuals preferred. It is possible that some individuals have both aspects of the actions salient and might not have a strong preference for one over the other. The modification allowed individuals to indicate how likely they would identify the action as either abstract or concrete. The re-identifications were counterbalanced across items so that participants did not always see abstract identifications before concrete identifications, or vice versa. Also, the order of the items was randomized between participants.

Procedure

Participants came into the lab in groups of up to five individuals. After consent procedures, participants were seated at individual computers separated by partitions and were randomly assigned to either the positive or the neutral condition. They were told to carefully read the instructions on the screen and to progress through the experiment on the computer.

Participants first completed the mood induction. After the induction, participants completed the modified BIF. Once all participants completed both tasks, they were debriefed verbally and in writing and were dismissed.

Results

Participants in this study completed the modified BIF by rating how likely they would be to re-identify 19 behaviors in abstract terms and in concrete terms. Responses to the 19 abstract identifications ($M = 4.18$, $SD = .91$, $\alpha = .83$) and the 19 concrete identifications ($M = 4.13$, $SD = .85$, $\alpha = .85$) were averaged. Table 1 shows the means and

standard deviations across the conditions. The two scales correlated $r = .29, p < .05$, with each other. Contrary to expectations, individuals who indicated that the abstract re-identification was a good descriptor of the original action also indicated that the concrete re-identification was a good description of the original behavior.

To test whether mood condition influenced action identification, I performed a mixed model analysis where I entered the abstract and concrete ratings as a within-persons factor and the mood condition as a between-persons factor. The overall effect of abstract versus concrete ratings was not statistically significant, $F(1,74) = .04, ns$. Thus, individuals were not any more likely to rate abstract identifications as being more representative of the original behavior compared to the concrete identification. More importantly for the hypotheses, the interaction between abstract and concrete ratings by condition was not statistically significant, $F(1,74) = 2.45, ns$. Thus, positive-mood participants did not prefer abstract (or concrete) identifications differently than neutral participants. However, the effect size for the difference between positive and neutral on abstract identifications was $d = .36$. The effect size for the difference between positive and neutral on concrete identifications was $d = .06$. Thus, there seems to be a small to moderate effect for abstract identifications and no effect for concrete identifications. A power analysis suggests that 80% power for an effect size of .36 requires a sample size of about 184 participants. Thus, the sample in Study 1 was in all likelihood too small to detect the effect.

Study 1 Discussion

The results of Study 1 did not provide support for the prediction that positive emotions influence action representation. The effect size estimate suggested that

participants in the positive mood condition were more likely to identify actions as abstract relative to neutral participants; however, the difference was not statistically significant. This means that although there may be an effect of positive mood on abstract action identification, Study 1 was underpowered and therefore it was difficult to detect the effect. It is also possible that a stronger mood induction than the writing task would be more effective in affecting abstract identifications.

Given that the results of Study 1 did not provide support for the prediction that positive emotions lead to abstract action identifications, it is possible that positive emotions indeed do not move individuals up in the hierarchy of action identification. This could be due to a number of reasons. For example, according to Action Identification Theory, the default motion within the hierarchy is movement upwards. That is, lack of difficulty (and corresponding negative emotions) should lead individuals to identify actions at relatively abstract levels. Given that there already is natural movement upwards within the hierarchy, it is possible that participants resist identifying actions any more abstract than they usually identify them. Thus, positive moods' influence on abstract action identification may be weak relative to the link between negative mood and concrete action identification.

It may also be the case that only certain types of mood inductions lead to movement within the action identification hierarchy. For example, some evidence suggests that when individuals are aware of the cause of their mood, then moods no longer affect later judgments (Schwarz & Clore, 1983). Thus, if the mood induction in this study was too obvious to participants, it may not have affected action identification.

Another issue with the mood induction that could have affected the results is the nature of the writing task. The task required participants to engage in an activity that is cognitively taxing. This type of task, due to its relative difficulty, could have influenced abstract action identification. Thus, a mood induction that is less cognitively taxing could be more effective at testing the association between positive mood and action identification. Future studies could employ mood induction techniques that do not require information processing to test whether freeing up cognitive resources would better allow individuals to represent actions abstractly.

In addition, it is possible that the mood induction did not work as intended. Although the positive mood induction has successfully been used in previous research, the neutral mood induction has not been used before in the lab. It is possible that the neutral mood induction was also a pleasant task and therefore participants in the neutral condition did not truly experience neutral emotions. This problem could have been assessed using manipulation checks. However, I decided to not include a manipulation check for two reasons. First, I believed it was important to minimize the time between the induction and the dependent measures. It seemed to be a low risk given that the positive mood manipulation had been used successfully in previous studies that included a manipulation check. Also, I did not want to call attention to the mood induction, as this might tip participants off to the nature of the study. If participants were aware of the purpose of the mood induction task, it could have influenced later judgments (Schwarz & Clore, 1983). Thus, if the neutral writing task did not effectively put participants into a neutral mood, neutral participants' ratings could have been similar to positive participants' ratings.

Finally, another measurement problem could have been the modified BIF as a measure of action representation. I chose to use this task because it has been used in previous studies with some success. However, Vallacher and Wegner (1987) have mainly used this task to assess trait-level preferences in action identification. It may be less sensitive to fluctuations in momentary action representation. Other measures of action representation and related constructs might provide a better assessment of positive mood effects.

Study 2

Study 1 tested whether individuals who experience positive emotions identify actions abstractly rather than concretely. However, an additional question that has been untested is whether individuals who experience positive emotions would also choose to engage in activities described in abstract rather than concrete terms. Individuals who represent actions abstractly should be concerned with the core goals of the behavior whereas individuals representing actions concretely should be concerned with the details in carrying out the behavior. Therefore, action descriptors that highlight the core goals should be attractive to individuals who construe actions abstractly, whereas those that highlight details should be attractive to individuals who construe actions concretely. Study 2 tested whether positive moods lead to preferences for actions described abstractly. Participants were presented with abstractly described actions and concretely described actions and asked which activity they would rather pursue, if given the opportunity.

