



Progress Oriented Appraisal Styles and Action Tendencies Predict Goal Termination Outcomes

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Progress Oriented Appraisal Styles and Action Tendencies Predict Goal Termination Outcomes

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A Thesis in the Field of Psychology

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Abstract

Goals are representations of desired future outcomes. A goal is said to be active when it directs behavior and deactivated when no longer directs behavior. A positivity bias protects active goals from delays, frustration and doubts. This means the positivity bias can sustain low quality goals and lead to futile persistence. This research investigates whether concrete steps and progress monitoring could accelerate the breakdown of the positivity bias and lead to goal re-evaluation. The hypothesis was not supported. Results show that goals are a function of affect: they are sustained by positive affect and deactivated by negative affect. Negative affect leading to an action crisis remains the only identified pathway to goal deactivation.

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Table of Contents

Abstract	iii
Acknowledgements	iv
List of Tables	vi
List of Figures	viii
Mindset Theory of Action Phases	13
Action Crisis	22
Participants	38
Procedure	38
Materials and Measures	39
Action versus State Orientation	39
Progress Monitoring	40
Recalled Action Crisis and Recalled Frustration	41
Preliminary Analyses	42
Main Analyses	46
Conclusions	68
Limitations	69
Directions for Future research	70
References	72

List of Tables

Table 1. Types of Thoughts According to Mindset Types	19
Table 2. Action Crisis Predictors for Study 1	28
Table 3. Action Crisis Predictors for Study 2	30
Table 4. Action Crisis Correlations	36
Table 5. Sample Age Distribution	42
Table 6. Summary of Scores for the Entire Sample.....	43
Table 7. Descriptive Statistics.....	44
Table 8. Recalled Frustration Results by Gender	46
Table 9. Recalled Frustration Results by Age Group	50
Table 10. Bivariate Analysis for Recalled Frustration by Age and Gender	51
Table 11. Action Crisis and Recalled Frustration.....	51
Table 12. Correlate Analysis: Action Crisis and Recalled Frustration.....	52
Table 13. Bivariate Correlate Analysis of Concrete Steps and Recalled Frustration	53
Table 14. Multivariate Analysis of Adapt Approach Responses.....	53
Table 15. Bivariate Correlate Analysis of Adapt Approach Responses	54
Table 16. Action Orientation, Action Crisis, Progress Monitoring and Frustration.....	55
Table 17. Action Orientation and Action Crisis compared to Recalled Frustration.....	55
Table 18. Multivariate Analysis of Goal Re-Evaluation Responses.....	55
Table 19. Bivariate Correlate Analysis of Goal Re-Evaluation Responses.....	56
Table 20. Summary of Findings by Hypotheses.....	57

Table 21. Summary of Additional Analyses.....	57
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List of Figures

Figure 1: Compensatory Efforts and Perceived Control for Goals Over Time	24
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Chapter I.

Introduction

Goals are representations of desired future outcomes. A goal is active when it directs behavior and deactivated when it no longer directs behavior. Research has been conducted on the processes and mechanisms for increasing goal activation. For example, goal priming, mental contrasting and the formation of implementation intentions have been investigated. However, relatively little research has been done on the processes and mechanisms for deactivating and disengaging from active goals. This is particularly important especially for goals that are persistently active but are either not possible or not beneficial.

Two possible mechanisms of action are explored in the research literature for goal deactivation. Achieving the goal is one mechanism of action, after which deactivation occurs naturally and automatically. The experience of an action crisis is another. An action crisis is an ongoing psychological conflict between goal expectations and a lack of progress. Action crises seem to trigger a process of goal reevaluation that can lead to either increased and adapted goal striving or goal termination if the goal no longer seems desirable and/or attainable.

Correlations between mindsets and goal activation have been established in the research literature (Fujita et al., 2007; Gollwitzer et al., 1990; Taylor & Gollwitzer, 1995). The deliberative mindset describes an information processing style that occurs before a goal is active and can occur again after a goal is deactivated. This mindset is

characterized by impartiality about goal desirability and feasibility. The mindset is also characterized by openness to alternatives as well as unbiased opportunity cost appraisals.

The implementational mindset describes a biased information processing style that co-occurs with increased goal activation. This mindset is characterized by positivity biases. Goal-relevant information is prioritized, and goal desirability and feasibility are exaggerated while the goal is shielded from information that could challenge positive feasibility and desirability appraisals. The positivity bias tends to make the implementational mindset self-protective as it de-emphasizes and filters out information that could undermine the mindset and the goal. It is also known that challenged goals tend to increase motivation and determination to a point. Thus, the implementational mindset can feed on itself in the face of goals that are actually futile or unworthy but which are interpreted as challenging.

When progress toward an active goal is thwarted often enough, an action crisis is thought to mediate the transition out of the implementational mindset (and its positivity biases) and back to a more objective, deliberative mindset. During an action crisis, the positivity bias of the implemental mindset may break down as a result of continually unmet expectations. Once the positivity bias is gone the goal can be reappraised more objectively, and the individual can consider alternatives.

The proposed research sought to expand the literature on the relationship between mindsets and goal deactivation by investigating whether measuring goal progress (i.e., a progress orientation) rather than simply reflecting on desired outcomes (i.e., an outcomes orientation) would make an action crisis more likely to happen, more likely to happen sooner, and more likely to result in positive disengagement outcomes. It was predicted

that a progress orientation would predict action crisis experiences, and subsequent goal reappraisal.

All living organisms take action to meet needs that can be expressed as goals (Locke & Latham, 2013). Goals express discrepancies between current conditions and desired future conditions. Goals also regulate behavior in pursuit of desired future conditions (Austin & Vancouver, 1996; Heckhausen & Heckhausen, 2018; Kruglanski, 1996; Moskowitz & Halvorson, 2009). Thus, goals are how organisms operate beyond immediate stimulus-response effects, previously reinforced behavior patterns and immediately available outcomes (Brandstätter & Hennecke, 2018). For human beings and some organisms, goals may include not only needs but wants. Some goals are automatic and implicit and operate without the need for conscious effort or awareness. For example, most human beings have an automatic and often nonconscious goal to avoid embarrassing situations. This goal can be so strong it drives behavior that is difficult to resist (i.e., the irresistible urge to walk away, hide one's face, avoid eye contact, change the subject, etc.). In this case, an unconscious goal is driving behavior because the individual may not be able to articulate why they are acting the way they are (i.e., to avoid embarrassment). By contrast, conscious goals require effort and attention, such as the goal to obtain a university degree or enter a chosen profession.

Research on goals and behavior generally shows that active goals compete with one another for limited resources like working memory and executive function. Research also generally shows that active goals tend to persist as long as they remain unfulfilled. This is adaptive as long as goals are both feasible and desirable. This is maladaptive when individuals become captive to unproductive or impossible goals that keep them

preoccupied and otherwise unavailable for other goals that may be more advantageous and achievable. This can be more troubling when active but nonconscious goals compete with or even block conscious, desirable goals so that the individual is not even aware of the conflict. For example, the goal to not be bored can conflict with and even block the goal to study in order to obtain a university degree. All of this means research on the processes by which persistently active goals can be terminated helps us understand how to conserve cognitive resources for goals that have the greatest adaptive value. This paper summarizes research related to goal activation and deactivation and proposes new research on a possible goal deactivation pathway. To understand the potential goal deactivation pathway, it is necessary to first understand how goals become active in the first place.

Goals tend to have widespread and persistent impacts on thoughts, behaviours and emotions because while other types of cognitive contents tend to fade naturally (i.e., semantic or procedural content), goals that are active but unfulfilled tend to persist (Förster, et al., 2007). Research has shown unattained goals automatically recur after interruption (Moskowitz, 2002), tend to impact the full spectrum of information processing from pre-conscious processing (Moskowitz, 2002) to personality, learning and developmental trajectories over time (Brandstätter & Hennecke, 2018), and tend to do so for as long as the goal remains both active and unfulfilled (Masicampo & Baumeister, 2011a). Thus, active goals come at a cost.

Goal regulation is an important area of study because goals have a significant and lasting impact on behavior, compete for and consume limited cognitive resources (Masicampo & Baumeister, 2011b; Shah & Kruglanski, 2002), are not equally beneficial

(Ntoumanis & Sedikides, 2018; Wrosch et al., 2003; Deci & Ryan, 2000), and are sometimes unattainable or unproductive (Carver & Scheier, 2005). For example, research shows extrinsically motivated goals like income and status tend to predict lower subjective well-being than for intrinsically motivated goals such as the goal to spend time doing inherently enjoyable activities or engaging in quality relationships (Deci & Ryan, 2000). Thus, goal regulation must encompass the means for acquiring new goals as well as the means for adapting and sometimes terminating goals that are no longer useful to the individual. Without methods for adapting or terminating active goals, individuals may become captive to goals that are counter-productive, unattainable or otherwise undesirable (Carver & Scheier, 2005; Kuhl, 1992; Wrosch et al., 2003). These active, low-quality goals can occupy cognitive resources not because they are the best goals but simply because they were the first goals to become active, preventing other subsequent goals from taking root even if they may have greater adaptive value (Masicampo & Baumeister, 2011a; Moskowitz, 2002; Shah & Kruglanski, 2002). For example, early exposure to extrinsically motivated goals could hijack limited cognitive resources and block opportunities for more rewarding, intrinsically motivated goals later on. Thus, adaptive goal regulation must encompass how goals can be activated as well as deactivated if they are no longer beneficial.

To date, most goal research has emphasized the process of goal selecting and striving (Brandstätter & Hennecke, 2018; Heckhausen & Heckhausen, 2018; Moskowitz & Halvorson, 2009). For example, much attention has been paid to the processes and characteristics of both conscious and nonconscious goal priming (Bargh et al., 2001; Förster et al., 2007; Morsella & Bargh, 2011). Goal priming raises goal activation so a

goal has more influence over behaviour. Fantasy Realization Theory as well as mental contrasting and implementation intentions (Oettingen, 2012) also help explain the conditions that predict whether an intention becomes a goal that actually drives behaviour. Gollwitzer (2012) and Kuhl (1992) have further identified mindset factors and cognitive dispositions that predict goal activation. These are all examples of research that focusses on increased goal activation so a goal drives behaviour toward an desired outcome.

Less attention has been paid to the processes of goal deactivation and termination (Brandstätter et al., 2013; Ghassemi et al., 2017; Miller & Wrosch, 2007), despite the fact that persistent, unfulfilled goals predict intrusive and distracting thoughts (Masicampo & Baumeister, 2011a; Wrosch et al., 2003) and compete for and consume limited cognitive resources like attention (Moskowitz, 2002) and executive function (Masicampo & Baumeister, 2011a). For example, in a series of experiments, Masicampo and Baumeister (2011a) found that unfulfilled and personally meaningful goals predicted reduced performance on logic testing tasks and self-control when eating sweets. In study 1, experimenters created a non-fulfillment condition by priming the goal to be honest and then asked participants to write about a time when they were dishonest. The experimenters then compared anagram solution scores (i.e., as many combinations as possible in 5 minutes) between participants in the non-fulfillment condition against four different control groups (i.e., a filler task group, an honesty prime-only group, a recalled failure-only group and a group that recalled someone else's failure). As expected, participants in the non-fulfillment condition reported significantly fewer anagram combinations than all comparison groups ($M=4.00$, $SD=3.01$ as compared to $M=7.41$,

$SD=3.88$, $F(1, 82)=9.68$, $p<.01$. A second study investigated the self-regulatory costs of unfulfilled goals. Experimenters created a non-fulfillment condition by priming the goal to achieve and then had some participants attempt an impossible anagram task before exposure to a plate of chocolate chip cookies. As expected, participants from the impossible anagram group showed significantly less restraint as measured by cookies consumed ($p < .05$). The effect persisted across two different testing methodologies with consistent findings and low p scores and thus suggests that unfulfilled goals come at a cognitive and self regulatory cost.

Goals that are active but unattainable also predict negative subjective well-being, reduced self-esteem, general distress and a reluctance to attempt future challenging goals (Ntoumanis & Sedikides, 2018; Wrosch et al., 2003; Wrosch et al., 2007; Wrosch, 2010). For example, Wrosch et al. (2003) investigated the relationship between goal disengagement tendencies and subjective well-being. They compared goal disengagement and re-engagement scores against a 10-item subjective well-being measure that included items for stress, sense of purpose in life, sense of self-mastery and intrusive rumination about problems. Regression analysis showed that demographic variables accounted for only 8-15% of the variance for subjective well-being scores while goal disengagement and re-engagement tendencies explained between 11-23% of the variance. As expected, disengaging from low quality or stalled goals and engaging with alternative goals predicted lower scores for stress ($p < .01$) and intrusive thoughts ($p < .01$) as well as higher scores for self-mastery ($p < .01$) and purpose in life ($p < .01$). Additional studies found that successful disengagement from unattainable goals predicted higher subsequent subjective well-being scores for university students and fewer

depressive symptoms for parents of children with cancer. Thus, the research literature suggests goal activation comes at a cost, and that deactivation of persistently active but unfulfilled goals frees up cognitive resources and prevents negative outcomes like reduced subjective well-being.

