

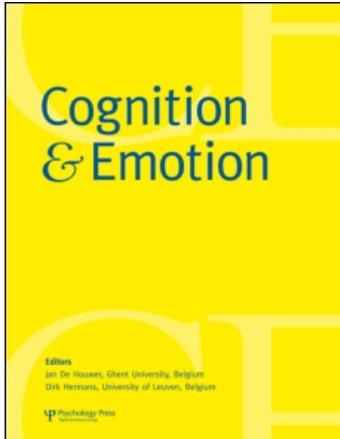
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Affect in the aftermath: How goal pursuit influences implicit evaluations

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Affect in the aftermath: How goal pursuit influences implicit evaluations

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Previous research has shown that the activation of a goal leads to more implicit positivity toward goal-relevant stimuli. We examined how the actual pursuit of a goal influences subsequent implicit positivity toward such stimuli. Participants were consciously or non-consciously primed with a goal, or not, and then completed a goal-relevant task on which they succeeded or failed. We then measured their goal-relevant implicit attitudes. Those who were primed with the goal (consciously or non-consciously) and experienced success exhibited more implicit positivity toward the goal, compared with the no-goal condition. Experiencing failure in the goal priming conditions reduced implicit positivity toward the goal, indicating disengagement from the goal. We discuss the theoretical implications for understanding the role of implicit attitudes in self-regulation.

Keywords: Goal; Affect; Implicit; Self-regulation; Attitude.

The traditional view of self-regulation is of a conscious and volitional process, wherein goals are deliberately chosen and then pursued. However, contrary to this assumption, recent work shows that goals can be initiated and then guide behaviour without the person's awareness or intention (e.g., Aarts, Gollwitzer, & Hassin, 2004; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Chartrand & Bargh, 1996, 2002; see Ferguson & Porter, 2009, for a review). Furthermore, even when a goal has been activated in a conscious and intentional manner, its operation still depends on a host of implicit processes, such as fluctuations in the accessibility of knowledge related to the goal (e.g., Balcetis & Dunning,

2006; Bruner, 1957; Fishbach, Friedman, & Kruglanski, 2003; Trope & Fishbach, 2001; Förster, Liberman, & Higgins, 2005; Goschke & Kuhl, 1993; Marsh, Hicks, & Bink, 1998; Rothermund, 2003). This area of research suggests that self-regulation depends on various processes and outcomes that are unintended and non-conscious.

One proposed mechanism by which goals automatically guide behaviour is through influencing individuals' implicit affective reactions to goal-relevant stimuli. Namely, both conscious and non-conscious goal activation leads to significantly more implicit positivity toward goal-relevant stimuli (Ferguson, 2007, 2008; Ferguson

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& Bargh, 2004; Moors & De Houwer, 2001; Seibt, Häfner, & Deutsch, 2007; Sherman, Presson, Chassin, Rose, & Koch, 2003). For example, when an achievement goal has been activated in memory, either consciously or non-consciously, individuals exhibit significantly more implicit positivity toward the words *library*, *books*, and *classes* compared with when a goal has not been activated. Such fast and spontaneous increases in implicit positivity should facilitate individuals' approach behaviours toward those objects and activities that will enable them to meet the active goal, without requiring significant conscious effort or deliberation about how to act. In other words, the goal makes people "evaluatively ready" to pursue it. Thus, the effects of active goals on implicit affect have been considered a functional mechanism, and, in line with this view, the evaluative readiness effect is stronger in people who are successful at the goal (Ferguson, 2008).

Despite this growing body of work, however, our understanding of the role of implicit affect in goal pursuit is incomplete. To date, there has been very little research on how the actual experience of pursuing a goal influences *subsequent* implicit positivity toward the goal beyond demonstrating that goal fulfilment reduces implicit positivity (Ferguson, 2008; Ferguson & Bargh, 2004). In the current work, we consider how two important factors might influence implicit affective responses after goal pursuit: the type of goal being pursued (finite vs. ongoing goals) and the outcome of the goal pursuit—that is, whether individuals succeed or fail at pursuing the goal. The majority of work on implicit affect following goal pursuit has examined finite (determinate, short-term), physiological goals such as quenching thirst, and has not considered ongoing (indeterminate, long-term) goals, such as the need to achieve. Furthermore, past work has generally examined pursuit situations that uniformly lead to goal completion (e.g., drinking to quench thirst); however, approach behaviours during goal pursuit do not always result in goal fulfilment: a person can *try* to meet a goal but then fail. The question then becomes how people (implicitly) handle success and failure in their pursuit of an ongoing goal.