To test this, a new measure was developed from activity descriptions that participants generated in a previous experiment. The actions that the previous participants had mentioned were coded into one of three categories: Agentic (work- or school-related), Interpersonal (romantic and interpersonal relationships), and Health Maintenance (chores, exercise, hobbies). Participants were presented with pairs of activities, each pair containing one abstract item and one concrete item. Each pair contained an abstract item from one domain coupled with a concrete item from another

domain and activities were counterbalanced across items. This questionnaire is attached in Appendix B.

Methods

Participants

One hundred thirteen undergraduate students (86 female) were recruited to participate in this study. All participants completed the activity choice task. In addition to the activity choice task, participants were presented with one of two additional follow-up construct validation checks. At first, the validation check presented participants with each re-identification that they saw in the original activity choice task. For each alternative, participants were asked to rate how abstract, important, and imperative they perceived it to be. Participants indicated that this was a tedious task, and some participants took longer than the session to complete these ratings. Therefore, I left the activity choice task (the main dependent measure) intact but presented participants with the same pairs and asked them to choose which one of each pair was more abstract, important, and imperative. This cut down the time it took participants to complete the study and made the study less tedious. However, only 68 of the participants (47 female) completed the later ratings of how abstract, important, and imperative the activity pairs were. The details about the construct validation check are described below. All 113 participants completed the same mood induction procedure and the Goal Selection Task dependent measure. Participants received class credit for their participation.

Measures

Mood induction task. Participants were randomly assigned to one of two mood conditions: neutral or positive. Participants in each condition completed the same writing

task that was employed in Study 1 to manipulate either positive or neutral mood.

Participants in the positive condition wrote about the best thing that has happened to them during the past year, and participants in the neutral condition wrote about their typical weekday.

Goal selection task. The Goal Selection Task was designed to assess whether participants' moods would lead them to prefer to engage in activities described at the matching abstraction level. The task presented participants with one concretely described action pitted against an abstractly described action and asked them which of two goals they would rather pursue if given the opportunity. This task was described to participants as a pilot task that was designed to assess the types of goals that students are interested in achieving.

To create abstract and concrete versions of the same activity, I used a list of activities that participants generated in a previous study. Once two activities that in the same domain were chosen, the phrases were coded as being abstract or concrete by analyzing the structure of each phrase. Specifically, phrases that fit the [activity] by [phrase] structure were labeled concrete whereas phrases that fit the [phrase] by [activity] structure were labeled abstract. For example “expressing gratitude” and “writing a thank you card” were both descriptions within the Interpersonal domain. One expresses gratitude by writing a thank you card. Therefore writing a thank you card was labeled as a concrete activity. Expressing gratitude was the ultimate goal that described why individuals were performing the behavior and was labeled abstract.

The activities were selected from a list of activities that participants in a previous study generated, which were categorized into the Agentic, Interpersonal, and Health

Maintenance domains. Agentic domains included activities having to do with school or work. Activities that included relationships with friends and family were included in the Interpersonal Domain. Activities such as exercise, hobbies, and sports were included in the Health Maintenance Domain. This measure is attached in Appendices A and B.

The abstraction levels of the descriptions were systematically varied such that an abstract identification from one domain was always paired with a concrete identification from another domain. For example, one item would pit an abstract Agentic goal versus a concrete Interpersonal goal, and another item would pit a concrete Agentic goal against an abstract Interpersonal goal. One example item asked participants to choose between the abstract Agentic activity of “Finding a job” and the concrete Interpersonal activity of “Sending thank you cards to friends.” Another item asked participants to choose between the abstract Interpersonal activity of “planning out the future of a relationship” and the concrete Health Maintenance activity of “going to the gym.” I did not pit abstract and concrete identifications of the same behavior against each other because this could be an unusual task for participants to complete, given that both alternatives would be directed towards the same end. Therefore, every abstractly described action was pitted against a concretely described action from one of the other two domains.

Goal selection construct validity check. As described above, the construct validity check questions were modified to make them shorter and less repetitive. Instead of asking participants to rate how important, abstract, and imperative each goal was, the shortened task presented them with the same goal pairs that they had just seen in the goal selection task. For each pair, instead of choosing which goal they would rather pursue, participants were asked to choose which goal was more important, which was more abstract, and

which they would pursue first. I thought these questions not only made the task less tedious, but it also made more sense to the participant. However, as described above, only 68 of the participants completed the later ratings of how abstract, important, and imperative the activity pairs were.

This construct validation check was used to check whether other variables might be related to the abstraction level of the activities and whether these constructs could account for the differences in the goals that participants chose. Also, these additional questions were used as checks to see if the goals actually varied systematically in abstraction. In addition to assessing which activity participants would engage in if given the opportunity, participants also rated which activity in each pair was more important, which they would engage in *first* (how *imperative* the action is), and which they thought was more abstract.

Procedure

Participants came to the lab in groups of up to five people. After consent procedures, participants were randomly assigned to complete the experiment at individual computers. Similar to Study 1, Participants first completed a writing task. Participants were asked to write about either a neutral event (typical day) or a positive event (the best thing that has happened to them in the past year). This writing task is the same one used in Study 1. There was no manipulation check on the mood induction because Study 2 was designed and conducted simultaneously with Study 1. Then participants completed the Goal Selection Task, followed by the construct validation checks.