It is also necessary to periodically deactivate and detach from goals because people cannot practice perfect opportunity selection and may sometimes choose goals that are unattainable, undesirable or compete excessively with other goals. For example, Wrosch et al. (2005) conducted two studies investigating goal disengagement for expired opportunities for older adults. In a sample of 150 mixed-age adults, they found the older participants (i.e., 60 years of age) who first successfully disengaged from unrecoverable missed opportunities, and second, also had attainable, alternative goals available reported less regret, fewer health concerns and better subjective well-being. The participants were asked to identify their most intense life regret, classify it as a regret of omission or commission, report indications of negative affect and/or intrusive thoughts, report on the perceived availability of future alternative goals and then report on their overall satisfaction with life. The investigators found that the perceived availability of future, alternative goals declined with age ($\beta = -.20, p < .01$), and that regret intensity predicted higher depressive symptoms and more health problems for older as compared to younger adults. However, when the investigators controlled for the perceived availability of future, alternative goals, the relationship between negative emotion and age was no longer significant. This suggests that both disengaging from unattainable goals and re-engaging with alternative goals offers a protective effect against the negative outcomes that can come from regret. Most individuals will begin to pursue some goals that will

prove unattainable or undesirable, and many will at some point realize missed opportunities that will be difficult or impossible to correct. Disengaging from unattainable or undesirable goals as well as missed opportunities is necessary to free captive resources for other, more productive pursuits.

The cognitive tuning hypothesis helps explain how goal activation occurs and is sustained, and therefore provide clues for goal deactivation as well. The hypothesis holds that goal activation is a function of a cognitive bias that favors information and interpretations that support goal desirability and feasibility. This positivity bias is one of the most studied explanations for the persistence of goal activation over time (Gollwitzer, 2012; Heckhausen & Heckhausen, 2018; Kuhl, 1992; Moskowitz & Halvorson, 2009), and it suggest that once a goal becomes active, attention processes automatically prioritize goal-supportive information such as opportunities and resources that can facilitate fulfillment (Förster, Liberman & Higgins, 2004). For example, Förster et al. (2005) compared six experimental conditions where undergraduate students performed picture-based and word-based stimulus recognition tasks in exchange for a small fee. The students were randomly assigned to either the goal condition (i.e., “find a picture of glasses followed by a picture of scissors”) or the no-goal condition (i.e., “identify which objects you see in the following pictures”). Both groups were given periodic word-recognition tasks before and after the target stimulus was shown to measure response times. The experimenters expected participants in the goal-condition to identify goal-related words faster than participants in the non-goal condition. Results confirmed the hypothesis. Participants in the goal condition recognized goal-related related words more quickly before the target stimulus was shown (i.e., while the goal was active), but not

after (i.e., once the goal was realized, it was no longer active). This means that while the goal was both active and unfulfilled (i.e., before the target stimuli was shown), attention was primed for fast recognition of goal-relevant stimuli. Results also showed the effect subsided once the goal had been realized and was no longer active (i.e., after the target stimuli was shown). These results support the cognitive tuning hypothesis that active and unfulfilled goals are accompanied by a cognitive bias that prioritizes goal-related and goal-supportive stimuli.

Additional research has shown goal-supportive cognitive tuning occurs at a preconscious level (Moskowitz, 2002), pertains to both conscious as well as nonconscious goals (Marien et al., 2012), short term (Förster et al., 2005; Marien et al., 2012) as well as long term goal time frames (Moskowitz, 2002), and goals induced for the sake of an experiment (Förster, 2012; Marien et al., 2012) as well as real world goals (Moskowitz, 2002). This research suggests goal activation is at least partly if not mostly sustained by far-reaching, goal-supportive information processing biases. The positivity bias is adaptive when it sustains activation for beneficial goals in the face of interruptions, distractions, setbacks, changed circumstances and the sometimes-long periods of time when there may be limited opportunity to act on the goal (Brandstätter & Hennecke, 2018). However, the positivity bias can also lead to futile persistence when it sustains goals that are unattainable, undesirable or counterproductive. For example, the positivity bias could prevent objectively evaluating the odds for a highly unlikely career goal and may therefore sustain an unlikely goal past the point where corrective action could be taken. Goal persistence, then, can be both beneficial or futile depending on whether increased goal striving will make a difference. The positivity bias helps explain

the persistence of goals over time, and therefore reducing or even reversing the positivity bias must have a role in the deactivation of unwanted, undesirable or impossible goals.

The literature review below considers evidence related to two constructs that can help explain a possible goal deactivation pathway based on the positivity bias. First, the mindset theory of action phases explores how the positivity bias may function within a larger mindset called the implementation mindset. Second, the action crisis hypothesis may explain how the implementation mindset and positivity bias could be reversed, clearing the way for objective goal reappraisal and the possibility for goal adjustment or termination. Thus, the proposed goal deactivation pathway is based on the possibility that 1) ongoing goal activation is at least partly if not mostly sustained by a positivity bias, and that 2) the positivity bias is rooted in an implementational mindset (i.e., the mindset theory of action phases), and that 3) the intra-psychic conflict arising from ongoing, stalled goal progress can trigger a breakdown of the implementational mindset (i.e., the action crisis hypothesis) and trigger an objective reappraisal.

The present research sought to investigate whether the above goal deactivation pathway could be facilitated by progress-oriented appraisal styles that measured concrete goal progress or lack thereof as opposed to outcomes-focused appraisal styles (i.e., appraisal styles that tend to focus only on the perceived abstract feasibility and desirability of the outcome). It was expected that progress-oriented appraisal styles would relate to earlier and more successful goal termination efforts as well as better goal termination outcomes. For example, individuals prone to think about their goals in terms of measurable progress may tend to recognize a stalled goal sooner and take appropriate

action to first intensify efforts and then abandon the goal if increased striving proves unsuccessful.

In one investigation, Oettingen, Pak and Schnetter (2001) investigated mental contrasting and implementation intentions. They asked 168 female university students from Berlin to think about their most important personal wish and list four aspects of the desired future represented by the wish as well as four relevant obstacles from their current reality. For the mental contrasting condition, participants were asked to alternate between aspects related to the desired future first, and then aspects related to present obstacles. For the indulging condition, participants were asked to elaborate only on 4 aspects of their desired future. For the dwelling condition, participants were asked to elaborate only on 4 obstacles in their current reality. For the reverse contrasting condition, participants were asked to alternate between aspects of present obstacles first, followed by desired future aspects. The experimenters measured self-reports of perceived energy for taking action as well as actions actually taken up to two weeks later, and found that participants in the mental contrasting condition reported higher perceived energy ($r = .56$ as compared to $r = -.06$ to $r = .21$, $p = .001$ to $p = .03$) and were also more likely to have taken action and taken action sooner ($r = .43$ as compared to $r = -.05$ to $r = .01$, $p = .01$ to $p = .02$). These findings suggest appraisal styles that focus on action that overcomes obstacles to a goal leads to more perceived energy and a higher likelihood of taking action. It seems possible that the same progress-oriented appraisal style could help identify a stalled goal sooner due to lack of progress, and support more decisive action with less time wasted, less psychological distress and an increased likelihood of moving

on to new goals that are better calibrated to an individual's abilities, prospects and intrinsic motivations.

Mindset Theory of Action Phases

The mindset theory of action phases as proposed by Heckhausen and Gollwitzer (1987) helps explain the positivity bias and also suggests a possible starting point for a goal deactivation pathway. According to the theory, goal activation follows a four-stage progression from goal selection and goal planning through goal implementation and goal evaluation. Each stage serves a distinct function and operates according to one of two distinct mindsets. The deliberative mindset is characterized by openness and objectivity and is suited to goal selection (phase 1), as well as post-fulfillment evaluation (phase 4). For both goal selection and post-fulfillment evaluation, objectivity is required to evaluate which goals are worth pursuing and whether past fulfilled goals met expectations. The second mindset – the implementation mindset – is characterized by closed-mindedness and biased information processing that protects an active goal from information and appraisals that could reduce commitment to the goal. The positivity bias keeps the individual focussed on goal realization despite challenges, setbacks, frustration and distraction. The implementation mindset applies to the goal planning (phase 2) and goal execution (phase 3) phases because both phases depend on the kind of commitment and energy that comes from optimistic assessments about the goal.

Heckhausen and Gollwitzer (1987) suggest goals become active only after a period of objective deliberation wherein the goal is eventually seen as both feasible and desirable. To test their hypothesis, the researchers asked participants to choose between two sets of photo materials for a creative task, one drab and black and white and the other

vivid and colourful. Participants in the pre-decisional condition were shown both sets of photos and were asked to fill out a stream of consciousness survey before they decided. Participants in the post-decisional condition were asked to make their decision first and then fill out the stream of consciousness survey. Two independent raters scored the content of the stream of consciousness survey, and experimenters observed a significantly higher mean frequency of motivational thoughts (i.e., thoughts about incentives, outcomes expectancies and questions about motives) for the pre-decisional as compared to the post-decisional group ($M = 3.34$ versus $M = .79$, $p < .001$). The experimenters found that the post-decision group were more concerned with matters of execution and tactics. Thus, people in a pre-decisional state question the value of goals where people in a post-decisional state take the goal for granted and focus on execution. This appraisal process may be both deliberate and conscious or it may be more intuitive and nonconscious depending on whether the goal itself is conscious or nonconscious. Important to the current investigation, once a goal becomes active, it resists deactivation and tends to stay active until it is either achieved or abandoned. As noted above, understanding how to deactivate active goals helps free energy and attention for more productive pursuits.

Ongoing goal activation seems to be protected by a positivity bias that de-emphasizes information that casts doubt on the feasibility or desirability of a goal. This helps explain the persistence of goals over time even in the face of setbacks, interruptions and challenges. Crossing the activation or deactivation threshold may require a build-up of appraisals in either direction. For example, before a possibility can become a committed goal, there may need to be a sufficient build-up of positive appraisals so that a

person fundamentally changes how they think about the goal or prospect. Subsequently, once a person is committed to a goal, they tend to see the goal in a persistently favourable light until a sufficient build-up of negative appraisals can break down the positivity bias and begin the goal deactivation process. Brandstätter (2003) suggests the deactivation process occurs because of a prolonged “intra-psychic conflict” called an action crisis (Brandstätter & Herrmann, 2018, p. 97). During an action crisis, ongoing lack of goal progress leads to more and more doubts about goal feasibility or desirability. When enough doubts accumulate, the goal itself may be called into question and eventually terminated. The concept of an action crisis is discussed further below.

Gollwitzer et al. (1990) investigated whether the implemental as compared to deliberative mindsets could predict whether study participants would report more planning-related thoughts (i.e., how to implement a goal) or more contemplation-related thoughts (i.e., whether a goal is worth implementing) during a creative work assignment. In the first study, 97 male undergraduate students were randomly assigned to either the deliberative mindset condition, the implementational mindset condition or the control condition. Participants in the deliberative condition were asked to journal a personal decision they had not yet made. Participants in the implementational condition were asked to journal on the execution of a personal project to which they were already committed. Each group were then asked to complete an unfinished fairy tale based only on a short opening paragraph. The resulting compositions were scored by two independent raters looking for whether the story content reflected on decisional content about a choice yet to be made or tactical content about taking steps toward a determined outcome. The deliberative and implementational groups were compared to each other and to a control

group that was given a filler task. Three different fairy tale primes were used in order to isolate any observed effects from an individual prime. Participants in the deliberative condition averaged 1 deliberative theme in their story completions versus 0.71 for the control and 0.38 for the implementational group ($p < .05$). For implementational themes, the deliberative group averaged 5.81 themes in their story completions as compared to 6.94 for the control and 7.85 for the implementational group ($p < .01$). These studies support the information processing hypothesis that active goals (i.e., goals in the post-commitment phase) are protected by a positivity bias so the goal itself is no longer under question, and attention falls naturally to the prospect of goal execution. Thus, a goal deactivation pathway would need to reverse the positivity bias. It is likely that the nature of the task in this experiment (i.e., a short creative writing exercise) lends itself to certain types of content (i.e., a fairy tale-type story may automatically prime actions as compared to deliberations just because of the genre). As a result, additional support from different types of experimental designs would be helpful to see if the same effect is observed. The consistency of findings across 3 different fairy tale primes intermixed between the two experiment groups provides good support for a relationship between mindset and the types of thoughts generated. These findings support the information processing hypothesis that the implementation mindset associated with active goals leads to a positivity bias that protects active goals and makes them difficult to deactivate. A goal deactivation pathway would need to reverse this positivity bias.

In the second study, Golwitzer et al. (1990) investigated whether implemental and deliberative mindset conditions predicted recall rates for either implementation related or decision related information. Sixty-nine male undergraduate students were shown eight

pairs of slides depicting different elements of a hypothetical decision between conflicting alternatives. The first slide in each pair posed a dilemma (i.e., should I do x or y, where x and y are alternatives). The second slide in each pair showed two deliberative and two actionable aspects of the dilemma. To invoke the mindset conditions, subjects in both mindset groups were instructed to contemplate whether to use black-and-white or colour material on an unrelated creativity task that would take place after the experiment. To invoke the deliberative mindset condition, subjects in the deliberative group were asked to delay their decision until later. To invoke the implementation condition, subjects in the implementation group were asked to make their decision and then perform the experiment. In the control condition, subjects were simply shown the slides after a filler explanation about where the slides came from. Subjects were then asked to view the slides and complete sentence stems from memory based off the second slide in each pair (i.e., the two deliberative and two actionable elements for each dilemma presented). Recall accuracy was measured by the number of successfully completed sentence stems in each category. The experimenters expected that subjects in the deliberative condition would recall more deliberative items, where subjects in the implementational condition would recall more action elements.

