THE EFFECTS OF APPROACH-AVOIDANCE BEHAVIORS ON GOAL APPRAISALS

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JOSHUA A. HICKS

Dr. Laura King, Dissertation Supervisor

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

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presented by Joshua Hicks, a candidate for the degree of doctor of philosophy

and hereby certify that, in their opinion, it is worthy of acceptance.

________________________________________
Professor Laura King

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Professor Jamie Arndt

________________________________________
Professor Kennon Sheldon

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Professor Denis McCarthy

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Professor Christopher Robert
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Chapter 1

Introduction

People can pursue the same goal for considerably different reasons. For instance, one person may be motivated to graduate college because she believes obtaining the goal will lead to many positive outcomes (e.g., financial success), whereas another person’s motivation may be driven by a belief that negative consequences would result if she did not obtain a college education (e.g., destitution; Elliot & Church, 1997). Many theorists agree human behavior is directed by both approach and avoidance motives (e.g., Carver & White, 1994; Elliot & Thrash, 2002, Gray, 1972). Although there is still debate regarding the underlying mechanisms associated with these motives, support for the idea that two separate systems regulate behavior is abundant (see Elliot, 2008, for an extensive review). Generally, the approach motivation system is believed to direct behavior toward desirable outcomes, while the avoidance motivation system is believed to direct behavior away from undesirable outcomes. Recent research suggests that subtle motor behaviors associated with approach-avoidance motivation can influence a variety of cognitive processes consistent with the motivational state (e.g., Friedman & Förster, 2008).

Interestingly, past research has not examined the implications of these motivationally relevant manipulations for motivation itself. The present investigation included two studies that examine whether approach-avoidance motor behaviors influence goal appraisals (Studies 1 and 2) and whether individual differences in approach-avoidance motivation moderate these effects (Study 2). Before presenting these studies, I present a brief overview of research on the implicit activation of approach-avoidance motivational states, highlighting the relevance of this work to goal appraisals.
Motor Behaviors and the Implicit Activation of Motivational States

Over the past two decades, many studies have demonstrated that the implicit activation of cognitive representations influence cognitive and behavioral processes associated with the activated construct (e.g., Bargh & Chartrand, 1999; Bargh et al., 1996; Dijksterhuis & Bargh, 2001). For example, after subtly linking a goal to positive affect (via primes of positive words), participants put more effort into obtaining the (now) desired end-state (Custer & Aarts, 2005). Research has similarly demonstrated that the implicit activation of approach-avoidance motivational states can lead to relatively complex cognitive and behavioral changes (e.g., Elliot, & Maier, 2007; Förster, 2003). For example, Friedman and Förster (2002, 2005) tested whether approach-avoidance cues influenced creative cognitive processes. While previous research has suggested that positive affect (PA) enhances creativity (e.g., Isen, Daubman, & Nowicki, 1987; Isen, Johnson, Mertz, & Robinson, 1985; Isen, Niedenthal, & Cantor, 1992), Friedman and Förster (2005) argued that approach motivational orientations (which often accompany PA) might partially account for these findings. To test their idea, they exposed participants to subtle cues related to approach or avoidance motivation. In one study, they had participants complete a task in which they traced a mouse’s journey through a maze. In the approach condition, the mouse’s goal was to navigate himself through the maze in order to obtain a piece of cheese. In the avoidance condition, the mouse’s goal was to navigate himself through the maze in order to escape from a menacing looking owl. The results indicated that participants in the approach condition performed better on a subsequent measure of creativity compared to participants in the avoidance condition.
A common method used to elicit approach and avoidance motivational states, and the one used in the present studies, is to have participants perform subtle motor behaviors associated with each type of motivation. These manipulations are based on the idea that approach motivation is associated with bringing a rewarding object closer to the body (e.g., arm flexion) and avoidance motivation is associated with pushing an undesirable object away from the body (e.g., arm extension). Research has supported the idea that approach-avoidance motor behaviors lead to cognitive processes consistent with the activated motivational state. For example, Friedman & Förster (2002) also demonstrated that motor behaviors associated with approach motivation lead to enhanced creative responses compared to motor behaviors associated with avoidance motivation.

Because approach motivation is typically linked to positive outcomes (but see Harmon-Jones, Peterson, Gable, & Harmon-Jones, 2008) and avoidance motivation is typically linked to negative outcomes, many theorists argue that the activation of these states should lead to valence consistent cognitive processes (e.g., cognitions associated with positive affect for approach states and cognitions associated with negative affect for avoidance states; e.g., Cacioppo, Priester, & Petty, 1993; Solarz, 1960). Many studies have supported this argument. For example, Chen and Bargh (1999) had participants evaluate words as good or bad by either pulling a lever (i.e., bringing it closer to the body) or pushing a lever (i.e., pushing it away from the body). Results showed that participants were faster to make evaluations of positive words when they pulled the lever, and faster to make evaluations of negative words when they pushed the lever. Cacioppo, Priester, and Petty (1993) similarly showed that participants who performed motor behaviors associated with approach motivational states (arm flexor contraction) made
more positive evaluations of neutral stimuli (Chinese ideographs) compared to participants who performed motor behaviors associated with avoidance motivational states (arm extensor contraction; for an extension of these findings see Centerbar & Clore; 2006; Markman & Brendl, 2005; Priester, Cacioppo, & Petty, 1996). Using a similar manipulation, Neumann and Strack (2000) found that participants in the arm flexion condition were faster to categorize positive words, while participants in the arm extension condition were faster to categorize negative words. Overall, these results suggest that the activation of motivational states can influence the accessibility of cognitions associated with affective states.