Results

The first task asked participants to choose between an abstract activity from one domain and a concrete activity from another domain. The abstraction level and domains were counterbalanced such that every participant saw each action described concretely and abstractly paired with an activity from each of the other domains. To create scale scores, I scored every abstract selection as a 1 and every concrete selection as a 0. The reliabilities for the Interpersonal ($\alpha = .65$) and the Agentic ($\alpha = .70$) domains were acceptable. However, the reliability for the Health Maintenance domain was low at $\alpha = .40$. Because individuals' choices could vary between domains, I kept the domains separate to see if participants were more likely to choose abstract descriptions from one domain over abstract descriptions from other domains. So, the total number of abstract choices within each domain was calculated.

The means and standard deviations across conditions are presented in Table 2. A repeated measures ANOVA revealed that the choices individuals made across the three domains were significantly different from each other, $F(2, 222) = 12.32, p < .05, \eta^2 = .10$. This suggested that individuals preferred abstract actions from certain domains over others. Examination of the means suggested individuals most often chose abstract Interpersonal activities ($M = 9.07, SD = 2.51$) over abstract Health Maintenance ($M = 8.73, SD = 2.20$) and abstract Agentic activities ($M = 7.35, SD = 3.06$). However, there was no overall effect of condition on the choices individuals, $F(1, 111) = .45, ns, \eta^2 = .00$. That is, contrary to my predictions, individuals in the two mood conditions did not differ significantly on how often they chose the abstract alternative. Positive mood did not significantly influence whether individuals preferred an abstractly described activity over a concretely described one. In addition, the interaction revealed that the activity choices

did not differ by condition, $F(2,222) = .17, ns, \eta^2 = .00$. Therefore, the results do not support the notion that positive moods lead individuals to choose to engage in abstractly described activities relative to individuals in neutral moods. I also combined the abstract choices across the three domains and performed an ANOVA to test whether mood conditioned influenced whether individuals chose abstractly described activities. The ANOVA revealed that individuals in the positive mood condition did not differ significantly from individuals in the neutral condition in how many abstract choices they made, $F(1,111) = .78, ns, \eta^2 = .00$.

Next, I performed construct validation checks where I tested whether individuals were more likely to perceive the abstract alternative as more abstract than its concretely described pair. For every pair, participants received a score of 1 if they chose the abstract alternative as being more abstract and received a score of 0 if they chose the concrete alternative. Therefore, participants' scores ranged from 0 (no abstract alternatives chosen) to 14 (all abstract alternatives chosen) within each domain. The means and standard deviations are presented in Table 3. I averaged participants' choices across the three domains. If participants' choices were not influenced by the abstractness of the description, then they should have randomly picked half the items as abstract. Therefore, one would expect participants to choose on average seven out of the 14 abstract items as abstract based on chance. A one-sample t-test was performed to see if participants' scores differed significantly from seven. Participants were more likely to indicate that the abstract alternative was more abstract than its concrete counterpart, $t(67) = 6.97, p < .05$. Thus, participants tended to rate the abstract alternative as more abstract than the concrete alternative. The participants seemed to perceive the items as intended.

Next, I examined whether abstract items were also rated as more important. Ideally, the abstract items differed from the concrete items only on level of abstractness, and not also on importance. However, it is possible that importance and abstractness naturally covary such that abstract items would also been seen as more important. This might be the case given that abstract action identities reveal the goals and motives behind the behavior whereas the concrete action identities reveal the mechanics behind the behavior. Individuals may naturally perceive motives and goals as more important to a behavior than the concrete details associated with it. Again, I tested this by averaging the number of abstract items that were also picked as more important than the concrete item. I then examined whether the number of abstract items rated as more important was different from seven, which is what would be expected by chance. The means and standard deviations are presented in Table 3. A one-sampled t-test with an expected value of seven revealed that participants were more likely to rate the abstract alternative as more important across all three domains, $t(67) = 8.23, p < .05$. Thus, making descriptions more abstract also seemed to change the perceived importance of the items. Again, it may be that these characteristics naturally covary and therefore may be difficult to isolate one construct from the other when creating these items. Thus, it seems the manipulation changed both abstraction level as well as the perceived importance of the behavior.

Finally, I examined whether participants indicated that if given the opportunity they would pursue the abstractly described behavior before the concretely described behavior. That is, I examined how level of abstraction was related to the timing of the action. It is possible that the abstraction level of any given behavior is related to when individuals want to pursue it. For example, individuals may prefer to first engage in

behaviors that clearly match their intentions, which abstract descriptions would reveal. If the level of abstraction and the timing of an activity are confounded, then participants' choices could have been due to the timing of the activity rather than the level of abstraction. Participants rated which activity they would pursue first in each pair. If timing and abstraction level are independent, participants should not have been any more likely to choose the abstract alternative than the concrete alternative to pursue first. Table 3 reveals the means and standard deviations. A one sample t-test revealed that participants were more likely to choose the abstract item rather than the concrete item to pursue first, $t(67) = 13.33, p < .05$. Thus, participants rated that if given the opportunity they would pursue the abstract action before pursuing the concrete action. In sum, it seemed like manipulating abstraction level of behavior descriptions also manipulated the perceived importance and imperativeness.

Study 2 Discussion

The results of Study 2 did not provide support for the hypothesis that positive moods are associated with a preference for abstract action identification. This means that representing actions abstractly might not lead individuals to choose activities described at that abstraction level. Individuals who identify actions abstractly may be more concerned with the motives and goals behind any activity they choose, but it does not seem to influence the specific activity that is chosen. This is true even when an abstract description is pitted against a concrete description. Thus, even if the predictions from Action Identification Theory were correct that positive moods lead to abstract identification, the prediction that abstract identifications would lead to specific preferences for abstractly described activities may be incorrect. Still, even if the

predictions were correct there may be a number of methodological explanations as to why the results from Study 2 did not support the predictions.