The experimenters observed a significant main effect between the mindset condition and the types of content recalled. Subjects in the deliberative condition recalled significantly more elements that had to do with appraising the dilemma where subjects in the implementational condition recalled significantly more elements related to possible actions. The control group consistently occupied a mid-point between the two mindset conditions, which suggests not only is recall elevated for mindset-congruent

information, but also that recall is impaired for non-mindset-congruent information. The fact that the control group recalled both information types about equally suggests it is the mindset condition that explains the variance. These very different methodologies for the two studies with consistency of findings provide good additional support for the idea that mindsets correlate to information processing styles, and information processing styles relate to goal activation or deactivation. Again, a goal deactivation pathway would need to address the positivity bias that protects active goals.

Taylor and Gollwitzer (1995) conducted three studies to investigate whether deliberative and implementational mindsets would predict the types of thoughts participants were more likely to report. In the third, eighty male undergraduate students were randomly assigned to one of three conditions, either deliberative, implementational or mid-implementation. Subjects in the deliberative condition were asked to think of a difficult, unresolved personal dilemma and list the short as well as long term consequences for different solutions to their dilemma. The implementation group were asked to think of a personal project to which they were already fully committed and then list the most important action steps required. The mid-implementation group were instructed to think of a personal project they had already begun but not yet completed. To overcome recency and availability biases, all subjects were given a self-report questionnaire designed to help them list the full range of their thought processes. Two independent raters classified responses to the questionnaire as either desirability-related, feasibility-related, meta-deliberation (i.e., deliberation about deliberation with statements such as, “Did I make the right choice?”), implementation, meta-implementation (i.e., appraisals about implementation with statements such as, “It is really important that I

take this action”) and task-irrelevant information. Table 1 below summarizes the findings.

Table 1. Types of Thoughts According to Mindset Types

Thought categories	Deliberative <i>n</i> = 26	Implementational <i>n</i> = 25	Mid-Implementational <i>n</i> = 29
Desirability			
Positive consequences (pros)	1.65	1.2	0.62
Negative consequences (cons)	1.85	0.24	0.14
Feasibility			
Positive expectations	0.04	0.16	0.21
Negative expectations	0.27	0.12	0.31
Meta-deliberation	2.15	0.2	0.38
Implementation	0.38	0.84	1
Meta-implementation	0.04	1.16	1.14
Task-irrelevant issues	0.65	1.04	1.72

Consistent with the positivity bias of the implementation mindset, experimenters expected a greater number of optimistic as compared to negative assessments for both the implementation and mid-implementation groups. Consistent with the greater objectivity associated with the deliberative mindset, experimenters expected to see a more even-handed distribution of positive and negative appraisals for the deliberative group. Results supported the hypothesis. Subjects in the deliberative group reported nearly even numbers of positive as compared to negative appraisals (1.85 as compared to 1.65, no significance). Subjects in the implementation and mid-implementation groups showed greater positive (1.2 and 0.62) as compared to negative (0.24 and 0.14) appraisals. Thus, deliberators consider both positive and negative aspects in roughly equal fashion, where the implementation and mid-implementation groups tend to report more positive than negative consequences. The observed positivity bias seems robust given the wide variety of goals subjects were likely to choose for the study. The greater number of optimistic assessments on the part of the implementation groups is consistent with the idea that the

implementation mindset protects active goals with a bias toward goal-supportive information.

Fujita et al. (2007) conducted three experiments to assess whether the information processing styles associated with the deliberative and implementation mindsets extend to precognitive thought processes. These studies are important for the proposed research because they investigate whether the positivity bias associated with active goals may filter out non-goal-related information at a precognitive level. The experimenters sought to measure whether people in a deliberative mindset recall a greater amount of distracting, incidental information flashed during an unrelated computer task. For each of the studies, New York university students were offered course credit for participation. The students were randomly assigned to either a deliberative or implemental mindset condition, or in the case of study 3 a control condition. Participants were instructed to perform a computer task that involved counting objects at the center of the screen. For half of the counting exercises, a task irrelevant word was flashed in the same screen location as the work task for a time generally considered too fast for conscious processing. The sequence of words was randomized for each participant to avoid any effects related to the sequence of words shown. For all three studies, students were scored on a surprise recall test based on incidental words flashed on the screen during the computer task. For the recall test, participants were asked to identify as quickly and as accurately as possible which words flashed on the screen during the computer task. Correct answer words were randomized with an equal number of similar words, and participants were measured on both accuracy (i.e., how many correct versus incorrect identifications) and response latency times (i.e., how long it took to select).

The experimenters expected deliberators would have a less inhibited information processing style than implementers and would show better incidental word recall performance (i.e., both accuracy and response times). Experimenters observed mixed results across all three experiments. At times, deliberators showed faster recognition times but were not more accurate in their recall. At other times, deliberators showed greater accuracy, but their responses were not faster. The mixed results may be a function of the short word-display times involved (i.e., smaller margin for error) and there may be large differences between individuals for recall related to subliminal stimuli. However, while the findings would be stronger if they were more consistent across all three studies, it is still significant that at no time were implementors either faster or more accurate than deliberators. Additionally, the experimenters did observe a significant effect for mindset on both accuracy as well as response times when performing a meta-analysis of compiled data across all three studies. As such, it seems reasonable to conclude that the information processing bias associated with goal activation extends to precognitive as well as conscious thought processes, which further stresses the need for a goal deactivation pathway to address the positivity bias.

The information processing hypothesis and the mindset theory of action phases suggest goal activation is at least partly if not mostly a function of information processing. A person deliberates about a goal until positive desirability and feasibility appraisals trigger a commitment. Once a person is committed to the goal, the goal drives behaviour and is protected by a positivity bias. The positivity bias shields the goal and ensures optimal motivation for goal striving and sustains goal activation in the face of challenges and setbacks (Fujita et al., 2007; Gollwitzer et al., 1990; Taylor & Gollwitzer,

1995). The positivity bias seems to operate at both conscious and preconscious levels (Fujita et al., 2007; Gollwitzer et al., 1990; Taylor & Gollwitzer, 1995). The positivity bias makes goal deactivation difficult even when that is the best path. Thus, a goal deactivation pathway must address the positivity bias. We turn now to an exploration of the action crisis as a triggering mechanism for a goal disengagement that breaks down the positivity bias.

Action Crisis

Brandstätter (2003) has proposed a goal disengagement pathway based on the construct of the action crisis. Much of the research before this research focussed on the benefits of goal disengagement and dispositional differences that predict whether a person is likely to successfully disengage from futile goals (Wrosch et al., 2003; Wrosch et al., 2005; Wrosch et al., 2007; Miller & Wrosch, 2007). For example, Wrosch et al. (20007) investigated the benefits of goal disengagement by looking at the relationship between successful goal disengagement and subsequent subjective well-being and self-reported health problems and found that university students who could adjust or even terminate their goals reported higher subjective well-being and fewer health concerns. This correlation was especially true when the university student re-engaged with alternative goals. As mentioned above, the concept of the action crisis is important because it goes beyond examining the benefits of goal disengagement and suggests a means by which goal disengagement may occur. An action crisis is a prolonged “intra-psychic conflict” (Brandstätter & Herrmann, 2018, p. 97) where ongoing lack of progress toward a goal eventually leads to more and more doubts about goal feasibility. These doubts may eventually eliminate goal commitment and the protective positivity bias.

Rothermund and Brandstädter (2003) conducted a 4-year longitudinal study to see whether age-related performance declines in physical fitness, cognitive function, general appearance and performance of everyday tasks would lead to reduced expectations so that contentment with performance would remain effectively the same. This study provides a life-development perspective on goals that gradually become unattainable over time, and showcases the features of an action crisis, which include an ongoing performance challenge that initially triggers increased striving, but eventually leads to reduced striving and adjusted expectations. The sample involved 762 subjects from southwestern Germany aged 58 to 81 years old. Participants returned self-report questionnaires in 1995 and again in 1999. The questionnaires measured perceived degree of control over personal performance, amount of effort spent compensating for performance losses, degree of perceived performance losses, the degree to which participants valued each performance area, their ability to keep up with younger individuals in each area, and finally their overall contentment with their performance. The investigators expected an initial increase in compensatory efforts overall followed by a decline once participants gradually came to realize diminishing returns. Despite declines in performance and compensatory efforts, investigators expected contentment scores to stay the same because participants were expected to lower their personal standards to match reduced performance. Investigators analyzed changes for individuals and compared variances between 2–3-year birth cohorts. See Figure1 below.

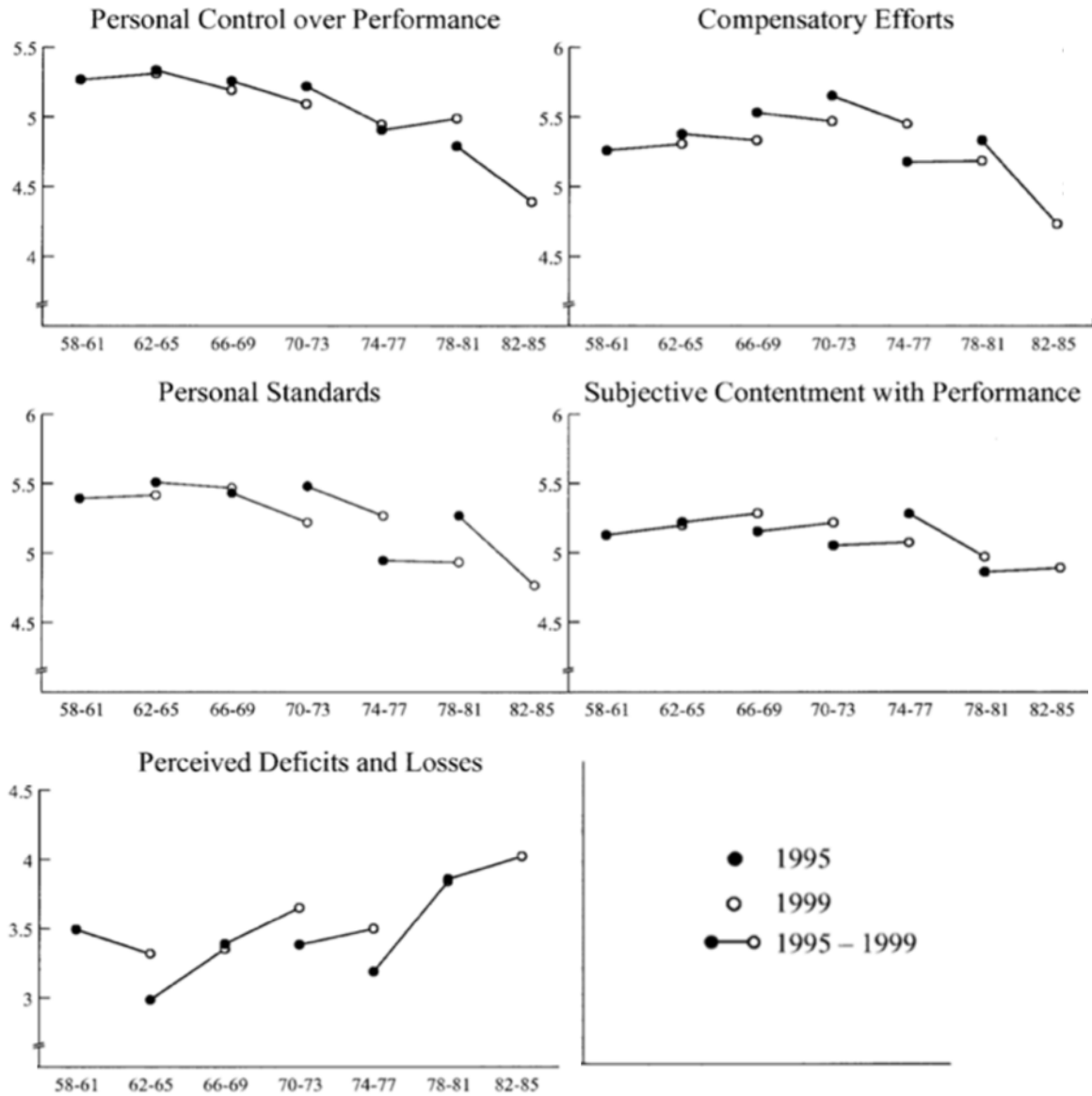


Figure 1. Compensatory Efforts and Perceived Control for Goals Over Time

X-axis: age cohorts, Y-axis: values for measures used by performance area

The results show the expected negative correlation between age and perceived control over performance over time. Scores not only declined between measurement times within each cohort, but relative scores between cohorts also show an overall downward trend. The experimenters observed the expected inverted-u trend for compensatory efforts, with initial increases in compensatory efforts for the younger cohorts as compared to reduced compensatory efforts for the older cohorts. Compensatory efforts also tended to decline over time within each cohort. The expected downward trend for personal standards was also observed within each cohort as well as between cohorts over time. Finally, the experimenters observed no significant effects within the cohorts or between the cohorts for subjective contentment, meaning subjective contentment had remained stable. The large sample size plus the consistency of findings across more than one expected outcome makes the results convincing and provides good support for the idea that ongoing performance declines may trigger an initial increased striving response that eventually gives way to longer-term lowered expectations.

These results provided good initial evidence that ongoing performance discrepancies (i.e., in this case between expectations and actual performance) can trigger a process of accommodation where even deeply held and highly reinforced attitudes and expectations are adjusted (i.e., in this case long-held performance standards were reduced). Lowered personal standards and reduced compensatory efforts in the face of age-related declines are examples of abandoning performance goals that have become too challenging to sustain. As mentioned above, ongoing performance discrepancies appear to be a trigger for goal adjustment and potentially goal termination.