Failure feedback can lead people to increase their efforts in order to overcome the stumbling block of temporary failure, or to disengage from the goal altogether, at least for the moment (Brandstädter & Rothermund, 2002a 2002b; Carver & Scheier, 2000). Success feedback can lead people to disengage from the completed goal, or can encourage further engagement with the goal (Fishbach, Dhar, & Zhang, 2006).

To address these questions, in the current study we investigated how individuals' automatic evaluations of goal-relevant stimuli were influenced by success versus failure at an ongoing goal. We consciously or non-consciously activated an achievement goal (or no goal), and then manipulated people's experience of success or failure at an achievement-related task. We then measured their implicit affect toward the achievement goal itself. This moves the empirical examination concerning goals and implicit affect from a pre-pursuit to a post-pursuit focus within a goal trajectory. Such a focus on "post-pursuit" processing should shed light on the functionality of goal-driven implicit affect in the aftermath of a pursuit. Below, we review past work on goals and implicit affect in more detail and outline our hypotheses.

What processes underlie goal pursuit?

Goal pursuit is assumed to function partially through making goal-relevant stimuli accessible and approachable (see Fishbach & Ferguson, 2007). Goal-relevant stimuli are evaluated more positively than irrelevant stimuli when goals are active, as opposed to when goals are fulfilled or inactive. This relationship between goal-relevant stimuli and goal pursuit presumably builds over time, as goals become positively associated with objects or means that facilitate goal satiation and negatively associated with objects or means that inhibit goal satiation (Ferguson, 2008; Fishbach, Zhang, & Trope, 2010; Fitzsimons & Shah, 2008; Myrseth, Fishbach, & Trope, 2009). For instance, an individual with an active fitness goal might eventually develop automatic positive evaluations toward running shoes or fitness equipment and negative automatic evaluations toward television

remote controls. The impact of an active goal on a person's automatic evaluations emerges regardless of whether the goal is conscious or non-conscious: Just as individuals who are (consciously) thirsty evaluate the words "water" and "cup" more positively than individuals who have already quenched their thirst (Ferguson & Bargh, 2004), those for whom an achievement goal is non-consciously active (versus not) show more implicit positivity toward academic concepts (e.g., books, grades; Ferguson, 2008). Such implicit positivity in response to active goals should foster goal pursuit. Indeed, these findings are particularly strong for individuals who are skilled at pursuing the goal and for whom the goal is important, which suggests that such an automatic pattern of responding to the environment may actually aid and facilitate goal success (Ferguson, 2008). Implicit affective processes are in this way assumed to help individuals pursue active goals either by signalling that goal-relevant stimuli are positive and should be approached, or by signalling that irrelevant stimuli are negative and should be avoided.

If goal-driven implicit affect facilitates the pursuit of active goals, such affective processes may also function to guide behaviour in the aftermath of goal pursuit. What might happen to our implicit affective responses to the goal-relevant stimuli around us immediately after we have tried to pursue a goal? More specifically, how might we respond to such stimuli following goal success or failure? After going to the gym to exercise, how would we automatically evaluate the goal of fitness if we have had a successful versus difficult workout? Past work suggests two possible answers to this question.

First, those who succeed at a goal may show less implicit positivity toward the goal than those who have not yet succeeded, given that once a goal has been fulfilled it should no longer be active (Ferguson & Bargh, 2004; Seibt et al., 2007; Sherman et al., 2003). Several studies that examined conscious goals support this prediction. Sherman et al. (2003) measured the implicit attitudes of smokers who had or had not been allowed to smoke prior to completing the study.

Chronic smokers who had been able to smoke no longer had the active goal to satisfy their nicotine craving, and thus implicitly evaluated smoking-related objects less positively than smokers who had not already smoked and thus still had the active goal. Similar results have been found in other physiological domains: food is evaluated implicitly less positively after individuals have just eaten compared with when they are still hungry (Seibt et al., 2007) and drinking-related words are evaluated implicitly less positively after versus before individuals have quenched their thirst (Ferguson & Bargh, 2004). This work suggests that people who have succeeded at a conscious or non-conscious goal should show less implicit positivity toward the goal compared with people who have not succeeded or even failed at the goal (see Fishbach, Eyal, & Finkelstein, 2010, for a review).