There are four main possibilities why individuals might not choose abstractly described behaviors when representing actions abstractly. The first two possibilities concern the mood induction. One possibility is that the source of the positive mood influences whether individuals move up in abstraction level. Specifically, Action Identification Theory predicts that positive emotions inform individuals about the easiness of the task and should lead to abstract identifications. This might be true only where the source of the emotion is from the performance on the specific task. That is, emotions coming from other sources might not provide individuals with similar information and therefore would not influence action representation. In the current studies, the mood induction participants completed and the task measuring action representation were independent. For this reason, positive emotions may not have led participants to represent actions abstractly. A better test of these ideas from Action Identification Theory might use a design where participants' moods come directly from the task they are asked to represent.

Related to the above explanation, another possibility is that movement within the Action Identification Framework is more likely to occur when individuals are unaware of its influence, especially when the cause is independent of the task. According to Mood-as-Information theory, many effects of mood on later judgments occur only if individuals aren't aware of the influence of their moods. Once participants correctly attribute their mood to its cause, it no longer influences judgments (Schwarz & Clore, 1983). Thus, participants in Study 2 may have been aware that the first task was a mood induction and

that may have undermined any potential effect mood may have had on action identification.

In addition to specific issues related to the mood inductions, other measurement issues could also be responsible for the null results. For example, although it seems the abstract versus concrete items were perceived appropriately, other variables were also manipulated along with abstraction level. It is possible that other factors such as importance or temporal perspective, which were associated with abstraction level, counteracted any effects abstraction level may have had. It is possible that participants in both conditions preferred the goal that was more important regardless of how abstractly it was described. In support of this explanation, individuals in the different emotion conditions did not differ in these perceptions. Thus, the null results could be due to the differences in importance level (or some other variable) associated with abstract identifications.

Also, it seems as though there were differences between the domains themselves. In all of the comparisons, there were mean level differences between the Agentic, Interpersonal, and Health Maintenance domains. It is possible that characteristics specifically associated with actions in a particular domain may have overridden mean-level differences across domains. For example, follow-up tests revealed that participants rated Agentic items as particularly important ($M = .74$, $SD = .22$) compared to Interpersonal items ($M = .62$, $SD = .23$, $d = .53$) and Health Maintenance items ($M = .63$, $SD = .18$, $d = .55$), $F = 6.208$, $p < .05$. Therefore, these specific differences could have been a stronger influence on individuals' choices compared to abstraction level. Future studies need to better match the behaviors on characteristics such as importance.

Study 3

Studies 1 and 2 examined whether positive mood caused individuals to represent actions abstractly or to choose to engage in abstractly described activities rather than concretely described activities. However, different positive emotions may have specific effects. Two emotions that could have different effects on action representation and goal-related behavior are excitement and contentment. If emotions inform individuals about the state of situations they are in, these different positive emotions should transmit different information and motivate different behaviors.

Excitement and contentment should occur at different times during goal pursuit. Specifically, excitement should be experienced as individuals approach their goals and perceive that goal success is imminent. On the other hand, contentment should be experienced after successful goal completion. Therefore, these two emotions should motivate different cognitions and behaviors. Excitement should motivate individuals to focus on their current actions to make sure that they successfully complete the task, whereas contentment should motivate individuals to think more broadly about other goals and how various goals fit together. Thus, contentment may fit better than excitement with traditional notions of how positive emotions should influence identification level within the Action Identification framework. Also findings from previous studies may be consistent with this pattern because researchers rarely induce excitement as a positive mood induction. To investigate these possibilities, Study 3 employed a design similar to Studies 1 and 2, but with separate contentment and excitement inductions.

Methods

Participants

Two hundred ten participants were recruited from the MSU Psychology Subject Pool. Of the 209 participants that responded to the demographic questions, 168 were female. Participants received course credit for participating in the study. Instead of receiving course credit, two participants were recruited during the summer through flyers and were paid for participating in the experiment.

Procedure

Participants came to the lab in groups of up to five people. After consent procedures, participants were randomly assigned to excitement, contentment, or neutral conditions. Participants progressed through the study at individual computer stations. There were 73 individuals in the excitement condition, 67 individuals in the contentment condition, and 70 individuals in the neutral condition. Participants first completed a writing task that served as the contentment, excitement, or neutral mood induction. Participants were asked to write about a satisfying event in the contentment condition (an event at school that led to satisfaction and contentment over the past year), an exciting event (the most exciting event that happened to them at school over the past year) or a neutral event (typical weekday).

After the mood induction, participants completed the Specific Emotions Scale (Oishi, Schimmack, & Colcombe, 2003), a manipulation check that requires participants to rate how intensely they felt 16 specific emotions on a 1 (not at all) to 7 (I feel it with maximum intensity) scale. The measure is attached in Appendix C. The Specific Emotions Scale has three items that measure contentment (content, relaxed, calm) and three items that measure excitement (excited, enthusiastic, elated). Responses for each of

these sets of items were averaged to create a contentment scale and an excitement scale, respectively.

After the mood induction, participants completed three tasks. First, participants completed the goal selection task that was used in Study 2. Again, this task presented participants with a series of goals selected from the three domains that varied in whether the goals were described abstractly or concretely. Then participants completed the modified BIF scale that was used in Study 1. This task presented participants with a target action and two alternative representations of the target action, one identified at an abstract level and one identified at a concrete level. Participants indicated on a 1 to 7 scale how likely it was that they would describe each activity using the abstract identification and the concrete identification. The order of item presentation was randomized so that initial items did not influence how individuals responded to the rest of the items. In addition, the order of the alternatives for each target action was counterbalanced so that participants did not always see abstract or concrete identifications first. Finally, participants completed the original BIF. This scale is attached in Appendix D. The scale was created following the procedures used by Vallacher & Wegner (1989). Each abstract response was coded 1 and each concrete choice was coded 0. This measure was included in Study 3 to test how it relates to the other measures used in Studies 1 and 2.