Approach-avoidance motor behaviors appear to influence the evaluation of neutral stimuli and the accessibility of valenced information. The purpose of the present studies is to examine whether these behaviors would also influence the evaluation of constructs more central to motivational states (i.e., goals). Is it possible, for example, that the enactment of approach related behaviors leads one to evaluate his or her goals more favorably? The next section presents a brief discussion of the types of goal appraisals might be considered “positive” and why subtle manipulations related to approach and avoidance motivation might influence these evaluations.

*Motivation and Meaningful Goal Pursuits*

Although all goals represent desired end states, goal pursuits can vary tremendously in how valuable they feel to the individual (e.g., Higgins, 2005). Many theorists suggest goals that are pursued for intrinsic reasons often lead to the most enjoyment and meaning in life (e.g., Csikszentmihalyi, 1990; Ryan & Deci, 2000). Sheldon and Elliot’s (1999) self-concordance construct specifically examines the degree
to which one perceives his or her goals as being pursued for intrinsic or autonomous reasons. Self-concordant goal pursuits are evident when one’s goals are congruent with core aspects of the self, reflecting the individual’s true values and interests (Sheldon, 2002). Self-concordant goal pursuits are intrinsically motivated, and self-concordant goals are highly identified with the individual’s core values (Sheldon & Elliot, 1999). Conversely, non self-concordant goals represent goals that are pursued for either introjected (e.g., feeling guilty if you don’t pursue the goal) or purely external reasons. It is theorized that goal self-concordance leads to heightened experience of meaning, or eudaimonic well-being (e.g., Ryan & Deci, 2000; Ryff & Singer, 1998; see also McGregor & Little, 1998). In fact, living in accord with one’s “true self,” or enacting one’s deeply held values, is argued to be a defining characteristic eudaimonia (Waterman, 1993). When people feel autonomous they often experience positive emotions associated with eudaimonia (e.g., vitality; Nix, Ryan, Manly, & Deci, 1999). Research specifically examining the self-concordant construct has demonstrated that self-concordant goal pursuits are associated with many important outcomes including psychological well-being and goal obtainment (see Sheldon, 2002).

Evaluating one’s goals as self-concordant might represent a particularly positive and functional view of one’s goals. How might approach-avoidance behaviors relate to this important variable? The relationship between autonomous (i.e., self-concordant) goal pursuits and approach-avoidance motivation has been debated in the literature. Some have argued that intrinsically motivated behavior can essentially be equated to approach motivation (Carver & Scheier, 1999; but see Ryan & Deci, 1999), noting that people generally experience positive emotions when they successfully approach desirable
outcomes (Carver & Scheier, 1998). Unfortunately, there is limited empirical evidence to support this argument. However, Elliot and Sheldon (1998) did find that the relationship between avoidance goals and physical symptoms was partially mediated by the perceived controlledness (i.e., perceiving one’s goals to be influenced by external factors) of one’s goals. That is, avoidance goals were positively associated with externally derived motivation, which, in turn, predicted increased physical symptoms. Moreover, similar to the effects of intrinsic goal pursuits, people derive more satisfaction from their goal pursuits when they are framed as approach vs. avoidance goals (Coats, Janoff-Bulman, & Alpert, 1996). These finding suggest that there might be a strong (and perhaps causal) relationship between approach-avoidance motivation and goal self-concordance.