The study above was focussed on only age-related performance declines. Brandstätter (2003) formalized the concept of the action crisis by looking at goal and performance more generally. The concept of the action crisis is based on a theory proposed by Klinger (1978) which outlined four stages of goal disengagement brought about by ongoing performance challenges. The first stage, which is increased goal striving, is followed by anger and aggression from ongoing poor progress, which is then followed by depression once goal prospects are adjusted or relinquished, and finally recovery occurs when replacement goals are chosen. While Klinger's work was theoretical, Brandstätter's (2003) action crisis concept operationalized the theory for testing.

In a 2013 study, Brandstätter, et al. used questionnaires to investigate whether the experience of an action crisis predicted goal reappraisal as well as reduced physical and psychological well-being. These studies tested whether an action crisis from ongoing poor goal progress could potentially reverse the positivity bias and pave the way for goal reappraisal. For each study, undergraduate students completed questionnaires at the beginning and the end of a semester that measured for indications of an action crisis brought about by poor progress against personal goals chosen for that semester. Subjects were prompted to consider two academic and two non-academic goals and report on satisfaction with life as well as their views on the attainability of their goals. For study 1, positive and negative affect were also measured while for study 2, overall health, sleep quality, and goal desirability were also measured. The experimenters expected action crises would predict reduced physiological and psychological well-being. The

experimenters also expected action crises would predict reduced goal feasibility and desirability reappraisals.

In the first study, an action crisis at the beginning of the study predicted a continued action crisis at the end of the semester. Higher action crisis scores also predicted lower scores for life satisfaction, positive affect as well as goal attainability. Through mediation analysis, the experimenters tested whether affect predicted goal attainability reappraisal either directly or as a mediator. This helped indicate whether goal disengagement is primarily driven by cognitions or affect. The experimenters found that affect at T1 did not predict goal attainability reappraisal at T2 either directly or as a mediator. This may mean goal reappraisal begins and proceeds as a function of thinking about poor progress over sustained periods of time. The correlations between the main variables are summarized in Table 2 below.

For the second study, experimenters again observed that higher action crisis scores at the beginning of the study predicted an action crisis at the end of the semester. As well, and an action crisis at either the beginning of the study or the end of the semester predicted lower life satisfaction, lower overall health and reduced positive goal appraisal scores. The correlations between the main variables are summarized in Table 3 below.

These data provide support for at least two conclusions. First, these data suggest an action crisis predicts subsequent reductions in psychological and physiological well-being as measured by self-report questionnaires. This is consistent with the notion that discrepancies between goal feasibility appraisals on the one hand (i.e., that a goal is deemed attainable) and ongoing lack of progress toward the goal causes dissonance, and

the dissonance may wear down the positivity bias that protects goal activation. As a result, secondly, these data suggest monitoring progress may increase the likelihood of sensing poor progress and triggering an action crisis. The amount of time for both studies is not short (i.e., 4 months), and the associated costs of an action crisis seem high (i.e., reduced physiological and psychological well-being scores). Both factors suggest the process of breaking down the positivity bias may be both slow and difficult. Additionally, since the mediation analysis for the first study failed to show a direct or indirect relationship to goal reappraisal, it is possible that goal reappraisal may be more about cognition than affect.

Table 2. Action Crisis Predictors for Study 1

Variable	<i>M (SD)</i>	1	2	3	4	5	6	7
1. Action crisis (T1)	2.30 (0.60)	—						
2. Action crisis (T2)	2.27 (0.63)	.76***	—					
3. Satisfaction with life (T1)	5.10 (1.06)	-.50***	-.36**	—				
4. Satisfaction with life (T2)	5.12 (1.02)	-.55***	-.43***	.74***	—			
5. Affect (T1)	4.89 (0.89)	-.58***	-.36**	.65***	.60***	—		
6. Affect (T2)	5.10 (0.99)	-.56***	-.46***	.45***	.58***	.62***	—	
7. Goal attainability (T1)	3.62 (0.45)	-.37**	-.28*	.30*	.15	.11	.12	—
8. Goal attainability (T2)	3.54 (0.49)	-.40**	-.44***	.33*	.30*	.29*	.21	.64***

T1 = Time 1, T2 = Time 2. * $p < .05$, ** $p < .01$, *** $p < .001$.

Brandstätter and Schöler (2013) investigated whether an action crisis predicted increased deliberative thoughts about goal feasibility. This may provide additional support for the idea that ongoing poor goal progress triggers an action crisis which in turn breaks down the positivity bias and the implementation mindset. Again, this would in turn open the way for a return to the deliberative mindset and goal reappraisal, adjustment or termination. Over the course of two laboratory studies and two field

studies, Brandstätter and Schüller (2013) compared levels of cost-benefit thinking about goals for groups experiencing an action crisis as compared to groups not experiencing an action crisis. This is based on the idea that cost-benefit thinking is a form of deliberation, and deliberation is not consistent with the implementation mindset and the positivity bias that protects active goals.

In the first study, forty male and female undergraduate students were randomly assigned to read a short description of either an intimacy dilemma with a romantic partner to invoke an action crisis condition, or a romantic partner they are happy with to invoke a no action crisis condition. After a short waiting period to allow for deliberation, participants self-reported the content of their thoughts so the numbers of deliberative-type pro versus con thoughts. Participant responses were also scored according to any thoughts showing an urge to exit the relationship. Participants in the action crisis condition scored higher on thoughts about disengaging from the relationship as compared to participants in the no action crisis condition (mean scores of 3.6 as compared to 1.7 respectively). Participants in the action crisis condition also scored higher on deliberative-type thoughts about the costs of continuing the relationship, the benefits of ending the relationship, and the costs of ending the relationship.

These results suggest the experience of an action crisis may predict more deliberative-type thoughts about the feasibility and/or desirability of a goal or project which represents the breakdown of the positivity bias and a return to the deliberative mindset.

For the second study, Brandstätter and Schöler (2013) used a surprise recall test after a short learning exercise to measure the retention of cost-benefit information as compared to implementation information.

Table 3. Action Crisis Predictors for Study 2

Variable		<i>M (SD)</i>
1	Action crisis (T1)	2.29 (0.51)
2	Action crisis (T2)	2.28 (0.54)
3	Satisfaction with life (T1)	4.96 (1.23)
4	Satisfaction with life (T2)	4.75 (1.38)
5	Health (T1)	2.81 (0.56)
6	Health (T2)	2.88 (0.61)
7	Sleeping disorders (T1)	2.23 (1.02)
8	Sleeping disorders (T2)	2.39 (1.07)
9	Goal desirability (T1)	4.60 (0.36)
10	Goal desirability (T2)	4.51 (0.50)
11	Goal attainability (T1)	3.73 (0.52)
12	Goal attainability (T2)	3.73 (0.63)

	1	2	3	4	5	6	7	8	9	10	11
1	—										
2	.73†	—									
3	-.45†	-.33†	—								
4	-.33†	-.38†	.49†	—							
5	-.21†	-.15**	.30†	.23†	—						
6	-.32†	-.34†	.31†	.42†	.59†	—					
7	.08	.04	-.18**	-.10	-.52†	-.34†	—				
8	.16**	.19**	-.18**	-.25†	-.42†	-.60†	.64†	—			
9	-.28†	-.19**	.16**	.10	-.05	.05	-.03	-.07	—		
10	-.36†	-.32†	.21†	.26†	.07	.18†	-.00	-.06	.64†	—	
11	-.50†	-.40†	.31†	.27†	.12	.23†	-.08	-.16†	.35†	.33†	—
12	-.40†	-.56†	.16**	.36†	.06	.28†	-.03	-.15*	.31†	.50†	.62†

*T1 = Time 1, T2 = Time 2. * $p < .05$, ** $p < .01$, † $p < .001$.*

The experimenters expected higher cost-benefit scores and lower implementation scores for subjects in an action crisis condition. This is important because it provides additional support for the idea that an action crisis brought on by poor goal progress predicts a more deliberative mindset, which in turn allows for goal reappraisal and possibly goal termination. Seventy male and female students were randomly assigned to

either read a scenario that described a peer in an action crisis to invoke the action crisis condition, or a scenario about a peer having positive experiences in pursuit of a goal to invoke the no action crisis condition. Both groups were then exposed to 8 deliberative and 8 implementational statements in random order. Subjects were told the purpose of the exercise was to simply report on the number of “r” letters in each sentence.

Following a short filler task, both groups completed an unannounced recognition test to see how much content from each of the 8 deliberative and 8 implementational statements they incidentally absorbed during the letter counting exercise. For the recall test, the 8 deliberative and 8 implementational statements were randomly interspersed with 16 additional foil statements. Subjects were asked to correctly identify which statements had been shown in the original exercise. The experimenters observed a relationship between the action crisis condition, and both thought category (i.e., deliberative versus implementational) as well as the numbers of correctly recalled statements. These findings support the hypothesis that an action crisis predicts greater attention to and thus recall of deliberative, cost-benefit thinking.

For the final study, Brandstätter and Schüller (2013) investigated a real-world action crisis by studying marathon runners at the 30th kilometer of a marathon where the impulse to quit is often highest. The experimenters expected cost-benefit thinking and quitting impulses would be lower earlier in the race, rising to peak at 72% of completion and then declining once the prospect of finishing becomes more real. This study is important for the present research because if an action crisis can break down some of the positivity bias for a highly reinforced goal like a marathon in progress, then there is good reason to suspect an action crisis could invoke goal deactivation generally.

A total of 114 male and female amateur athletes volunteered to fill out post-race, retrospective questionnaires. Participants were asked to recall their experience at kilometers 10, 20, 30 and 40 and were provided detailed descriptions of those portions of the racecourse to improve recall accuracy. The questionnaires were designed to measure both the desire to quit as well as the frequency of deliberative-type cost-benefit thinking. The experimenters observed an inverted u-shape trend where thoughts about quitting increased to peaked at kilometer 30 and then declined thereafter. Analysis for interaction effects between race segment and the frequency of cost-benefit thinking about whether to quit or continue also revealed the same inverted-u trend. While these results are in line with the findings for the previous two studies, it is also true that participants may have fit their recollections to the logical expectation that they found the race more and more arduous leading up to the 30-kilometer mark. Taken as a whole, though, the 3 studies together provide good additional support for the hypothesis that an action crisis serves as a precursor to goal deactivation processes beginning with reductions in the positivity bias.

In another study, Herrmann and Brandstätter (2013) investigated the relationship between an action orientation (discussed below) on the one hand and the dynamics within as well as outcomes from an action crisis on the other. The study was designed to investigate dispositional factors that may predict whether an action crisis presents earlier or later, as well as what types of outcomes are likely. The Herrmann et al. (2013) study as well as the concept of action orientation are important for the present research summarized in this paper because they suggest paying attention to goal progress or lack of progress tends to trigger quicker and more effective responses to goal challenges.

These more effective responses to goal challenges include an initial phase of increased goal striving, followed by a faster onset for an action crisis should stalled goal progress continue, and then decisive outcomes like goal adjustment or termination. Thus, paying attention to goal progress may be the starting point for an adaptive response to goal challenges that includes both increased striving and eventual goal adjustment or termination should challenges persist.

The concept of an action orientation emerges from the work of Julius Kuhl on personality systems interaction theory (1992, 2000). According to the theory, action-orientation individuals intuitively regulate interference from negative affect so they are more able to focus on goal striving. This contrasts with state-oriented individuals who are less able to manage interference from negative affect and are subsequently distracted from goal striving. In both cases, negative affect is triggered by a lack of expected goal progress (i.e., discrepancy monitoring, performance demands, threats to goal progress and threats to positive goal appraisals). The theory holds that action-oriented people are less likely to be hijacked by negative affect that stems from goal pursuit challenges, which allows them to focus on taking action. According to Kuhl's theory, negative affect can trigger bottom-up processing (i.e., thinking about lower order actions and issues rather than higher order problems with a goal). This means a high action orientation person tends to become more and more aware of the discrepancy between actual and expected progress. This can lead people to accelerate and/or adapt goal realization efforts to overcome setbacks and get back on track. Additionally, according to the theory, reduced positive affect can eventually trigger top-down processing that re-evaluates

fundamental aspects of the goal as well as efforts to pursue the goal (i.e., higher order reconsiderations of the goal and goal pursuit prospects).

Thus, Kuhl's framework supposes that increased negative affect from progress discrepancies initially triggers accelerated goal striving until such time as there is enough decreased positive affect to trigger a re-evaluation of fundamental assumptions about goal desirability and/or feasibility. This latter effect is of interest for the present research summarized in this paper because goal reappraisal signifies a breakdown of the positivity bias, a related reduction in goal activation (because the positivity bias sustains goal activation), as well as a return to the deliberative mindset where goals can be re-evaluated or terminated. Once a deliberative mindset returns, a person can more objectively re-evaluate goals in light of new information (both feasibility and desirability) and if necessary, adjust or terminate the goal.

Through two longitudinal studies, Herrmann and Brandstätter (2013) tested the expectation that an action orientation predicts a buffering effect for individuals on the way into an action crisis (i.e., action-oriented individuals would see smaller increases for action crisis measures as compared to state-oriented individuals). The experimenters also sought to test whether action-oriented individuals experienced an accelerated resolution on their way out of an action crisis (i.e., larger decreases for action crisis measures when compared to state-oriented individuals). This hypothesis is consistent with the idea that action-oriented individuals will initially accelerate their goal striving actions in the face of goal challenges, and then accelerate their disengagement once a turning point is reached. For example, the hypothesis predicts that action-oriented university students

would be more likely to study harder as soon as challenges present, but then would also be more likely to drop or change courses if accelerated efforts failed to produce results.