Results

Manipulation Checks

I first performed manipulation checks to test whether the writing induction induced excitement, contentment, or neutral emotions. The results of the manipulation

checks are presented in Table 4. A one-way Analysis of Variance revealed that there were differences in excitement ratings between the different emotion conditions, $F(2,207) = 4.32, p < .05, \eta^2 = .04$. Post-hoc Tukey tests revealed that participants in the excitement condition reported higher levels of excitement than participants in the neutral condition but not significantly different from participants in the contentment condition. However, the contentment manipulation did not seem to be effective. The means, standard deviations, and effect sizes, for contentment are also presented in Table 4. A one-way ANOVA revealed that participants in the three conditions did not rate their level of contentment differently from each other after the induction, $F(2,207) = .10, ns, \eta^2 = .00$. Thus, it seems as though the excitement manipulation led to an increase in excitement but not contentment. Individuals in the contentment condition rated contentment higher than individuals in the other conditions, but the differences were not statistically significant.

Goal Selection Task

Next, I tested whether emotion conditions affected activity preferences. This was tested using the same task employed in Study 2. Therefore, this test provided a second test as to how positive emotions might influence activity choice. I performed a repeated-measure ANOVA with the activity choices as a within-subjects factor and emotion condition as a between-subjects factor. The means and standard deviations are presented in Table 5. There were mean differences for how many abstract items individuals chose across the three domains, $F(2,414) = 27.80, p < .05, \eta^2 = .13$. Follow-up tests revealed that individuals chose the abstract Interpersonal items ($\alpha = .70$) more frequently than the abstract Agency items ($\alpha = .70$), $d = .74$. However, individuals did not differ significantly in their choices between abstract Interpersonal items and abstract Health Maintenance

items ($\alpha = .58$), $d = .23$. The overall main effect of emotion condition was not statistically significant, $F(2,207) = .01$, ns , $\eta^2 = .00$. In addition, the interaction between abstract choices and emotion condition was not statistically significant, $F(4,414) = .27$, ns , $\eta^2 = .00$. Thus, the pattern of abstract activity choices across the three domains did not differ by condition. These results suggest that emotion does not influence the likelihood that individuals would choose to engage in an activity based on how abstractly it was described.

Behavioral Identification Form

Next, I examined participants' ratings of abstract and concrete action identifications using the original BIF across the three different emotion conditions. The means and standard deviations are presented in Table 6. A one-way ANOVA indicated that emotion condition influenced how many abstract re-identifications individuals chose, $F(2,206) = 3.29$, $p < .05$, $\eta^2 = .03$. Follow-up Tukey tests revealed that individuals in the neutral condition were more likely than individuals in the excitement condition to choose abstract re-identifications. Although participants in the contentment condition were more likely to choose the abstract re-identification than individuals in the excitement condition as predicted, the difference was not statistically significant, $d = .15$. Thus, the pattern of results was consistent with predictions in that individuals in the excitement condition represented actions more concretely than individuals in the contentment or neutral conditions. However, the difference between excitement and contentment was unreliable. There were no specific predictions made as to how contentment and excitement would compare to the neutral condition. Thus, the present results provide only limited support for the predictions.

Modified Behavioral Identification Form

I next tested whether these results were similar using the modified BIF measure. The means and standard deviations are also presented in Table 6. Table 6 reveals that participants in the neutral condition rated the items as most abstract, followed by those in the contentment condition, and then those in the excitement condition. However, these differences were not statistically significant, $F(2,207) = 1.24$, *ns*, $\eta^2 = .01$. Similarly, participants in the neutral condition rated the behavior descriptions as most concrete, followed by those in the excitement condition, with participants in the contentment condition reporting the lowest scores on the concrete subscale. Again, however, the differences were not statistically significant, $F(2,207) = 1.52$, *ns*, $\eta^2 = .01$. Thus, the pattern of comparisons between excitement and contentment was consistent with the predictions. Individuals in the excitement condition rated behaviors as less abstract and more concrete than individuals in the contentment condition. However, the results were not statistically significant. In addition, although comparisons were made between excitement and contentment conditions with the neutral condition, no predictions were made with respect to the neutral condition.

Association Between Original and Modified BIF

Finally, I examined how responses on the original BIF task compare with responses on the modified BIF task used in Studies 1 and 3. I summed responses across the 19 items to create an abstraction scale that ranged from 0 to 19 ($M = 9.21$, $SD = 3.69$). The original BIF scale was reliable with a Chronbach's alpha reliability coefficient of .78. I compared the scores on the original BIF with scores on the modified BIF. For the modified version, the average abstract rating was 4.30 ($SD = 1.01$) and the average

concrete rating was 4.06 (SD = 1.00). The modified BIF had alpha coefficients of .87 for the abstract ratings and .85 for the concrete ratings.

If both versions of the BIF captured the same psychological process of abstract action identification, one would expect the original scale to be positively related to the abstract scale and negatively related to the concrete scale in the modified version. In addition, one would expect the abstract ratings and the concrete ratings to be negatively associated. The original BIF scale was positive related to the abstract ratings from the modified scale ($r = .37, p < .05$) and negatively related to the concrete ratings from the modified scale ($r = -.21, p < .05$). This pattern of correlations was consistent with what was expected. However, the abstract and concrete ratings were positively associated, $r = .31, p < .05$. This was inconsistent with what was expected. Individuals who indicated that the abstract description described the behavior also were likely to indicate that the concrete description was a good representation of the behavior.