Furthermore, the very body movements associated with typical approach-avoidance manipulations would seem to embody the notion of self-concordance. Arm flexion may convey thoughts associated with embracing one’s goals, or bringing them closer to the self. Arm extension might be thought of as pushing those goals away from the self. Many studies have demonstrated the effects of subtle body movements on cognitive and affective processes (e.g., Barsalou, 2008; Briñol & Petty, 2008). For example, Chandler and Schwarz (2008) have shown that extending one’s middle finger can lead people to interpret ambiguous behaviors as potentially hostile, while performing a “thumbs up” prior to an interpersonal evaluation biases people to rate the target less negatively. Similarly, Schubert and Koole (2009) demonstrated that making a fist prior to a self-concept ratings task leads men to rate themselves as more assertive. Based on these recent findings, it is possible that performing behaviors associated with embracing one’s goals, for example, might automatically enhance one’s sense of ownership of those goals.
Of course, approach-avoidance behaviors might be expected to influence other aspects of goal appraisal in addition to perceptions of goal self-concordance. For example, working diligently toward important goals is a strong contributor to well-being (e.g., Emmons, 1989). Perhaps, the activation of approach and avoidance motivational states similarly influences other types of goal appraisals such as one’s perceived goal investment. Although past research has examined the influence of these subtle motor behaviors on innocuous stimuli, exploring whether approach-avoidance behaviors might bear on judgments of other aspects of goals (i.e., goal investment) is necessary considering the inextricable link between motives and goals. Drawing on the notion that these subtle behaviors involve bringing an object toward the self, we might expect individuals who perform approach motivation behaviors to evaluate their goals as more important. Further, given the likely associations of approach motivation with self efficacy, and a “can do” spirit we might expect individuals who perform approach behaviors to expect to put more effort into obtaining their goals compared to participants in an avoidance mindset. The prediction that subtle motor behaviors would lead to differences in self concordance as well as other aspects of goal appraisals was tested in both studies. Study 2 addressed a more nuanced version of this hypothesis, the possibility that if motor cues do influence goals appraisals such an effect may be moderated by individual differences in motivational orientation.

*The Moderating Role of Individual Differences*

So far, I have argued that subtle motor behaviors suggestive of approach and avoidance motivation might lead to different perceptions of goal appraisals. Importantly, however, Higgins and his colleagues have provided much support for the idea that the
“fit” between one’s motivation orientation (either dispositional or temporarily salient orientation) and the particular activity can also influence one’s evaluations of the activity (e.g., Higgins, 2005). When people pursue goals that are congruent with their motivational orientation they become more engaged in the activity, which augments the personal value attached to the goal. In support of this idea, Förster, Higgins, & Idson (1998) showed that people spent more time trying to solve anagrams, when the task was framed in a way that was congruent with their current motivational orientation. Similarly, Freitas & Higgins (2002) showed that participants were more likely to enjoy the task and willing to complete the task again if the task was framed in a way that was congruent with their motivational state (see also Higgins, Shah, & Friedman, 1997). Overall, research by Higgins and his colleagues shows that people are generally more engaged in their goal pursuits when the goal is congruent with their motivational orientation.

Study 2 included a measure of dispositional approach-avoidance motivation to test whether the manipulations used in the present studies might similarly interact with motivational orientations to influence goal appraisals. Based on the value-from-fit hypothesis, it is possible that the approach manipulation will only influence goal appraisals to the extent that the individual is typically oriented to pursue rewards, and, equally intriguing, it is possible that the avoidance manipulation will only influence goal appraisals for participants high in dispositional avoidance motivation.

The current studies

In the present studies, participants completed a motor task aimed to elicit either approach or avoidance motivational states (after Friedman & Förster, 2002). Participants then completed an ostensibly unrelated study in which they wrote down 5 of their general
life goals and rated those goals on various dimensions including the degree to which those goals were pursued for autonomous reasons (i.e., self-concordance ratings) and their perceived investment in those goals.

Two hypotheses were tested. First, given the proposed relationship between approach and avoidance motivational cues and goal appraisals, it is possible that main effects will emerge. That is, people who first perform an approach related behavior will report that their goals are more self-concordant and that they are more invested in their goals compared to people in the avoidance motivation condition.

A second hypothesis was examined in Study 2. Specifically, this study examined whether individual differences in approach-avoidance motivation would moderate these effects, such that the goal appraisals of those high on dispositional approach motivation would be more likely to be influenced by the approach cues, and those who are high on dispositional avoidance motivation would be more susceptible to the effects of the avoidance cue.
Chapter 2

Study 1

Method

Participants. Forty-four right handed students (22 women) completed the study for partial course credit in a psychology course. Median age was 19 years old. Participants were predominantly European American (68%) in race and non-Hispanic (97%) in ethnicity.

Materials

Experimental Manipulation. To manipulate approach and avoidance motivational orientations, participants completed a motor behavior task (adapted from Friedman & Förster, 2000). To help bolster the cover story, participants were instructed they would complete a task aimed at examining the effects of hemispheric lateralization on evaluations of typical objects, and that they were to simply view pictures of various objects displayed on the computer screen. They were instructed that they would evaluate these pictures on different dimensions later in the experiment. They were further instructed that they were assigned to the left brain hemisphere activation condition, and, to activate this area of the brain, they would have to maintain a specific motor position while viewing the objects. In the approach condition (arm flexor contraction), participants were instructed to place the palm of their dominant hand underneath the table and lightly “press up” while viewing the objects. This type of behavior typically represents bringing something closer to the body (i.e., approaching the object), and has shown to influence cognition and behavior congruent with approach motivational states (e.g., Cacioppo, Priester, & Petty, 1993). In the avoidance condition (arm extensor
contraction), participants were instructed to place the palm of their dominant hand on top of the table and lightly “press down” while viewing the objects. This type of behavior typically represents pushing something away from the body (i.e., avoiding the object), and has similarly shown to influence cognition and behavior congruent with avoidance motivational states. Before the task began, participants viewed 3 additional slides to help further clarify the type of position they should maintain. Each of these slides included a visual display of the arm position. Once the task began, twelve different slides, each displaying a picture of one innocuous object (e.g., a picture of a chair, tree, rock, etc.), appeared for 10 seconds. Each slide automatically advanced until the presentation ended.