For the first study, 136 female university responded to an online questionnaire about general academic progress at both the start and end of the semester. The survey measured indications of an action crisis as well as action as compared to state orientation, satisfaction with life, affect, health and the degree to which a participant's study goals matched their intrinsic motivations and values. The various measures were designed to see whether a relationship exists between action orientation, action crisis scores, health and satisfaction with life. The measures for affect, and intrinsic motivations were used to rule out possible alternative explanations. The experimenters expected to observe and did observe a negative correlation between an action crisis and all other measures per Table 4 below.

Importantly, the experimenters expected to observe a pattern where higher action orientation scores predicted lower action crisis increases for participants on their way into an action crisis (called the buffering effect), and larger action crisis decreases on the way out of an action crisis (called the resolution effect). This means action-oriented subjects would see smaller increases in action crisis scores over the course of the semester than state-oriented subjects. Similarly, for subjects who saw a decrease in action crisis scores, the decreases would be greater for subjects with high action orientation as compared to those with low action orientation scores. Results supported the expected negative correlation between action orientation and action crisis indicators over the course of the semester, validating both the buffering and resolution effects.

To test the expectation that high action orientation scores predict both the buffering and resolution effects, the experimenters used multigroup analysis to assess whether action orientation had roughly the same influence over action crisis scores for both the buffering group (i.e., individuals who saw an overall increase for action crisis scores) as well as the resolution group (i.e., individuals who saw an overall decrease for action crisis scores).

Table 4. Action Crisis Correlations

Variable	Mean (SD)	Correlation to Action Crisis at T1
Action Crisis at Time 1	2.50 (0.88)	
Action Crisis at Time 2	2.23 (0.76)	.66***
Satisfaction with Life	5.09 (1.16)	-.45***
Affect	4.94 (1.16)	-.45***
Health	2.85 (0.65)	-.29***
Goal self-concordance	9.47 (6.12)	-.42***
Action orientation	10.60 (4.39)	-.31***

*** $p < .001$

Comparison between data models for both groups suggest action orientation explained the same amount of variance for both groups. This suggests action orientation predicts action crisis (i.e., lower increases for those moving into an action crisis, and larger decreases for those moving out of an action crisis). It is reasonable to supposed that paying attention to goals through the lens of action and progress can lead to an initial period of increased goal striving should challenges present, but then also a period of eventual goal adjustment and possible termination should the increased actions prove futile.

These same findings were validated in a second, slightly different longitudinal study by Herrmann & Brandstätter (2013). Instead of evaluating general academic progress, participants in this study self-selected two personal academic goals for review at the beginning and end of the semester. The study was comprised of 228 female psychology students who completed questionnaires in exchange for course credit. The questionnaires were designed to measure progress against the chosen goals, indications of an action crisis as well as indications of action orientation. The experimenters again observed a negative correlation between action orientation and action crisis scores. Comparisons between data models for the buffering and resolution groups again suggested that action orientation explained the same amount of variance for those on their way into an action crisis (buffering group) as for those on their way out (resolution group). The consistency of results between this study and those summarized above with different methodologies suggest strong support for action orientation as a predictor of action crisis trajectories and outcomes.

Chapter II.

Method

Data was collected using Amazon Mechanical Turk through a Qualtrics-designed survey for a small reward.

Participants

Three-hundred and ten individuals completed an online survey and met the following screening criteria: 18 years of age or older, a resident of the United States or Canada, has had the goal to be in a romantic relationship, has used online dating apps and websites, and has not received treatment for a psychological condition within the previous 3 years. The screening criteria were intended to avoid confounding results with potential underlying conditions.

Attention checks were deployed in between each of three sections for responses (i.e., “What is the third word in the following sentence: *How many stars are in the American flag?*”) and failed attention checks resulted in a discarded survey.

Procedure

Participants were recruited to give feedback about their experience using online dating apps or websites as well as the actions they took to ensure success. Participants were prompted to examine experiences within the previous three years. Participants were informed that the purpose of the study was to understand success and frustration associated with pursuing relationship goals through online dating applications and websites. Each participant consented to participate during the screening portion

according to an IRB approved consent process. Each participant was that their participation was voluntary, their responses would be anonymous, and they could opt not to continue at any time.

Materials and Measures

Measures were administered for each of the following variables: action orientation, progress monitoring tendencies, action crisis scores and recalled frustration.

Action versus State Orientation

The Action Control Scale (ACS-90) has been validated through previous research for detecting action versus state orientation in ways discriminant from other constructs such as achievement motive and other aspirational measures (Kuhl, 1994, p. 47f). The 36-item inventory has been tested in a 24-item form as well by dropping the third scale. The inventory compares tendencies to make decisions and take action (i.e., “When I don’t have anything in particular to do and I am getting bored I quickly find something to do”) with tendencies to dwell or deliberate (i.e., “When I don’t have anything in particular to do and I am getting bored I have trouble getting up enough energy to do anything at all”).

Scores from the reduced ACS-90 indicate either an action orientation or a state orientation.

Progress Monitoring

Action versus state orientation scores have been shown to predict a bias toward action (action orientation) or a bias toward inaction (state orientation). Subjects responded to a 6-item inventory to measure progress monitoring tendencies as follows.

1. Can you recall taking specific, concrete steps to improve your success with online dating apps and websites such as having high quality photos taken, retouching or filtering photos to improve appearance, updating your wardrobe, getting feedback on your profile, adapting your profile to test for greater responsiveness, etc.).
2. If and when you experienced fewer results or lower quality results with the app or website, did you tend to feel discouraged, or take action or both?
3. As you spent time on the app/website, did you measure progress in concrete ways (i.e., tracking how many responses per week) or did you have more of a general sense that it was working or not working?
4. Did you change or adapt your approach in any way during the time you used apps or websites? I.E., did you rewrite your bio, update your photos or try new approaches in your chats?
5. Did you think about pausing your pursuit of a romantic relationship or even giving up on it at any point?
6. If you did think about pausing or giving up your goal, how often did this occur?

Recalled Action Crisis and Recalled Frustration

The Action Crisis Scale (ACRISS) is a validated six-item inventory that measures motivational conflicts, frustrated striving, ruminative tendencies, thoughts about quitting as well as procrastination with statements such as “When striving for this goal I repeatedly am confronted with situations where I do not know how to continue” and “I repeatedly ruminate about my goal.” (Brandstatter & Schuler, 2013) Responses will be measured through a 5-point Likert-type scale from 1-No agreement through 5-Very much agree. Five additional items measured recalled frustration:

1. I often felt immediate frustration at the first sign of delayed progress.
Responses will be measured through a 5-point Likert-type scale from 1-No agreement through 5-Very much agree.
2. I tended to experience frustration infrequently or not at all even when my progress was slower than expected. Responses will be measured through a 5-point Likert-type scale from 1-No agreement through 5-Very much agree.
3. When I experienced frustration, I tended to get over it quickly. Responses will be measured through a 5-point Likert-type scale from 1-No agreement through 5-Very much agree.
4. When I experienced frustration, it would take me a long time to get over it and start making progress again. Responses will be measured through a 5-point Likert-type scale from 1-No agreement through 5-Very much agree.
5. After periods of frustration, I was able to refocus on my goal and start making progress again. Responses will be measured through a 5-point Likert-type scale from 1-No agreement through 5-Very much agree.

Chapter III.

Results

Three-hundred and ten individuals completed the survey after meeting the following screening criteria: age 18 years or older, resident of the United States or Canada, goal to be in a romantic relationship, has used online dating apps and websites, and has not received treatment for a psychological condition within the previous 3 years. There were 175 males, 131 females and 2 respondents indicating “other” for gender which comprised 56.8%, 42.5% and 0.6% of the sample respectively. Age category distributions summarized in Table 5 below.

Preliminary Analyses

Table 5. Sample Age Distribution

Age Category	Number of Participants	Percentage of the Sample
18-24 years	28	9.1%
25-34 years	134	43.5%
35-44 years	80	26%
45-54 years	45	14.6%
55+ years	21	6.8%

The Action Control Scale (ACS) measured the tendency to take action toward a goal, the Action Crisis Scale (ACRISS) measured recalled frustration over poor goal progress, and individual survey questions measured the tendency to report taking concrete steps for goal realization, measuring goal progress, modify goal approaches and re-evaluate goals. For this paper, the following terms are used respectively: action orientation, action crisis, concrete steps, progress monitoring, adapt approaches and goal

re-evaluation. Table 6 summarize overall results for each of the measure for the sample and Table 7 summarizes results for each measure by gender and age category.

Table 6. Summary of Scores for the Entire Sample

	N	Min	Max	Mean	St. Dev	Variance
Action Orientation	308	2	24	11.91	3.40	11.52
Action Crisis	308	6	33	22.86	4.91	24.11
Concrete Steps	308	0	1	.94	.24	.06
Progress Monitoring	308	0	1	.79	.41	.17
Adapt Approaches	308	0	1	.65	.48	.23
Goal Re-evaluation	308	0	1	.69	.46	.21

Five additional individual questions measured recalled frustration on a 7-point Likert-type scale. Higher scores indicated a greater immediate frustration, higher frustration frequency, being slower to get over frustration, slower goal progress after frustration, and difficulty refocusing on the goal after frustration. Mean scores and standard deviations are summarized in Tables 8 and 9 below according to gender and age category.

Bivariate analysis failed to find significant relationships between either age or gender when compared to immediate frustration, frustration frequency, getting over frustration slowly, slow goal progress after frustration, difficulty refocusing on goal after frustration. See table 10 below.

Table 7. Descriptive Statistics

Variable	Gender / Age Category	N	Mean Scores
Action Orientation (24-point scale)	Males	175	12
	Females	131	12
	Other	2	11
	18-24 years	28	12
	25-34 years	134	12
	35-44 years	80	12
	45-54 years	45	12
	55+ years	21	11
Action Crisis (36-point scale)	Males	175	23
	Females	131	23
	Other	2	26
	18-24 years	28	25
	25-34 years	134	22
	35-44 years	80	23
	45-54 years	45	23
	55+ years	21	23
Concrete Steps (0 = no, 1 = yes)	Males	175	.95
	Females	131	.92
	Other	2	1.00
	18-24 years	28	.89
	25-34 years	134	.93
	35-44 years	80	.94
	45-54 years	45	.98
	55+ years	21	.95

Progress Monitoring
(0 = no, 1 = yes)

Males	175	.77
Females	131	.82
Other	2	1.00
18-24 years	28	.79
25-34 years	134	.81
35-44 years	80	.76
45-54 years	45	.71
55+ years	21	.90

Adapting Approaches
(0 = no, 1 = yes)

Males	175	.63
Females	131	.68
Other	2	.50
18-24 years	28	.75
25-34 years	134	.64
35-44 years	80	.61
45-54 years	45	.76
55+ years	21	.52

Goal Re-evaluation
(0 = no, 1 = yes)

Males	175	.70
Females	131	.68
Other	2	1.00
18-24 years	28	.71
25-34 years	134	.71
35-44 years	80	.69
45-54 years	45	.67
55+ years	21	.62

The main hypothesis for this his investigation was that online daters who took concrete steps and measured progress would also show greater action orientation, increased recalled frustration after stalled progress, increased goal adjustment and increased goal re-evaluation tendencies.

Table 8. Recalled Frustration Results by Gender

Gender	Immediate Frustration	Frustration Frequency	Getting Over Frustration Slowly	Slow Goal Progress after Frustration	Difficulty Refocusing on Goal after Frustration
Male					
Mean	4.06	1.99	1.63	4.02	1.49
N	175	175	175	175	175
SD	1.530	1.402	1.297	1.424	1.231
Female					
Mean	4.34	1.76	1.59	4.03	1.50
N	131	131	131	131	131
SD	1.201	1.144	1.073	1.252	1.026
Other					
Mean	5.00	1.50	0.50	4.50	0.50
N	2	2	2	2	2
SD	0.000	0.707	0.707	0.707	0.707
Total					
Mean	4.19	1.89	1.60	4.03	1.49
N	308	308	308	308	308
SD	1.401	1.298	1.205	1.348	1.146

Main Analyses

Five hypotheses were tested: first, it was expected that higher action orientation scores (24-point scale, $M = 11.91$, $SD = 3.4$) would predict concrete steps (289 yes (93.8%), 19 no (6.2%), $N = 308$). Second, it was expected that higher action orientation scores would predict greater recalled distress as measured by higher action crisis scores (36-point scale, $M = 22.86$, $SD = 4.9190$). Third, it was expected that concrete steps and progress monitoring (243 yes (79%), 65 no (21), $N = 308$) would predict greater recalled distress as measured by higher action crisis scores. Fourth, it was expected that concrete steps would predict adapt approach responses (200 yes (64.9%), 108 no (35.1%), $N = 308$). Fifth, it was expected that concrete steps would predict goal re-evaluation as

measured by the tendency to periodically pause the goal to be in a romantic relationship (213 yes (69.2%), 95 no (30.8%), $N = 308$).

For the first hypothesis, it was predicted that concrete steps would be related to higher action orientation. However, the variables were unrelated ($r(306) = -.086, p > .05$). The hypothesis that action orientation would predict recalled distress and that action orientation would predict action crisis scores. Second, that action crisis scores would show a relationship to some or all of the 5 recalled frustration questions. Third, it was expected that action orientation would show a relationship to some or all of the 5 recalled frustration questions.

The expectation that action orientation would predict action crisis was not supported; the relationship between action orientation and action crisis was negative ($r(306) = -.360, p < .001$) showing that high action orientation online daters were less rather than more likely to report recalled frustration as measured by action crisis.

The second analysis expected to find relationships between action crisis scores and each of the recalled frustration items. Multivariate analysis supported the expected relationships as summarized in Table 11 below. Two-tailed bivariate correlations for each of the frustration variables are displayed in Table 12.