Study 3 Discussion

Study 3 provided a more rigorous test of whether emotions influence abstract action representation than the previous two studies. Study 3 included a manipulation check to test whether the mood inductions worked as intended. Although I expected the excitement induction to increase excitement relative to the contentment and neutral conditions, excitement levels were elevated in both the excitement and contentment conditions, relative to neutral. In addition, the contentment induction did not significantly increase contentment compared to individuals in the neutral and excitement conditions. It may have been difficult to induce these specific emotions using writing tasks. The nature of the writing task itself required participants to recall an event in their life. Recalling

high-arousal emotions such as anger or excitement might cause arousal in the moment and lead to these emotions. However, recalling an event that lacked arousal (emotions such as mild sadness or contentment) might not lead to the same emotional experience during recall as individuals experienced in the moment. It is possible that more direct manipulations of these low-arousal emotions could work better. For example, audio manipulations or showing participants a series of pictures could induce contentment and sadness more effectively than the writing task that was used. In sum, the inductions were only partially successful.

In addition to including manipulations checks, Study 3 included multiple measures of action representation to examine how the modified BIF correlates with the original measure developed by Vallacher and Wegner (1987). As expected, the original BIF was positively related to the abstract scale and negatively related to the concrete scale of the modified BIF. However, the moderate correlations were not as strong as one might expect. Further, the abstract and concrete scales in the modified measure were positively correlated with each other. One potential explanation for this pattern of results is that an individual's motivation level might lead him or her to rate both the abstract and concrete options as good descriptions. That is, some individuals may process information more thoroughly than others, and deeper information processing may lead to a preference for both abstract and concrete alternative descriptions.

In addition to a motivational explanation, it is possible that response styles could be responsible for the pattern of results. Specifically, individuals who indicate that they would be likely to describe a behavior in a particular way may simply be more likely to agree with different descriptions of that behavior. Therefore, in addition to agreeing that

the abstract identification described the original behavior, they may have also been more likely to agree that the concrete identification worked well as a description. Unlike the motivational explanation, the response style explanation sees individuals who agree to both abstract and concrete descriptions as processing information less deep rather than deeper than those who disagreed that an alternative was a good descriptor of the original action. Future studies that examine depth of information processing can address which alternative is a better explanation for the effects of specific positive emotions.

The results of Study 3 are consistent with Studies 1 and 2 in that they do not provide support for the idea that positive emotion is significantly related to action representation within the Action Identification Framework. Although there is some evidence that excitement is related to concrete action representation, the association was not statistically significant. However, it is difficult to conclude whether the nonsignificant results were due to a true lack of association or ineffective manipulations and measures. Seeing that the contentment manipulation did not work, it is suspect how effective the manipulations were at inducing the intended mood.

General Discussion

The current set of studies did not support the hypothesis that positive emotions lead to abstract action identification. Study 1 found no evidence that individuals in a positive mood were more likely than neutral participants to indicate that abstract descriptors were better representations of a series of actions than concrete descriptors. Similarly, Study 2 did not find that individuals in a positive mood prefer to engage in activities described abstractly versus activities described concretely. Study 3 did not find that specific positive emotions were related to abstract action representation. The general pattern of results was consistent across a number of action identification tasks. Thus, taken together the results of the current studies found little evidence to support the view that positive emotions are associated with abstract action representation.

Implications for Goal and Emotions Theories

Although emotions may influence movement within Action Identification Theory, negative emotions, rather than positive emotions, may drive these effects. Negative emotions should signify problems with completing the action and lead to concrete identifications. However, in the absence of problems the theory postulates that individuals should naturally prefer to identify actions abstractly. Therefore, neutral states might lead to abstraction levels that provide enough meaning for individuals; and, higher abstraction levels might not offer individuals additional useful information. Thus, in the absence of negative emotions, positive emotions might not move individuals up any further on action identification. However, if individuals encounter a solution as they are experiencing negative emotions during task difficulty, positive emotions resulting from

the solution could lead individuals to reflect on more abstract properties of the task. Thus, positive emotions could operate within the Action Identification Framework as hypothesized at certain times during goal pursuit.

The above explanation is consistent with Fredrickson's (1998, 2001) Broaden and Build Theory. Positive emotions experienced after success, during exploration of the environment, and during play could lead individuals to focus on high-order goals that their actions serve. This, in turn, could lead to insight into how they could use their skills and abilities when they encounter obstacles. However, general positive moods that are unrelated to current task demands might not lead to abstract identifications with specific contexts. Instead, negative emotions might be more responsible than positive emotions for moving individuals down in action identification. The effect of positive emotions should be even weaker when individuals are not invested in the tasks in which they are engaged. Outside the lab, individuals would most often engage in activities in which they are invested. Therefore, to test whether positive emotions could still affect action representation under certain circumstances, future studies could employ tasks in which participants are personally invested and emotion inductions which are task-relevant.

In addition to influencing action identification, positive emotions could also influence other constructs such as temporal perspective and broadening of attention. The associations between positive emotions and these other constructs could be stronger than the associations between positive emotions and action identification. Thus, depending on how these various constructs are related to action identification, the associations between positive emotion and these constructs could attenuate its association with action identification. For example, positive emotions may affect temporal perspective

(Liberman & Trope, 1998) but not abstract thinking. Liberman and Trope found that distant future events were associated with abstract action representation and that near future events were associated with concrete action representation. It is possible that although these constructs are associated, the association between them is not strong. Thus, positive emotions may influence temporal perspective more than action identification. Little research has tested how these cognitive constructs that should be affected by positive emotions are related to one another. Thus, future research could compare how positive mood is related to each of these constructs.

Methodological Shortcomings

In addition to theoretical reasons for the null results, two methodological factors could also be responsible for the lack of support for the predictions in these studies. First, the mood inductions may not have been powerful enough to lead to the effects. Participants were asked to write about a positive event in their lives. Although this mood induction successfully induced positive mood in the past, the effect may not have been strong enough to influence action representation. Without manipulation checks, it is difficult to determine whether the inductions worked as intended. Given that the positive mood induction has been used previously with some success, and that the manipulation check in Study 3 provided some evidence for the effectiveness of the neutral mood induction, it may be that these inductions were too weak to affect action representation. The effect sizes support this explanation as they show the differences between the conditions were often small, accounting for less than 1% of the variance.