Current Mood. To assess current mood, participants rated 6 positive (e.g., “happy,” “joy,” “content”) and 6 negative (e.g., “unhappy,” “depressed,” “anxious”) mood adjectives to provide a measure of positive affect (PA) and negative affect (NA) (cf. Diener & Emmons, 1984). For this measure, participants were instructed to rate how much they are experiencing the particular emotion “right now” (for PA, $M = 4.41$, $SD = 1.17; \alpha = .91$; for NA, $M = 2.98$, $SD = 1.13; \alpha = .87$).¹

Goal Variables. Participants also complete goal rating task adapted from Emmons (1986). For this task, participants were instructed:

*The next task will address general life goals. Your personality can be described in terms of the goals that you seek in your life, or by what you would like to do in the future. All of us have a number of goals at any given time that we think about, plan for, carry out and sometimes (though not always) complete. They may be things we are working towards or things we are trying to avoid. Goals may be related to any aspect of your daily life, university, work, home, leisure and community, etc.*

Participants were then given some examples of “typical” goals and encouraged to think about their own goals before staring the task. Participants then listed 5 goals. After
making the list, they rated each of the goals on various dimensions. To assess self-
concordance, participants rated each goal in terms of how much it was pursued for
intrinsic (“To what extent do you strive for this goal because of the enjoyment or
stimulation the goal provides you?” $M = 6.76$, $SD = 1.82$), identified (“To what extent
do you strive for this goal because you really believe that it's an important goal to have?”
$M = 7.54$, $SD = 1.56$), extrinsic (“To what extent do you strive for this goal because
somebody else wants you to or because the situation seems to compel you to?” $M = 4.32,$
$SD = 2.18$), and introjected (“To what extent do you strive for this goal because you
would feel ashamed, guilty, or anxious if you didn't?” $M = 5.13$, $SD = 1.71$). Each
dimensions was aggregated across each goal. Following Sheldon and Kassar (1995), a
self-concordance score was created by adding the intrinsic and identified scores together
and subtracting the extrinsic and introjected scores ($M = 4.84$, $SD = 3.73$). As a measure
of perceived goal investment, participants rated three items including, “How important is
this goal to you,” ($M = 7.95$, $SD = .97$), “How much effort do you expect to put into this
goal” ($M = 7.34$, $SD = 1.04$), and “How well have you progressed toward achieving this
goal” ($M = 6.01$, $SD = 1.14$). These 3 items were aggregated to create a total goal
investment variable ($M = 7.12$, $SD = .82$; $\alpha = .68$). All goal variables were rated on a 1
(not at all) to 9 (extremely) scale.

Procedure

Upon arrival to the laboratory, participants were escorted to a visually isolated
computer station. They were told that they would complete a few unrelated tasks
sponsored by researchers from different areas of psychology. Participants first completed
the experimental manipulation, followed by the state mood assessment, the goal ratings
task, and a number of filler questionnaires. Finally, participants were probed for suspicion using a funneled debriefing procedure (see Bargh & Chartrand, 2000).

Results

Using the guidelines of Elliot and Friedman (2006), two-trained coders, who were unaware of the hypotheses of the study, categorized each goal as either an approach or avoidance goal. Following past findings, a high percentage of approach goals (87%) were reported. Importantly, a t-test revealed that the experimental condition did not influence the number of approach-avoidance goals listed ($p = .82$).

Replicating previous research (e.g., Friedman & Förster, 2000), t-tests revealed that there were no group differences on state PA or NA ($p’s > .10$). An additional two t-tests were conducted to test the primary hypotheses that approach-avoidance motivational behaviors would differentially predict self-concordance and goal investment ratings. The first t-test revealed a significant difference by condition ($t (42) = 2.13, p < .05$) on self-concordance ratings. In line with predictions, examination of means revealed that participants in the approach condition reported higher self-concordance ratings ($M = 6.14$) compared to participants in the avoidance condition ($M = 3.81$; see Figure 1, Panel A). The second t-test examined group differences in goal investment ratings. However, contrary to predictions, there was not a significant difference between the two groups on the goal investment ratings ($t (42) = .95, p = .35$).