Results show mixed support for the hypothesis; positive correlations supported the expectation that action crisis would predict greater recalled frustration, and negative correlations did not support the hypothesis for that individual item. This means online daters with higher action crisis scores showed increases with some of the 5 recalled frustration items and decreases with others.

As illustrated above, only two frustration items were related to action orientation: feels immediate frustration ($F(22) = 3.95, p < .001$) and slow progress after frustration ($F(22) = 3.338, p < .001$). Bivariate correlate analysis for each of these relationships found the following r values: immediate frustration ($r(308) = -.348, p < .001$) and slow progress after frustration ($r(308) = -.370, p < .001$). It was predicted that action-oriented online daters would experience greater recalled frustration, so the hypothesis was partially supported: action-oriented online daters were more likely to recall immediate frustration at poor goal progress even though they were also less likely to report slow progress after frustration.

The third hypothesis was that taking concrete steps would predict greater recalled distress. Three analyses were conducted. First, bivariate correlate analysis compared action crisis scores for participants who reported they took concrete steps against scores for those who took no concrete steps; but there were no differences observed ($p = .306$). Concrete steps were not associated with the likelihood of an action crisis for online daters in this study. Second, multivariate analysis tested the relationship between concrete steps and each of the recalled frustration items and found three relationships: slow to get over frustration ($F(1) = 18.95, p < .001$), frustration frequency ($F(1) = 8.92, p = .003$) and difficulty refocusing after frustration ($F(1) = 1.74, p < .001$). Subsequent bivariate correlate analysis showed the following r values (Table 13). While relationships were observed between taking concrete steps and the three recalled frustration items, the hypothesis was that concrete steps would predict *greater* recalled frustration but, in this sample, concrete steps among online daters was associated with their being *less* likely to

report slow goal progress after frustration, *less* likely to report frequent episodes of frustration and *less* likely to report difficulty refocusing on their goal after frustration.

It was expected that concrete steps would predict adapt approach responses and goal re-evaluation tendencies. Two analyses were conducted. First, multivariate analysis tested for relationships between concrete steps and adapt approaches, goal re-evaluation, action crisis, and the 5 recalled frustration questions. Second, bivariate correlate analysis computed r values for any relationships found in the multivariate analysis. The hypothesis was not supported as multivariate analysis failed to find the expected relationship between concrete steps and adapt approach responses and failed to find a relationship between concrete steps and goal re-evaluation.

Some additional relationships of note were observed. Multivariate analysis showed measuring progress for online daters was related to adapt approaches ($F(1) = 6.72, p = .010$). However, no relationship was observed with immediate frustration, frustration frequency, slow to get over frustration, slow progress after frustration, difficulty refocusing after frustration, concrete steps or goal re-evaluation. Also surprisingly, bivariate correlate analysis revealed the relationship between measuring progress and adapt approaches was negative ($r(308) = -.147, p = .010$). This means online daters who measured progress were also less rather than more likely to report having adapted their approaches.

Table 9. Recalled Frustration Results by Age Group

Age Group	Immediate Frustration	Frustration Frequency	Getting Over Frustration Slowly	Slow Goal Progress after Frustration	Difficulty Refocusing on Goal after Frustration
18-24					
Mean	4.61	1.57	1.25	4.36	1.14
N	28	28	28	28	28
Std.	1.031	1.289	1.295	0.989	1.079
25-34					
Mean	4.01	1.93	1.70	3.97	1.65
N	134	134	134	134	134
Std.	1.474	1.276	1.257	1.392	1.171
35-44					
Mean	4.23	2.04	1.50	3.91	1.43
N	80	80	80	80	80
Std.	1.534	1.436	1.102	1.561	1.199
45-54					
Mean	4.27	1.67	1.67	4.02	1.31
N	45	45	45	45	45
Std.	1.176	1.087	1.168	1.158	0.996
55+					
Mean	4.43	1.90	1.71	4.38	1.52
N	21	21	21	21	21
Std.	1.165	1.300	1.189	0.865	1.078
Total					
Mean	4.19	1.89	1.60	4.03	1.49
N	308	308	308	308	308
Std.	1.401	1.298	1.205	1.348	1.146

Table 10. Bivariate Analysis for Recalled Frustration by Age and Gender

Item		Age	Gender
Immediate Frustration	Pearson Correlation	0.031	0.088
	Sig. (2-tailed)	0.587	0.125
	N	308	308
Frustration Frequency	Pearson Correlation	0.005	-0.081
	Sig. (2-tailed)	0.924	0.157
	N	308	308
Getting Over Frustration Slowly	Pearson Correlation	0.036	0.001
	Sig. (2-tailed)	0.524	0.993
	N	308	308
Slow Progress After Frustration	Pearson Correlation	0.008	-0.002
	Sig. (2-tailed)	0.883	0.977
	N	308	308
Difficulty Refocusing on Goal After Frustration	Pearson Correlation	-0.024	0.023
	Sig. (2-tailed)	0.677	0.682
	N	308	308

Table 11. Action Crisis and Recalled Frustration

Dependent Variable	df	F	Sg.
Immediate Frustration	26	10.093	<.001
Frustration Frequency	26	8.543	<.001
Slow to Get Over Frustration	26	3.980	<.001
Slow Progress after Frustration	26	10.352	<.001
Difficulty Refocusing after Frustration	26	5.912	<.001

Additional multivariate analysis showed adapt approach responses were related to slow progress after frustration, difficulty refocusing after frustration, goal re-evaluation and as noted above, measuring progress. See Table 14 below. Bivariate correlate analysis produced the r values listed in Table 15 below. The r values show that in addition to the relationship observed above where online daters who adapted their

approaches showed a reduced tendency to monitor progress, they also showed reduced tendencies for slow progress after frustration, reduced difficulty refocusing after frustration, and reduced goal re-evaluation tendencies.

Table 12. Correlate Analysis: Action Crisis and Recalled Frustration

		1	2	3	4	5	6
1 - Action Crisis (AC)	Pearson	1	.642**	-.540**	-.336**	.610**	-.344**
	N	308	308	308	308	308	308
2 - Immediate Frustration	Pearson	.642**	1	-.381**	-.308**	.587**	-.322**
	N	308	308	308	308	308	308
3 - Frustration Frequency	Pearson	-.540**	-.381**	1	.273**	-.447**	.263**
	N	308	308	308	308	308	308
4 - Slow to Get Over Frustration	Pearson	-.336**	-.308**	.273**	1	-.228**	.548**
	N	308	308	308	308	308	308
5 - Slow Progress After Frustration	Pearson	.610**	.587**	-.447**	-.228**	1	-.128*
	N	308	308	308	308	308	308
6 - Difficulty Refocusing After Frustration	Pearson	-.344**	-.322**	.263**	.548**	-.128*	1
	N	308	308	308	308	308	308

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Multivariate analysis compared action orientation and action crisis against recalled frustration, concrete steps, measure progress, adapt approaches and goal re-evaluation for relationships and found four as summarized in Table 16 below.

Table 13. Bivariate Correlate Analysis of Concrete Steps and Recalled Frustration

		1	2	3	4
Concrete Steps	Pearson	1	-.241**	-.168**	-.221**
	Sig. (2-tailed)		<.001	.003	<.001
	N	308	308	308	308
Slow to Get Over Frustration	Pearson	-.241**	1	.273**	.548**
	Sig. (2-tailed)	<.001		<.001	<.001
	N	308	308	308	308
Frustration Frequency	Pearson	-.168**	.273**	1	.263**
	Sig. (2-tailed)	.003	<.001		<.001
	N	308	308	308	308
Difficulty Refocusing After Frustration	Pearson	-.221**	.548**	.263**	1
	Sig. (2-tailed)	<.001	<.001	<.001	
	N	308	308	308	308

** . Correlation is significant at the 0.01 level (2-tailed).

Results showed that the most significant contributors to both action orientation and action crisis were immediate frustration, slow progress after frustration and frustration frequency. Subsequent correlate analysis found r values for significant relationships as summarized in Table 17 below.

Table 14. Multivariate Analysis of Adapt Approach Responses

Dependent Variable	df	F	Sig.
Slow Progress After Frustration	1	2.78	.049
Difficulty Refocusing After Frustration	1	4.13	.043
Goal Re-Evaluation	1	7.23	.008
Measure Progress	1	6.72	.010

Bivariate correlate analysis also found that action orientation for online daters was associated with being less likely to measure progress ($r(308) = -.115, p = .044$) or to re-evaluate their goals ($r(308) = -.235, p < .001$).

A final multivariate analysis investigated goal re-evaluation responses and found relationships between re-evaluating and immediate frustration, frustration frequency, slow progress after frustration and adapt approaches as summarized in Table 18 below. *R* values are displayed in Table 19 below. These data show that online daters who reported goal re-evaluation tendencies were more likely to report immediate frustration and slow progress after frustration, less likely to report adapting their approaches over time and less likely to report feeling frequent episodes of frustration over time.

Table 20 below summarizes the 5 hypotheses, findings, and detail for each result.

Table 21 below summarizes the results of additional analyses and detail for each result.

Table 15. Bivariate Correlate Analysis of Adapt Approach Responses

Variable		1	2	3	4	5
1 - Adapt Approach	Pearson	1	-.112*	-.115*	-.152**	-.147**
	Sig. (2-tailed)		0.049	0.043	0.008	0.010
	N	308	308	308	308	308
2 - Slow Progress After Frustration	Pearson	-.112*	1	-.128*	.154**	0.110
	Sig. (2-tailed)	0.049		0.024	0.007	0.053
	N	308	308	308	308	308
3 - Difficulty Refocusing After Frustration	Pearson	-.115*	-.128*	1	-0.066	0.088
	Sig. (2-tailed)	0.043	0.024		0.248	0.123
	N	308	308	308	308	308
4 - Goal Re-Evaluation	Pearson	-.152**	.154**	-0.066	1	0.103
	Sig. (2-tailed)	0.008	0.007	0.248		0.072
	N	308	308	308	308	308
5 - Measure Progress	Pearson	-.147**	0.110	0.088	0.103	1
	Sig. (2-tailed)	0.010	0.053	0.123	0.072	
	N	308	308	308	308	308

*. $p < 0.05$ level (2-tailed).

**. $p < 0.01$ level (2-tailed).

Table 16. Action Orientation, Action Crisis, Progress Monitoring and Frustration

Dependent Variable	df	F	Sig.
Immediate Frustration	105	1.68	.002
Frustration Frequency	105	1.43	.020
Slow Progress After Frustration	105	1.46	.015
Difficulty Refocusing After Frustration	105	1.47	.014

Table 17. Action Orientation and Action Crisis compared to Recalled Frustration

Variable		Action Orientation	Action Crisis
Immediate Frustration	Pearson	-.348**	.642**
	Sig. (2-tailed)	<.001	<.001
	N	308	308
Frustration Frequency	Pearson	.211**	-.540**
	Sig. (2-tailed)	<.001	<.001
	N	308	308
Slow Progress After Frustration	Pearson	-.370**	.610**
	Sig. (2-tailed)	<.001	<.001
	N	308	308
Difficulty Refocusing After Frustration	Pearson	-0.038	-.344**
	Sig. (2-tailed)	0.507	<.001
	N	308	308

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 18. Multivariate Analysis of Goal Re-Evaluation Responses

Dependent Variable	df	F	Sig.
Immediate Frustration	1	10.708	0.001
Frustration Frequency	1	12.703	<.001
Slow Progress After Frustration	1	7.427	0.071
Adapt Approaches	1	7.229	0.007

Table 19. Bivariate Correlate Analysis of Goal Re-Evaluation Responses

Variable		1	2	3	4	5
1 – Goal Re-Evaluation	Pearson	1	.184**	-.200**	.154**	-.152**
	Sig. (2-tailed)		0.001	<.001	0.007	0.008
	N	308	308	308	308	308
2 – Immediate Frustration	Pearson	.184**	1	-.381**	.587**	-0.049
	Sig. (2-tailed)	0.001		<.001	<.001	0.394
	N	308	308	308	308	308
3 – Frustration Frequency	Pearson	-.200**	-.381**	1	-.447**	-0.028
	Sig. (2-tailed)	<.001	0.000		<.001	0.628
	N	308	308	308	308	308
4 – Slow Progress After Frustration	Pearson	.154**	.587**	-.447**	1	-.112*
	Sig. (2-tailed)	0.007	0.000	<.001		0.049
	N	308	308	308	308	308
5 – Adapt Approaches	Pearson	-.152**	-0.049	-0.028	-.112*	1
	Sig. (2-tailed)	0.008	0.394	0.628	0.049	
	N	308	308	308	308	308

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 20. Summary of Findings by Hypotheses

Hypothesis	Finding	Summary
Action orientation predicts concrete steps	Not supported	No relationship found
Action orientation predicted action crisis and recalled frustration	Not supported	Negative rather than positive relationship to action crisis
	Partial support	Action orientation predicts immediate frustration Negative rather than positive relationship to slow progress after frustration
Concrete steps predict recalled distress	Not supported	Negative rather than positive relationship to slow to get over frustration, frustration frequency and difficulty refocusing after frustration
Concrete steps predicts adapt approaches	Not supported	No relationship
Concrete steps predicts goal re-evaluation	Not supported	No relationship

Table 21. Summary of Additional Analyses

Additional Analyses	Relationship	Summary
Adapt approaches and measure progress	Negative	Adapt approaches predicts lower progress monitoring
Adapt approaches and recalled frustration	Negative	Adapt approaches predicts faster progress after frustration, and reduced difficulty refocusing, reduced goal re-evaluation and reduced measure progress
Goal re-evaluation and recalled frustration	Mixed	Goal re-evaluation predicts increased immediate frustration and slow progress after frustration with reduced frustration frequency and reduced adapt approaches
Concrete steps predicts recalled distress	Not supported	Negative rather than positive relationship to slow to get over frustration, frustration frequency and difficulty refocusing after frustration
Concrete steps predicts adapt approaches	Not supported	No relationship
Concrete steps predicts goal re-evaluation	Not supported	No relationship

Chapter IV.