Second, individuals may have attributed their moods correctly to the writing task. Mood-as-Information Theory (Schwarz & Clore, 1983) posits that when individuals are

aware of their mood and correctly attribute it to a specific cause, their moods no longer influence judgments. Thus, if individuals in the current studies were aware that the writing task was intended to induce positive moods (or neutral moods) then that awareness may have undermined any effects on action identification. One reason manipulation checks were not included in Studies 1 and 2 were to minimize these concerns. Despite this, it is still possible participants were aware of the cause of their moods. Thus, one line of research I plan to follow-up on is to test how different types of mood induction that vary in how obvious they are affect action identification, broadening, and temporal perspective.

Future Directions

In light of the null results in the current set of studies, future studies could pursue a number of different directions. First, the results of the current study exposes a lack of research that explores how action identification, temporal perspective, broadening of attention, and other constructs that should be affected by positive mood are related to each other. It would be useful to understand how these constructs relate to each other to make more precise predictions about how findings from one area apply to other theories and findings. For example, in her Broaden-and-Build theory of positive emotions (see Fredrickson, 1998), Fredrickson argued that positive emotions broaden individuals' "thought-action" repertoires. However, it is still unclear how broadening would influence action identification or other processes. More precise theoretical predictions can be made once researchers know how these different constructs are related to each other and to positive mood. Once a network of associations is established, it will be easier to make theoretical predictions about how positive mood (and specific positive emotions) might

influence processes within Action Identification Theory, Construal Level Theory, Broaden-and-Build Theory, or other theories.

Second, the current findings that participants in the neutral condition tended to identify actions more abstractly than participants in the positive mood conditions warrant further attention. These unexpected findings may be due to participants in the neutral mood condition having more cognitive resources than individuals in the positive mood conditions. For example, Muraven and Baumeister (2000) argued that self-regulation draws upon individuals' limited resources. Therefore, regulating one's emotions may use up resources that individuals cannot then devote to other cognitive processes. In fact, Ochsner and Gross (2005) argued that controlling one's emotions uses the same neural structures that is necessary for higher cognitive functions such as reasoning and decision-making. In certain situations, it may be inappropriate to express one's emotions, even positive ones. During certain occasions such as funerals expressing positive emotions may be socially unacceptable. Also, one may violate social norms by expressing happiness or excitement in front of other's failures. It is possible that happy participants in the lab, relative to neutral participants, were self-conscious about expressing their positive emotions and tried to suppress them. This act of self-regulation would limit participants' cognitive resources and tendency to represent actions abstractly. Vallacher and Wegner (1987) argued that cognitive resources were important because abstract action identifications are associated with ease and freed cognitive resources. Therefore, regulation processes which take up cognitive resources should impair abstract action identification. Future studies could address this issue by designing studies where

participants perform mood inductions alone, which should lower participants' self-consciousness and not use up cognitive resources.

Finally, in addition to testing which precise constructs are affected by positive mood, a number of methodological advances are necessary to better study the effects of positive emotions. For example, future studies could test the effects of specific types of mood inductions and investigate the strength of each induction. The type of mood induction used in the current set of studies may not be ideal because the purpose of the task may be too obvious to participants. However, few systematic investigations so far have compared the effects of different mood inductions. In addition to comparing different types of tasks as mood inductions, future studies should also investigate how emotions originating from goal-related tasks compare to emotions arising from unrelated tasks. The current study, like many other studies that induce mood, used mood inductions that are unrelated to the construct of interest. This could lead to results that might not reflect what happens outside the lab.

Conclusion

In sum, the current studies found no support for a link between positive emotions and action representation. This could be due to theoretical reasons. For example, it is possible that positive emotions influence constructs that are related to action identification but does not affect action identification. In addition, the null results could be due to methodological limitations. For example, the mood inductions might not have been strong enough to influence action identification, or they may have been too obvious to influence participants' later judgments. Future studies could examine how different the different constructs that should be related to positive emotions are associated with each

other. In addition, future studies will examine how different types of mood inductions influence these processes. Progress in this area of positive emotions and how it influences cognitive processes such as decision-making may rest on smaller-scale studies that can illuminate how specific constructs relate to one another.

Appendix A. Goal Selection Task

1 Find a job	&	Go to practice for a sport
2 Study for final exams	&	Apologize to a friend for an
argument		
3 Schedule next semester's classes	&	Pick up clothes off bedroom floor
4 Choose a major	&	Have a discussion with your partner
about		
5 Pay attention in class	&	the relationship
6 Attend class on time	&	Give money to charity
7 Write a paper	&	Have lunch with parents
8 Get in shape	&	Drive to visit parents
9 Eat healthy	&	Type up ideas for a paper
10 Save money	&	Send thank you cards to friends
11 Train for a sport	&	Wake up early to get to class on time
12 Become organized	&	Shop for a gift for a family member
13 Prepare for an interview	&	Take notes in class
		Make a phone call to a friend you
		haven't
		talked to in a while
14 Be more giving	&	Visit the guidance counselor
15 Resolve an argument with a friend	&	Fill out job applications
16 Show a family member that you care	&	Give money to charity
17 Get back in touch with a friend	&	Read the textbook for class
18 Express gratitude towards friends	&	Deposit money into bank account
19 Improve relationship with parents	&	Wake up early to get to class on time
20 Plan out the future of a relationship	&	Give money to charity
21 Spend more time with family	&	Type up ideas on the computer
22 Find a job	&	Have a discussion with your partner
		about the relationship
23 Study for final exams	&	Go to the gym
24 Schedule next semester's classes	&	Send thank you cards to friends
25 Choose a major	&	Get dressed nicely for an interview
26 Pay attention in class	&	Apologize to a friend
27 Attend class on time	&	Choose to eat vegetables over junk
food		
28 Write a paper	&	Go to practice for a sport
29 Get in shape	&	Drive to visit parents
30 Eat healthy	&	Read the textbook
31 Save money	&	Shop for a gift for a family member
32 Train for a sport	&	Type up ideas
33 Become organized	&	Make a phone call to a friend I
		haven't
		talked to in a while