Brief Discussion

The results of Study 1 found partial support for the idea that approach related behaviors influence subsequent goal appraisals. Participants in the approach condition rated their goals as more self-concordant compared to participants in the avoidance
condition. These results suggest that subtle behaviors related to motivational states influence the perception of the motives that underlie important life goals. Importantly, however, there were no effects of condition on perceived goal investment. These null findings suggest that these subtle motor behaviors do not necessarily influence the degree to which one perceives to have progressed toward obtaining the goals, expects to put effort into pursuing the goals, or perceives the goals as important.

The purpose of Study 2 was to replicate and extend these findings. As previously mentioned, research has suggested that the match between one’s dispositional motives and one’s current goals can influence how much that goal is valued (e.g., Higgins, 2005). Specifically, goals that are congruent with one’s dispositional motivational orientation are believed to be more satisfying and rewarding. As such, it may be that only those individuals who were high in dispositional approach motivation would rate their goals as being more self-concordant (and perhaps feel more invested in their goals) after participating in the approach motivation condition. Study 2 included measures of dispositional approach-avoidance motivation to test weather the match between one’s dispositional motivational orientation and the experimental manipulation would influence subsequent goal appraisals.
Chapter 3

Study 2

Method

Participants. Eighty-four right handed students (54 women) completed the study for partial course credit in a psychology course. Median age was 19 years old. Participants were predominantly European American (79%) in race and non-Hispanic (96%) in ethnicity. Three participants who either indicated to have not correctly preformed the experimental manipulation or did not list any goals were excluded from the analyses.

Materials and Procedure

Pretest session. At the beginning of the semester, participants completed a mass pretest that included a variety of diverse measures (approximately 250 items). Embedded in the pretest was the 18 item Regulatory Focus Questionnaire (RFQ; Lookwood, Jordon, & Kunda, 2002). The RFQ is comprised of two 9 item subscales that assess individual differences in promotion and prevention foci. For the promotion focus subscale, sample items include “In general, I am focused on achieving positive outcomes in my life,” and “I frequently imagine how I will achieve my hopes and aspirations” ($M = 5.71, SD = .97; \alpha = .91$). For the prevention focus subscale, sample items include “In general, I am focused on preventing negative events in my life,” and “I frequently think about how I can prevent failures in my life” ($M = 4.47, SD = .99; \alpha = .83$). Items were rated on a 1 (not at all true of me) to 7 (very true of me) scale. This particular regulatory focus measure has been argued to assess approach and avoidance tendencies, respectively (Summerville & Roese, 2008). Therefore, the promotion and prevention focus variables will hereafter be referred to as approach and avoidance motivation.
Laboratory session. Approximately 1 month later, participants completed a similar procedure that was used in Study 1 with one expectation: General mood was administered before the experimental manipulation. To assess general mood, participants rated 6 positive and 6 negative mood adjectives. However, this time they were instructed to rate how much they generally experience the particular emotions (for PA, \( M = 5.11, SD = .86; \alpha = .91 \); for NA, \( M = 3.07, SD = 1.15; \alpha = .89 \)). General mood was assessed because research suggests that the RFC is associated with positive and negative affect (Summerville & Roese, 2008).

After arriving to the lab, participants first completed the general mood measure as well as a number of filler questionnaires. Next, they completed the experimental manipulation followed by the current mood measure (for PA, \( M = 4.88, SD = 1.11; \alpha = .93 \); for NA, \( M = 2.44, SD = 1.31; \alpha = .88 \)) and the goal ratings task (for self-concordance, \( M = 5.08, SD = 3.27 \), for goal investment, \( M = 7.27, SD = .89, \alpha = .73 \)). Finally, participants were probed for suspicion using a funneled debriefing procedure.

Results

T-tests again did not reveal group differences on the state PA or NA measures (\( p's > .55 \)). In addition, there we no group differences in the dispositional measure of approach and avoidance motivation (\( p's > .45 \)), suggesting that random assignment to condition was successful. Correlations among all variables, pooled together and separated by condition, are shown in Appendix A.

To examine the main predictions of this study, two hierarchal regression equations were computed. In all analyses, the continuous variables were first centered. The product of the centered approach and avoidance motivation variables with condition
(1 = Approach, 0 = Avoidance) were used as the interaction terms. Because the RFQ is associated with general affect (Summerville & Roese, 2008), two additional analyses were conducted using the general mood ratings as covariates to examine whether any of the predicted effects could be attributed to mood.

**Approach and Avoidance Motivation, Motor Behaviors, and Self-Concordance.** The first regression analysis examined the unique contributions of condition and motivational orientations on self-concordance ratings. The main effects were entered on the first step and contributed significantly to $R^2 (R^2 = .23, p < .001)$ with condition predicting enhanced self-concordance ($\beta = .33, p < .001$). The interaction terms, however, entered on the second step, did not contribute significantly to $R^2 (p = .91)$. Although the interaction terms were not significant, the main effect of condition replicates Study 1’s findings. Namely, participants in the approach condition rated their goals as being significantly more self-concordant ($M = 6.36, SD = 3.33$) compared to participants in the avoidance condition ($M = 4.01, SD = 2.83$; See Figure 1, Panel B). An additional analysis showed that this main effect remained significant ($\beta = .34, p < .001$) after controlling for general PA and NA.