Discussion

Previous research suggests a positivity bias protects active goals from reappraisal. Biased thinking helps active goals stay active in the face of delays, challenges, hardships, doubts and distractions (Gollwitzer & Heckhausen, 1987; Gollwitzer, 1990; Gollwitzer & Taylor, 1995). The positivity bias leads to an implementational mindset where a goal is implemented according to an action orientation rather than deliberated according to a state orientation (Gollwitzer & Heckhausen, 1987). Unfortunately, the positivity bias can keep low quality goals in an implementation mindset and protect them from re-evaluation even if those goals are impossible goals or simply not worth pursuing (Ntoumanis & Sedikides, 2018; Wrosch et al., 2003; Deci & Ryan, 2000; Carver & Scheier, 2005). This can be called futile persistence. Understanding how to reduce the positivity bias and move goals back into a deliberative mindset where they can be re-evaluated objectively could reduce futile persistence and the sustained activation of low quality goals.

Brandstätter (2003) found that the onset of an action crisis (i.e., psychological conflict over poor goal progress) can interrupt the positivity bias and trigger a phase of reappraisal where goal approaches can be reconsidered or modified, or the goal can be terminated. The present research looked at online daters with the goal to be in a romantic relationship and investigated whether taking concrete steps and monitoring goal progress accelerated the breakdown of the positivity bias and allowed them to re-evaluate their progress as measured by increased recalled frustration and action crises scores.

It was expected that online daters who took concrete steps toward their goal of meeting someone and entering a romantic relationship, and who monitored their progress

as they worked toward this goal, would have higher action orientation scores, higher action crisis scores and greater recalled frustration. But, in this sample, no relationship was found between taking concrete steps and either action orientation or action crisis scores. While a relationship was found between concrete steps and three aspects of recalled frustration (slow to get over frustration, frustration frequency and difficulty refocusing after frustration), the observed relationship was in the opposite to direction from what was predicted. Online daters who took concrete steps were less rather than more likely to report getting over frustration slowly, less likely to report difficulty refocusing after frustration, and less likely to report frequent episodes of frustration over time. Having a bias toward concrete steps may have helped these online daters take action quickly after frustration, and thus get over frustration more quickly and also have fewer episodes of frustration because action in the face of frustration serves as an active coping mechanism. The research on action orientation suggests a bias toward action matches lower negative affect (Gollwitzer & Heckhausen, 1987). Even so, the lack of a relationship between concrete steps and action crisis scores suggests concrete steps by itself does not accelerate the breakdown of the positivity bias for online daters.

There is a ceiling effect with the concrete steps measure used in this investigation, which may explain the absence of a relationship with action orientation, action crisis, recalled frustration items and goal re-evaluation for these online daters. The question was posed in a yes/no format (Have you taken any concrete steps), and 93% of the respondents reported taking concrete steps. Participants did not specify the number of steps taken, so variability was not considered. The ceiling effect becomes more obvious when considering action orientation scores within the sample. Concrete steps scores

should correlate to action orientation since action orientation measures a bias toward action. However, action orientation scores for online daters showed that slightly more than half the sample scored in the bottom half of action orientation since the mean was 11.91 out of a possible 24 ($M = 11.91$, $SD = 3.4$). This means that overall, the group was less rather than more biased to act and yet 93.8% of respondents indicated they took concrete steps. A better prompt could create more specificity providing respondents with an extensive list of steps and ask them to check all that apply while also allowing space for additional items.

For the discussion below, action orientation was used as a proxy for the tendency to take more rather than fewer concrete steps since a bias toward action involves taking concrete steps. The present research expected that action-oriented online daters would take more action and would be more likely to encounter a crisis from stalled goals sooner, experience a faster breakdown of the positivity bias and move through the crisis faster by either adjusting their goal approach or abandoning the goal all together. This would have meant action orientated online dates would also have higher action crisis and greater recalled frustration. While analysis found a relationship between action orientation and both action crisis and recalled frustration, the relationship was negative. This means action-oriented online daters in this study tended to report lower action crises and reduced recalled frustration. It may be that action-oriented online daters under-recall past frustration because their bias toward action them to move through frustration quickly and either adjust their approach, adjust their goal or abandon their goal all together. Results show some support for this possibility since action-oriented online daters reported getting over frustration more quickly, having fewer episodes of recalled frustration and reported

less difficulty refocusing after frustration. However, because the correlation between action orientation and reduced action crisis was both large and negative (i.e., 36%), other explanations are worth exploring. It may be that higher action-oriented daters may be less sensitive to affect generally, and/or may resolve a potential crisis through action before it becomes a crisis, and/or may take action toward a number of goals at the same time making them less sensitive to stalled progress in any one area. That is, they may be more resilient to becoming derailed in pursuit of a goal. The relationship between action orientation and reduced affect is supported by the literature as the opposite of action orientation is the more affect-sensitive state orientation (Kuhl & Beckmann, 1994). More research needs to be conducted to test these and other possible explanations for the large and negative relationship between action orientation and action crisis.

The inverse relationship between action orientation and the tendency to measure progress suggests another observation about sensitivity to affect. Action-oriented online daters also showed reduced tendency to measure progress toward their goal to be in a romantic relationship. This means they took more action but were less likely to measure the success of those actions. There may be different types of action orientation, where some are more strategic because they are coupled with a tendency to measure progress, and other action orientations that are non-strategic because there is only a tendency to take multiple forms of action and no tendency to measure progress. The results of this investigation suggest action orientated online daters simply take a range of actions toward their goal and were not focused upon measuring progress. This posture could both accelerate goal progress while at the same time reduce the likelihood of recalled frustration because action toward goals would be unencumbered by any negative affect

triggered by measuring progress and finding disappointing result. Not measuring progress protected these oriented online daters from negative affect because Brandstätter (2003) has shown poor goal progress triggers negative affect. This may explain the significant, negative relationships between action orientation, action crisis and recalled frustration because action-oriented online daters were 36% less likely to report action crisis experiences, 34% less likely to report immediate frustration in the face of poor progress and 37% less likely to report slow progress after frustration. The reason for reduced immediate frustration could stem from their lack of progress measuring, or it could be from the affect insensitivity associated with action orientation (Gollwitzer & Heckhausen, 1987), or some combination of both. Either way, action-oriented online daters are protected from action crisis experiences and recalled frustration.

Having a bias toward action seems to be a protective factor against the risk of triggered negative affect. When placed alongside the observation that action-oriented individuals are also less likely to measure progress, it seems having a bias toward action that is not overly strategic or over wrought with specific expectations is also a protective factor. This suggests it may be possible to be both over as well as under strategic when it comes to taking action toward goals, and that a key deciding factor may be the risk of triggered negative affect. Too little focus on strategy could obviously lead to poor goal progress from poorly chosen tactics, which would trigger negative affect. Equally, being overly strategic could make one reluctant to engage in actions toward the goal and increase the psychological commitment to a positive result – both of which can trigger negative affect from either poor progress or other unmet expectations. More research could shed light on the strength of these possibilities.

The importance of triggered negative affect aligns with Kuhl and Beckman's (1994) finding that individuals with an action orientation are less sensitive to affect to begin with (i.e., less likely to experience it, and more likely to get over it quickly) and suggests a possible reason: they may be less likely to practice the tactics that run the risk of triggering heightened negative affect like measuring progress, forming specific expectations, and being overly strategic. While the original hypothesis suggested goal deactivation could be accelerated through progress monitoring (i.e., the tendency to take more rather than less concrete steps and the tendency to measure progress), the results of this investigation seem to indicate online daters who either trigger negative affect or are simply more sensitive to it are likely to struggle with goals and goal progress. There could be a variable relationship between different tactics, triggered affect and individual dispositions. As in, some individuals may be more sensitive to triggered affect when measuring progress, where others may have a mindset that makes triggered affect less likely in the same situation. This could explain why the tactics have less predictive power than affect on its own.

It was expected that concrete steps would predict greater recalled frustration. While this hypothesis was not supported, the absence of a relationship between the concrete steps score and action crisis may reflect the absence of a relationship between these factors or may speak to ceiling effects discussed above. Action orientation can serve as a proxy for the tendency to take more rather than fewer concrete steps because in prior research, higher action orientation scores have been associated with a bias toward action (Kuhl & Beckmann, 1994). As discussed above, analyses showed that individuals with a higher action orientation were 36% less likely to recall action crisis experiences,

35% less likely to recall immediate frustration in the face of poor progress, 37% less likely to report slow progress after frustration and 24% less likely to report re-evaluating their goals.

The present results do not support the hypothesis that concrete steps (or in this case having a higher bias toward action) is associated with experiencing action crises sooner, or precipitating quicker and better resolutions of same. These results also provide additional support for the affect buffering effects associated with an action orientation. In the realm of online dating, action orientation may protect people from negative affect, allowing them to persist in what can be a lengthy and sometimes frustrating process.

Whether this is because action-oriented individuals are less affect sensitive to begin with (Kuhl & Beckmann, 1994), and/or that higher action orientation individuals are less prone to the affect triggering tendency to measure progress, and/or may be less prone to the potentially affect triggering tendency of being overly strategic with their actions and expectations, we cannot rule out that this mindset will make them more, rather than less successful in the long run. However, this can only be established in an investigation that follows participants for a longer period of time.

Unexpectedly, action orientation online daters were 21% more (rather than less) likely to report periodic episodes of frustration over time despite being 35% less likely to report immediate frustration. This adds a potential insight: while high action orientation individuals are less likely to experience immediate frustration and are less likely to get stuck because of episodes of frustration, they are not protected from experiencing periodic episodes of goal frustration over time. At least two possible explanations emerge as follows. First, it could be the case that low action orientation daters recall

greater immediate frustration because they over-focus on immediate frustration, get stuck and do not progress to the execution phase where normal, periodic episodes of frustration occur over time. Second, it could be that high action orientation daters are less sensitive to immediate frustration because their posture is to take a lot of action and double down on what works. This explanation seems to fit with the above collective findings that: 1) high action orientation individuals are less likely to measure progress, 2) are less likely to experience immediate frustration, and 3) are less likely to get stuck because of frustration, and 4) are less likely to re-evaluate their goals over time. This could explain lower recalled immediate frustration, but elevated recalled frustration over time for high action orientation online daters because they take a range of actions and are temporarily immune to negative affect from poor results but eventually frustrations emerge when poor progress persists. These possibilities are worth future investigation.

We failed to find a significant relationship between action orientation and adapting one's approaches. It was expected that action-oriented individuals would report adapting their approaches over time, but no relationship was observed. However, this may be consistent with the idea of a non-strategic action orientation where action-oriented daters may simply just take a range of actions without thinking in terms of specific approaches, changes to their approach, measuring progress or specific expectations for outcomes. Also, action-oriented daters were 25% less likely to report re-evaluating their goal to be in a romantic relationship, and 15% less likely to report pausing their goal over time. These results do not support the expectation that action-oriented daters have increased goal adjustment tendencies but shows that action orientation daters are less likely to reconsider their ultimate goal of finding a partner, less

likely to pause their goals, less likely to measure their progress or adapt their approaches over time. These individuals may have an optimism not indexed to logic or may simply be prone a non-strategic action orientation that is less concerned about measuring progress, forming specific expectations, or forming specific approaches (and therefore adapting those specific approaches) and more concerned about taking a range of actions toward a goal in the hopes that some of those actions will work.

Another unexpected finding provides additional support for the idea of a non-strategic action orientation. Online daters who measured progress were 15% less likely to report having adapted their approach, which seems counter intuitive. It is possible that triggered affect from poor goal progress creates a hijack effect rather than a goal adjustment tendency. If this is the case, the benefits of measuring progress could be outweighed by the risks associated with triggered negative affect. Further analysis showed goal adjustment predicts a lower likelihood of goal re-evaluation over time. These factors combined with those discussed above (i.e., a bias toward action is protective against action crisis and recalled frustration, a bias toward action tends to not be coupled with a tendency to monitor progress or adapt approaches, and adapting approaches predicts fewer instances of goal re-evaluation) all suggest taking a wide range of actions without being overly strategic may provide the best goal pursuit strategy for online daters.

An interesting question for future reason emerges. Does the tactic of monitoring progress (or the disposition to measure progress) predict greater triggered affect, and does triggered affect predict increased goal pursuit rigidity as expressed in doubling down rather than adapting existing goal approaches? This explanation holds some merit as

Frederickson's research on broaden and build versus narrow and focus mental states showed that negative affect reduced the quantity and quality of options generated through cognitive processes (Fredrickson, 2004). The present research was focused on the short-term goal of generating initial responses through online dating actions, it is possible that there could be different dynamics at work in the long-term pursuit of the goal to be in a lasting romantic relationship. The present research showed for shorter term goals, it could be that either the disposition to measure progress predicts affect sensitivity, or simply the tactic of measuring progress could predict increased affect generation, and that both could be associated with goal approach rigidity caused by narrowed cognitive processes. It could also be the case that the tendency to be strategic may lead to a greater commitment to the goal tactics and goal tactic outcomes, and this in turn could create a higher risk for negative affect. It could also be the case that in some individuals, triggered negative affect leads to the decision to double down rather than adapt. All of these possibilities merit further investigation.