34 Prepare for an interview	&	Visit the guidance counselor
35 Be more giving	&	Drive to visit parents
36 Resolve an argument with a friend	&	Go to the gym
37 Show a family member that you care	&	Visit the guidance counselor
38 Get back in touch with a friend	&	Deposit money into bank account
39 Express gratitude towards friends	&	Look through the schedule of
courses		
40 Improve relationship with parents	&	Give money to charity
41 Plan out the future of your relationship	&	Type up ideas for a paper

Appendix B. Goal Motivation Items by Category

Agentic Abstract	Agentic Concrete	Relationship Abstract	Relationship Concrete
Find a Job	Fill out job applications	Resolve an argument with a friend	Apologize to a friend for an argument
Study for final exams	Read the textbook for class	Plan out the future of a relationship	Have a discussion with your partner about the relationship
Schedule next semester's classes	Look through the schedule of courses	Spend more time with family	Have lunch with parents
Choose a major	Visit the guidance counselor	Improve relationship with parents	Drive to visit parents
Pay attention in class	Take notes in class	Express gratitude towards friends	Send thank you cards to friends
Attend class on time	wake up early to get to class on time	Show a family member that you care	shop for a gift for a family member
Write a paper	Type up ideas for paper	Get back in touch with a friend	Make a phone call to a friend you haven't talked to in a while

Health/Maintenance Abstract	Health/Maintenance Concrete
Train for a sport	Go to practice for a sport
Become organized	Pick up clothes off bedroom floor
Be more giving	Give money to charity
Eat healthy	Choose to eat vegetables over junk food
Get in shape	Go to the gym
save money	Deposit money into bank account
Prepare for an interview	Get dressed nicely for an interview

Appendix C. Specific Emotions Scale

How intensely do you feel each of the following emotions **right now**? Please use the scale below:

1	2	3	4	5	6
7					
Not at all		moderately		with maximum	
intensity					

1) content

2) dull

3) annoyed

4) excited

5) happy

6) relaxed

7) sluggish

8) nervous

9) enthusiastic

10) sad

11) cheerful

12) unhappy

13) calm

14) elated

15) bored

16) anxious

Appendix D. Behavior Identification Form

<u>Action</u>	<u>High Identification</u>	<u>Low Identification</u>
Making a List	getting organized	writing things down
Reading print	gaining knowledge	following lines of
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 strokes	making the room look fresh	applying brush
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 lock	putting a key in the
Filling out a personality test	revealing what you're like	answering questions
Toothbrushing	preventing tooth decay around one's mouth	moving a brush
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 swallowing	chewing and
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

Table 1. Means, Standard Deviations, and Effect Sizes of Abstract and Concrete Ratings for each Condition in Study 1

	Abstract	Concrete
Positive	4.29 (.83)	4.12 (.89)
Neutral	3.95 (1.05)	4.17 (.79)
Cohen's d	.36	.06

Note: n= 76; Values in parentheses are standard deviations.

Table 2. Descriptive Statistics for the Number of Abstract Activity Alternatives Chosen in Each Domain in Study

	Agentic	Interpersonal	Health Maintenance	Overall
Positive	7.30 (2.80)	9.25 (2.14)	8.87 (2.31)	8.47 (1.30)
Neutral	7.38 (3.29)	8.92 (2.81)	8.62 (2.12)	8.31 (1.32)
Overall	7.35 (3.06)	9.07 (2.51)	8.73 (2.20)	8.38 (1.31)
Median	7	9	9	8.33
Minimum	1	0	4	4.67
Maximum	14	13	13	11.33

Note: n = 113; Values in parentheses are standard deviations.

Table 3. Proportion of Abstract Items (and SDs) Chosen as More Abstract, Important, and Imperative Than Concrete Item in Study 2

	Agentic	Interpersonal	Health Maintenance	Overall
Abstract	7.29 (3.62)	10.18 (2.84)	8.78 (3.06)	8.75 (2.07)
Important	10.41 (3.10)	8.37 (3.01)	8.75 (2.46)	8.54 (1.54)
Imperative	9.44 (3.20)	7.66 (2.82)	8.51 (2.86)	9.18 (1.35)

Note: n = 68.

Table 4. Means, Standard Deviation, and Effect Sizes of Manipulation Checks in Study 3

	Excitement Rating	Contentment Rating	Cohen's d
Excitement Condition	3.84 (1.48)	4.58 (1.21)	.55
Contentment Condition	3.72 (1.52)	4.66 (1.44)	.63
Neutral Condition	3.14 (1.52)	4.65 (1.15)	1.12

Note: n = 210; Values in parentheses are standard deviations

Table 5. Means (and SDs) for Abstract Activity Choices between Conditions in Study 3

	Agentic	Interpersonal	Health Maintenance	Across Domains
Excitement	7.33 (2.92)	9.51 (2.52)	8.59 (2.57)	8.47 (1.19)
Contentment	7.09 (3.11)	9.33 (2.84)	8.91 (2.41)	8.44 (1.24)
Neutral	7.36 (3.11)	9.23 (2.55)	8.80 (2.76)	8.46 (1.52)

Note: n = 210.

Table 6. Means (and SDs) for the BIF and the Modified BIF by Condition in Study 3

	Original BIF	Modified BIF Abstract	Modified BIF Concrete
Excitement	8.56 (2.23)	4.19 (1.01)	4.13 (1.08)
Contentment	8.98 (3.27)	4.26 (1.01)	3.88 (1.00)
Neutral	10.09 (4.34)	4.44 (1.00)	4.16 (.92)

Note: n = 210

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