**Approach and Avoidance Motivation, Motor Behaviors, and Goal Investment.** The second regression analysis examined the contribution of condition and motivational orientations on goal investment ratings. Again, the main effects contributed significantly to $R^2 (R^2 = .11, p < .05)$ with approach motivation predicting enhanced goal investment ($\beta = .31, p < .05$). The main effect of approach motivation, however, was qualified by approach motivation X condition interaction, entered on the second step ($R^2$ change = .12, $p < .01; \beta = .47$). As shown in Figure 2, approach motivation was strongly associated
with goal importance in the approach condition ($\beta = .55, p < .001$), but not in the avoidance condition ($\beta = -.06, p = .70$). Notably, the avoidance motivation measure did not differ between conditions to predict goal investment ($p = .45$). An additional analysis again showed that this significant interaction effect ($\beta = .40, p < .01$) remained significant after controlling for general PA and NA.

**Exploratory Analyses.** Although previous research has not typically shown that these types of manipulations influence mood (but see Centerbar & Clore, 2006), an exploratory regression analysis was conducted to examine the contributions of motivational orientations and condition on state PA. This analysis controlled for general mood. Not surprisingly, the main effects contributed significantly to $R^2$ ($R^2 = .34, p < .001$) with general PA ($\beta = .47, p < .001$) strongly predicting state PA. Importantly, however, there was a significant approach motivation X condition interaction effect ($R^2$ change = .08, $\beta = .34, p < .05$). Once again, inspection of the simple slopes revealed that approach motivation was significantly associated with state PA in the approach condition ($\beta = .32, p < .01$), but not in the avoidance condition ($\beta = -.10, p = .54$). The generated means for this interaction are shown in Figure 4.

Additional analyses explored possible mediation effects among the variables of interest. For example, perhaps the enhanced goal investment ratings for those in the approach condition, who were high in approach motivation could be attributed enhanced PA (e.g., Carver, 1999). With regard to self-concordance, neither goal investment nor state PA mediated the effect of condition of self-concordance ratings ($p < .001$ for the effect of condition). Similarly, neither self-concordance nor state PA mediated the interaction effect between condition and approach motivation of goal investment ratings.
analyses next turned to possible moderating effects of goal investment or state PA on self-concordance ratings (e.g., perhaps goal investment coupled with performance of an approach condition would increase self-concordance ratings). These analyses did not reveal any significant moderating effects on the self-concordance ratings ($p’s > .54$). Similarly, final exploratory analyses did not find any moderating effects of self-concordance or state PA on goal investment ratings ($p’s > .82$).

Overall the results of Study 2 suggest that approach-avoidance behaviors can influence subsequent goal appraisals. Replicating the results of Study 1, participants in the approach condition reported higher levels of goal self-concordance, compared to participants in the avoidance condition. Further, individual differences in dispositional approach motivation were positively associated with perceived goal investment and state positive affect for participants in the approach condition, but not for participants in the avoidance condition. Importantly, the effects of dispositional avoidance motivation did not differ by condition to predict the outcome variables. These null findings suggest that the match between dispositional avoidance motivational orientations and avoidance behaviors do not necessarily influence subsequent goal appraisals.
Chapter 4

General Discussion

The present studies examined whether the implicit activation of approach-avoidance motivational states would influence goal appraisals. In both studies, participants who performed motor behaviors associated with approach motivation later rated their goals as more self-concordant compared to participants who performed motor behaviors related to avoidance motivation. Study 2 further demonstrated that participants who performed approach behaviors reported being more invested in their goals if they were also high on dispositional approach motivation. Study 2 also showed that dispositional approach motivation was more strongly related to state positive affect in the approach motivation condition compared to the avoidance motivation condition. Overall, these results converge with studies showing that subtle behaviors associated with approach-avoidance motivational states can influence subsequent evaluations.

The current results suggest there may be a strong connection between approach-avoidance motivation and the perceived ownership of one’s goals. In both studies, the effect of condition on self-concordance ratings was rather remarkable. There have been few empirical studies integrating approach and avoidance motivation with self-determination theory. These results suggest more integration of these two approaches is needed; even the implicit activation of approach-avoidance motivational states can change perceptions of “why” one is pursuing his or her goals. Of course, it is currently unclear which motor behavior influenced these appraisals. Is the approach condition enhancing participants’ self-concordance ratings, or is the avoidance condition lowering perceptions of self-concordance? In published work (Sheldon & Elliot, 1999),
participants’ (n = 232) average self-concordance ratings was 3.89 (rated on a similar scale). In the present studies, participants ratings were close to this average in the avoidance condition ($M’s = 3.81 \& 4.01$) but noticeably higher in the approach condition ($M’s = 6.14 \& 6.36$). Although there were slight differences in the goal ratings task between the Sheldon & Elliot (1999) studies and the current studies, these results tentatively suggest that the approach condition was actually enhancing participants’ perceptions of goal self-concordance. However, a study comparing the two manipulated condition with a motivational neutral control condition is necessary to substantiate this possibility.