Unsurprisingly, individuals who reported adapting their approaches also tended to report faster progress after frustration, less difficulty refocusing after frustration, and fewer instances of goal re-evaluation. This makes sense since an adaptive approach to goal pursuit would generate less negative affect from fewer instances of doubling down on tactics that were not effective. Again, as discussed above, daters who adapted their approaches were also 15% less likely to report measuring their progress). These observations together add support to the possibility that individuals with a general bias toward a range of actions and who also avoid being overly strategic or overly committed to specific expectations experience the best protection against frustration and poor goal

progress. At the same time, it is also possible that less attention on progress monitoring and strategy could extend the amount of time spent pursuing unworthy goals or pursuing unworthy goals ineffectively. Each of these explanations deserves further investigation.

The results of this investigation failed to demonstrate that concrete steps and progress monitoring reversed the positivity bias and deactivated goals. The results do suggest triggered negative affect remains the best pathway to goal deactivation by breaking down the positivity bias according to Brändstatter's (2003) action crisis research. Additional findings include the following. First, the bias toward taking action –ideally without being too strategic or forming specific expectations – is protective against negative affect. This means action orientations could sustain poor quality goals by protecting against negative affect and the action crisis it can trigger. Second, the tendency to measure progress predicts a reduced rather than increased tendency to adapt goal approaches. Thus, measuring progress seems to encourage goal pursuit rigidity rather than adaptive goal pursuits.

Conclusions

The present research predicted that taking concrete steps and measuring progress would predict increased goal adaptation and increased goal reappraisal, which would each signify the breakdown of the positivity bias and show a pathway to avoid futile persistence or prolonged detrimental goal activation. The results of the investigation do not support this hypothesis. Two conclusions seem most clear. First, it seems that triggered negative affect itself plays the largest role in predicting long term goal pursuit experience rather than any individual goal management tactics or even an action orientation itself. Thus, negative affect is still the best pathway to goal deactivation.

Because an action orientation is protective against negative affect, an action orientation is beneficial in the pursuit of high-quality goals and detrimental in the pursuit of low-quality goals because it buffers against negative affect and allow for futile persistence. As in, online daters would likely continue to pursue ineffective courses of action for longer because they were protected from the negative affect that would otherwise cause them to pause and reconsider. A general orientation to take a wide range of action without measuring progress is a good strategy for high quality goals and a poor strategy for low quality goals.

This suggests negative affect remains the main concern with goal regulation, which is consistent with the positivity bias hypothesis. Once enough affect triggers and enduring positive feasibility and desirability appraisal, then a goal is active, and goal activation resists deactivation. Therefore, goals seem to be a function of affect. They are activated by the buildup of positive affect, and are deactivated by the buildup of negative affect. This research hoped to show that the tendency to take concrete steps and measure progress would predict goal re-evaluation. This was not the case. At this point, the strongest predictor of goal re-evaluation and the breakdown of the positivity bias we know of is an action crisis. Thus, for the moment, the best pathway for deactivating the positivity bias continues to be negative affect itself as this eventually triggers an action crisis and goal re-evaluation.

Limitations

At least three limitations apply to this study. First, this research focused on pursuing a single type of goal (i.e., the goal to be in a romantic relationship as pursued

through online dating apps and websites). There may be dynamics and effects specific to this type of goal that may not generalize to other types of goals.

Second, the participants for this study are individuals who not only have this specific goal type, but also opted to pursue this goal through online dating apps and websites. It is possible there are characteristics unique to this group (i.e., perhaps a romantic inclination as well as willingness to use apps and websites) that do not generalize to the population.

Finally, the study focused on recalled experience which is more subjective and less reliable than directly measured experience.

Directions for Future research

The tactics under study in this research (i.e., taking concrete steps and measuring progress) were unrelated to goal outcomes. Future research could explore additional goal pursuit tactics in the hope of finding behavioral strategies for goal deactivation. These studies could seek to find which tactics and which dispositional factors predict the greatest risk for triggered affect. Specifically, future investigations could explore the idea of a general orientation to take a wide range of actions without measuring progress, being overly committed to strategy, or a specific direction or specific outcomes. It stands to reason that each of these distinctions (i.e., being strategic, choosing specific directions and being committed to specific outcomes) create an increased risk for triggering negative affect. The tactic of measuring progress seems important for adaptive goal regulation, and yet it seems to predict greater recalled frustration. It would be useful to investigate whether the relationship between measuring progress and increased recalled frustration is moderated by personality traits. As in, are some individuals able to measure

progress and adapt approaches without triggering negative affect? If so, it would be useful to explore what traits and tendencies could explain the difference so these approaches could be used as interventions. Finally, should the possibility for useful tactics be exhausted, it would be useful to explore dispositional characteristics that seem to be associated with greater or lesser affect sensitivity when it comes to goal regulation. At the very least, this could help identify personality risk factors when it comes to goal activation and goal pursuit.

References

- Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated Will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, 81(6), 1014–1027.
<https://doi.org/10.1037/0022-3514.81.6.1014>
- Brandstätter, V. (2003). *Persistence and goal disengagement*. Göttingen, Germany: Hogrefe.
- Brandstätter, V., & Hennecke, M. (2018). *Goals* (J Heckhausen & H. Heckhausen, eds.). Springer International Publishing.
- Brandstätter, V., & Herrmann, M. (2018). Goal disengagement and action crises (N. Baumann, M. Kazén, M. Quirin, & S. Koole, eds.). Göttingen, Germany: Hogrefe.
- Brandstätter, Veronika, Herrmann, M., & Schüler, J. (2013). The struggle of giving up personal goals: Affective, physiological, and cognitive consequences of an action crisis. *Personality & Social Psychology Bulletin*, 39(12), 1668–1682.
<https://doi.org/10.1177/0146167213500151>
- Brandstätter, Veronika, & Schüler, J. (2013). Action crisis and cost-benefit thinking: A cognitive analysis of a goal-disengagement phase. *Journal of Experimental Social Psychology*, 49(3), 543. <https://doi.org/10.1016/j.jesp.2012.10.004>
- Carver, C., & Scheier, M. (2005). *Engagement, disengagement, coping and catastrophe* (A. Elliot & C. Dweck (eds.). Guilford Press.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268.
https://doi.org/10.1207/S15327965PLI1104_01
- Förster, J., Liberman, N., & Friedman, R. S. (2007). Seven principles of goal activation: A systematic approach to distinguishing goal priming from priming of non-goal constructs. *Personality and Social Psychology Review*, 11(3), 211–233.
<https://doi.org/10.1177/1088868307303029>
- Forster, J., Liberman, N., & Higgins, E. (2005). Accessibility from active and fulfilled goals. *Journal of Experimental Social Psychology*, 41(3), 220–239.
<https://doi.org/10.1016/j.jesp.2004.06.009>

- Fujita, K., Gollwitzer, P. M., & Oettingen, G. (2007). Mindsets and pre-conscious open-mindedness to incidental information. *Journal of Experimental Social Psychology*, 43(1), 48–61. <https://doi.org/10.1016/j.jesp.2005.12.004>
- Ghassemi, M., Bernecker, K., Herrmann, M., & Brandstätter, V. (2017). The process of disengagement from personal goals: Reciprocal influences between the experience of action crisis and appraisals of goal desirability and attainability. *Personality & Social Psychology Bulletin*, 43(4), 524–537. <https://doi.org/10.1177/0146167216689052>
- Gollwitzer, P. (2012). Mindset theory of action phases (P. Van Lange, A. W. Kruglanski, & E. T. Higgins (eds.). Sage.
- Gollwitzer, P., Heckhausen, H., & Steller, B. (1990). Deliberative and implemental mindsets: cognitive tuning toward congruous thoughts and information. *Journal of Personality and Social Psychology*, 59(6), 1119–1127.
- Heckhausen, H., & Gollwitzer, P. (1987). Thought contents and cognitive functioning in motivational versus volitional states of mind. *Motivation and Emotion*, 11(2), 101–120. <https://doi.org/10.1007/BF00992338>
- Heckhausen, Jutta, & Heckhausen, H. (2018). Motivation and Action. Springer International Publishing: Imprint: Springer.
- Herrmann, M., & Brandstätter, V. (2013). Overcoming action crises in personal goals – Longitudinal evidence on a mediating mechanism between action orientation and well-being. *Journal of Research in Personality*, 47(6), 881–893. <https://doi.org/10.1016/j.jrp.2013.09.005>
- Klinger, E. (1978). Meaning and void: Inner experience and the incentives in people's lives. Minneapolis: University of Minnesota Press.
- Kruglanski, A. W. (1996). Goals as knowledge structures (P. M. Gollwitzer & J. A. Bargh (eds.). Guilford Press.
- Kuhl, J. (1992). A theory of self-regulation: Action versus state orientation, self-discrimination, and some applications. *Applied Psychology*, 41(2), 97–129. <https://doi.org/10.1111/j.1464-0597.1992.tb00688.x>
- Kuhl, J. (1994). Action versus state orientation: Psychometric properties of the Action Control Scale. ACS-90. In Kuhl, J., Beckmann, J. (Eds.), Volition and personality: Action versus state orientation (pp. 47-59). Göttingen, Germany: Hogrefe.
- Kuhl, J. (2000). The volitional basis of personality systems interaction theory: applications in learning and treatment contexts. *International Journal of Educational Research*, 33(7), 665–703. [https://doi.org/10.1016/S0883-0355\(00\)00045-8](https://doi.org/10.1016/S0883-0355(00)00045-8)

- Kuhl, & Beckmann, J. (1994). Volition and personality: action versus state orientation. Hogrefe & Hubert.
- Locke, E. A., & Latham, G. P. (2013). New developments in goal setting and task performance. Brunner-Routledge.
- Marien, H., Custers, R., Hassin, R., & Aarts, H. (2012). Unconscious goal activation and the hijacking of the executive function. *Journal of Personality and Social Psychology*, 103(3), 399–415. <https://doi.org/10.1037/a0028955>
- Masicampo, E., & Baumeister, R. (2011a). Unfulfilled goals interfere with tasks that require executive functions. *Journal of Experimental Social Psychology*, 47(2), 300–311. <https://doi.org/10.1016/j.jesp.2010.10.011>
- Masicampo, E. J., & Baumeister, R. F. (2011b). Consider it done! Plan making can eliminate the cognitive effects of unfulfilled goals. *Journal of Personality and Social Psychology*, 101(4), 667–683. <https://doi.org/10.1037/a0024192>
- Miller, G. E., & Wrosch, C. (2007). You’ve gotta know when to fold ’em: Goal disengagement and systemic inflammation in adolescence. *Psychological Science*, 18(9), 773–777.
- Moskowitz, G. B. (2002). Preconscious effects of temporary goals on attention. *Journal of Experimental Social Psychology*, 38(4), 397–404. [https://doi.org/10.1016/S0022-1031\(02\)00001-X](https://doi.org/10.1016/S0022-1031(02)00001-X)
- Moskowitz, G. B., & Halvorson, H. G.-. (2009). The psychology of goals. Guilford Press.
- Ntoumanis, N., & Sedikides, C. (2018). Holding on to the goal or letting it go and moving on? A tripartite model of goal striving. *Current Directions in Psychological Science: A Journal of the American Psychological Society*, 27(5), 363–368. <https://doi.org/10.1177/0963721418770455>
- Oettingen, G, Pak, YJ, & Schnetter, K. (2001). Self-regulation of goal setting: Turning free fantasies about the future into binding goals. *Journal of Personality and Social Psychology*, 80(5), 736-753.
- Rothermund, K., & Brandtstädter, J. (2003). Coping with deficits and losses in later life: From compensatory action to accommodation. *Psychology and Aging*, 18(4), 896–905. <https://doi.org/10.1037/0882-7974.18.4.896>
- Shah, J. Y., & Kruglanski, A. W. (2002). Priming against your will: How accessible alternatives affect goal pursuit. *Journal of Experimental Social Psychology*, 38(4), 368–383. [https://doi.org/10.1016/S0022-1031\(02\)00005-7](https://doi.org/10.1016/S0022-1031(02)00005-7)
- Taylor, S. E., & Gollwitzer, P. M. (1995). Effects of mindset on positive illusions. *Journal of Personality and Social Psychology*, 69(2), 213–226. <https://doi.org/10.1037/0022-3514.69.2.213>

- Verbruggen, F., & Logan, G. D. (2009). Proactive adjustments of response strategies in the stop-signal paradigm. *Journal of Experimental Psychology*, 35(3), 835–854. <https://doi.org/10.1037/a0012726>
- Wrosch, C., Scheier, M., Miller, G., Schulz, R., & Carver, C. S. (2003). Adaptive self-regulation of unattainable goals: Goal disengagement, goal reengagement, and subjective well-being. *Personality & Social Psychology Bulletin*, 29(12), 1494–1508. <https://doi.org/10.1177/0146167203256921>
- Wrosch, Carsten. (2010). Self-regulation of unattainable goals and pathways to quality of life. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780195375343.013.0016>
- Wrosch, Carsten, Bauer, I., & Scheier, M. F. (2005). Regret and quality of life across the adult life span: The influence of disengagement and available future goals. *Psychology and Aging*, 20(4), 657–670. <https://doi.org/10.1037/0882-7974.20.4.657>
- Wrosch, Carsten, Miller, G. E., Scheier, M. F., & de Pontet, S. B. (2007). Giving up on unattainable goals: Benefits for health? *Personality & Social Psychology Bulletin*, 33(2), 251–265. <https://doi.org/10.1177/0146167206294905>