The results of Study 2 showed that individuals who typically pursue rewarding outcomes reported feeling more invested in their goals after performing an approach related behavior. This result lends partial support to the value-from-fit hypothesis (e.g., Higgins, 2005), suggesting that when the manipulation was congruent with one’s dispositional motivational orientation people are more likely to feel engaged in their goal pursuits. It is important to note that a similar moderating effect was not shown for people high in avoidance motivation after performing an avoidance related behavior. This null effect suggests that perhaps only approach oriented people are influenced by the activation of the corresponding motivational state. Again, however, it is currently unclear which condition influenced these effects. It could be that the people high in approach motivation, in the approach condition, were indeed more influenced by the manipulation. However, it is also possible that the avoidance manipulations undermined the influence of approach motives on perceived goal investment. The disruption of one’s typical motivational orientation may have detracted from perceptions of value derived from
one’s goals (e.g., Higgins, 2005). This possibility further suggests more research needs to be conducted examining the effects of (activated) motivational states and neutral states on goal appraisals.

The present studies showed that the experimental manipulations influenced subsequent goal appraisals; however, it is unclear whether the manipulations influenced the accessibility of certain types of goals (i.e., approach vs. avoidance goals), or if the manipulations influenced how one’s goals were appraised. Although there was no evidence of group differences in listing different percentages of approach or avoidance goals, previous research has shown that people typically only list approximately 20% avoidance goals. It is possible then that significant differences would emerge if participants listed more than 5 goals (e.g., Elliot & Sheldon, 1999), or if they rated their own goals to the extent they were pursued for approach vs. avoidance reasons.

It is also possible that the manipulations did not lead influence the number of approach-avoidance goals listed, but instead contributed to group differences on other important goals dimensions that weren’t assessed in the present studies (e.g., concrete vs. abstract goals). For example, Schwarz (2002) argued that arm flexion and arm extension might facilitate heuristic and analytical processing styles, respectively. Therefore, participants in the approach condition may have listed goals that were consistent with the type of strivings people are believed to typically pursue (i.e., meaningful goals), while participants in the avoidance condition may have been more apt to list concrete or proximal goals. Equally intriguing is the possibility that the manipulations did not influence the types of goals per se, but how those goals were appraised. Maybe simply activating the approach system, for example, makes people perceive themselves as more
invested in their goals. To test this possibility, either a nomothetic goal questionnaire should be assessed after the manipulation, or participants should list their goals before the manipulation and rate those goals after the manipulation. A better understanding of how these manipulations might influence goal listings and/or appraisals is clearly needed.

Based on previous research (e.g., Friedman & Förster, 2008), I have argued that the manipulations used in the present studies likely activated approach-avoidance motivational states. However, it is possible that the implicit activation of the motivational states did not contribute to the current findings, but, instead, the findings were influenced by the activation of self-related constructs. As previously mentioned, the arm flexion task is typically associated with bringing something closer to the self. It is possible, for example, that this manipulation increased the accessibility of concepts related to the “true-self.” If the true self is accessible it might create a perception of ownership over one’s goals, explaining the effects of the manipulations on the self-concordance ratings. Importantly, this type of process should also make other concepts related to the true-self accessible, making this possibility easily amenable to empirical investigation (e.g., Schlegel, Hicks, Arndt, King, 2009). To help tease apart this idea, other studies that employ approach-avoidance manipulations less likely to activate self-related concepts should be conducted (e.g., the “mouse” task described earlier; Friedman & Förster, 2002). If the effects of the current studies were replicated using other manipulations purported to activate approach-avoidance motivational states, it would further support the idea that the activation of motivational states specifically influenced the goal appraisals.

Earlier it was implied that the types of goals listed (i.e., approach-avoidance goals) might have mediated the current effects. It is also possible, that other types of
mediators accounted for the present findings. For example, the approach motivation condition might have activated thoughts of efficacy or competence. If people in the approach condition were feeling more efficacious toward their goal pursuits, then maybe they would perceive themselves as more invested in their goals.

Future research should also examine potential moderating. For example, Kasser and colleagues (e.g., Kasser & Ryan, 1996) have shown that the types of goals people typically strive for are associated with psychological functioning. Specifically, people who value extrinsic goals (e.g., fame, wealth) over intrinsic goals (e.g., close relationships, personal growth) report lower amounts of well-being (Kasser & Ryan, 1996). Although it is argued that the content of one’s goals (i.e., extrinsic-intrinsic goals) and the reasons for pursuing those goals (i.e., for self-concordant reasons) may be unrelated (e.g., Sheldon, 2002), research has shown a small (but significant) positive association between intrinsic, relative to extrinsic goals and self-concordance (Sheldon, Ryan, Deci, & Kasser, 2004). Thus, it is possible, for example, that only people who primarily pursue intrinsic goals would reap the benefits of performing approach motivational behaviors.

Examining the effects of these manipulations on behavioral and emotional outcomes is another fruitful avenue for future research. For example, if an individual perceives himself as invested in his goal of making new friends, would he be more sociable toward a confederate after the approach manipulation? Or, perhaps a person who had a goal related to environmental mastery would be more persistent on a subsequent laboratory task (e.g., an anagram task)? Furthermore, these subtle manipulations may lead to different emotional responses. For instance, the individual in the latter example
might feel more satisfied while completing the anagram task, or even more emotionally distressed if the task was rendered insolvable because his investment made it difficult for him to abandon the goal.

In addition, the current results have implications for potential interventions aimed at improving self-regulatory behavior. Sheldon, Kasser, Smith, and Share (2002) conducted an intervention to examine whether enhancing self-concordance would facilitate goal attainment and psychological well-being. Participants in the experimental condition met with a counselor (individually and with a group) who described four strategies to make the goals feel more self-concordant (e.g., “own the goal,” “make it fun”). The results showed that participants in the experimental condition who already had self-concordant goals reported greater progression toward their goals and enhanced psychological well-being later in the semester. Although these results are intriguing, perhaps a more effective (and immensely practical) intervention would incorporate the approach manipulation used in the current studies prior to the goal listing task. Participants could then be emailed reminders throughout the semester regarding the reasons they are pursuing their goals. Assuming the approach manipulation enhanced goal self-concordance, perhaps appraising their own goals would make those (self-concordant) goal pursuits feel even less externally controlled (compared to a counselor telling participants how they should pursue the goals). This possible effect might further enhance the perception of authentic ownership of one’s goals, facilitating goal attainment and psychological adjustment.

Although there are many unanswered questions regarding the effects of approach-avoidance behaviors on goal appraisals, the present results suggest even subtle motor
behaviors can affect one’s purposes in life. Examining the mechanisms underlying these effects will extend our knowledge of the relationships among approach-avoidance motivation, embodied cognitive processes, and meaningful goal pursuits.
References


According to many scholars, success and failure in pursuing approach and avoidance goals leads to specific emotional outcomes (e.g., Carver & Scheier, 1998; Higgins, 1996). Specifically, successfully pursuing approach related goals leads to happiness and elation, whereas unsuccessful pursuit leads to sadness and depression. On the other hand, successfully pursuing avoidance related goals leads to relief and calmness, whereas the unsuccessful pursuit of these types of goals leads to anxiety and agitation. As such, half of the positive mood measures in these studies included 3 approach (e.g., “cheerful”) and 3 avoidance related positive emotions (e.g., “relaxed”), as well as 3 approach (e.g., “sad”) and 3 avoidance related negative emotions (e.g., “tense”). Analyses separately controlling for (Study 2), and predicting (Study 1 & 2), each of these types of emotions yielded results similar to those reported in the text. Therefore, only 2 mood variables (i.e., positive and negative affect) were created to simplify analyses.

Because the goal investment variable was created by aggregating the goal importance, perceived progress, and expected effort variables, three separate regression analyses were conducted to examine the effect of motivation and condition on these variables separately. By and large, these analyses mirrored those reported in the text. The interactions terms were significant predicting both goal importance and perceived progress ($\beta$’s > .42, $p$’s < .01). With regard to expected effort, however, the interaction term was only marginally significant ($\beta = .25$, $p = .09$). Graphs of all three of these analyses again look strikingly similar to Figure 2; approach motivation was more strongly related to the outcome variables in the approach condition, compared to the avoidance condition.
A similar analyses did not reveal any interaction effects predicting state NA ($p's > .54$).

A recent unpublished laboratory study conducted in our lab, using the same goal elicitation task as the current studies, also suggests the approach condition might have increased the self-concordance ratings. In this study, participants ($n = 146$) average self-concordance ratings were 2.96.
Table 1.

Correlations among measures (full sample)

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*Note.* $N = 81$. **$p < .01$; *$p < .05$. 
Table 2.

Correlations among measures (approach condition)

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Correlations among measures (avoidance condition)

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Figure 1.

Panel A, Study 1

Panel B, Study 2

Figure 1. Self-concordance as a function of condition, Study 1
Figure 2. Goal investment as a function of condition and approach motivation, Study 2
Figure 3. Positive affect as a function of condition and approach motivation, Study 2
VITA

Joshua Adam Hicks graduated from San Francisco State University in 2001 with a B.A. in Psychology, and from Villanova University in 2003 with a M.S. in Experimental Psychology. Joshua began graduate school at the University of Missouri in 2003 to with Dr. Laura King. In 2009, Joshua received a doctorate of philosophy with an emphasis in social and personality psychology. After graduation, Joshua will join the faculty in the psychology department at Texas A&M University in College Station, Texas.