In a related line of work that supports the same prediction, the accessibility of a (conscious) goal decreases after the goal has been met (e.g., Förster et al., 2005; Goschke & Kuhl, 1993; Marsh et al., 1998; Rothermund, 2003). Förster and colleagues (Förster et al., 2005) demonstrated that once individuals had fulfilled a goal to search for a certain stimulus (a pair of glasses), the accessibility of that stimulus was lower than when participants had yet to fulfil the goal. This decreased accessibility of goal-relevant cognitions following goal completion seems functional—we should be able to switch our focus and attention to other, as yet incomplete, goals after we have finished with a particular pursuit. This perspective would also suggest that those who have experienced success at an achievement goal should show less implicit positivity toward the goal than those who have experienced failure, as those in the success condition have fulfilled their active goal to achieve while those in the failure condition have not.

And yet, in considering whether goal activation and implicit positivity will decrease upon goal completion, it may be important to take the type of goal into account. Although some goals can be easily and unambiguously completed (e.g., thirst, hunger, smoking), other, perhaps higher order, goals may be more difficult to interpret as finished

or complete. The goals used in prior work were largely of the former type—they were finite or determinate goals as opposed to ongoing or indeterminate goals. For example, individuals in past experiments were allowed to consume as much water as they desired (Ferguson & Bargh, 2004), ensuring that they could completely and unambiguously fulfil the goal. In contrast, other goals are more difficult to evaluate in terms of their fulfilment (e.g., identity goals; Gollwitzer 1987; Gollwitzer & Kirchoff, 1998). When do we fully complete a goal of attaining academic or professional success? Or a goal of having sufficient self-esteem? Or a goal of being loved?

The indeterminate nature of the “finish-line” of such ongoing goals may mean that individuals who experience some success at these goals may not disengage from them. A successful experience on the way to a never-ending goal may in fact be “seen” as progress toward the goal (Fishbach et al., 2010), and could increase an individual’s implicit positivity toward it. This prediction is consistent with work showing that individuals who expect to continue pursuing a (conscious) goal in the future show more implicit positivity toward the goal than those who know that they are finished pursuing the goal (Ferguson & Bargh, 2004). The goal of achievement can be characterised as not having a clear endpoint, in contrast with the goals that have been examined in past research. Thus, we predicted that participants who experience success at a conscious or non-conscious achievement goal may look as though they are still in goal pursuit, in terms of exhibiting more implicit positivity toward the goal, compared with participants who do not experience success and compared with participants who do not have an active achievement goal.

What should happen, however, for those who experience failure at ongoing goals? Almost none of the previous research that examined goal completion manipulated actual failure at the goal (cf. Chartrand, 1999; Chartrand, Cheng, Dalton, & Tesser, 2010; Ferguson & Bargh, 2004, Experiment 3). What does an experience of failure mean in the context of an ongoing goal? The pursuit of such a goal might require a person to be selective about when to (continue to) pursue the goal, and

when to wait for another opportunity. Because there will always be future opportunities to pursue an indeterminate goal (by definition), it might be functional to abandon a currently unproductive attempt and wait for a better opportunity. This perspective would suggest that in the circumstances of the current experiment, participants who experience failure on an anagram task might be best served by temporarily disengaging from the goal. Participants who experience failure may essentially “turn off” their achievement goal for the time being. In terms of their implicit affective responses, this would mean that those who experience failure might automatically return to baseline (control condition) levels of implicit positivity toward the goal. This would show that implicit affective processes can functionally guide a person toward productive routes of goal pursuit, and away from unproductive ones. Moreover, if this effect happens even when the goal is non-conscious, it would illustrate the automaticity of this kind of regulatory response.

Experiment

We tested the effects of goal success and failure on subsequent implicit attitudes toward goal-relevant stimuli. We activated a goal to achieve non-consciously, consciously, or not at all, and then led participants to succeed or fail at an achievement-related anagram task. After this success or failure experience, we measured participants’ implicit attitudes toward achievement-related words. We also measured the importance of academic achievement to participants, in order to control for this factor (see Ferguson, 2008).

Given the ongoing nature of an achievement goal (particularly for our sample of undergraduates, who were taking classes at the time of the study), we predicted that participants who experienced success on the achievement task would continue to pursue the goal, and thus exhibit more implicit positivity toward the goal compared with those not in goal pursuit. Such a finding would demonstrate that people at times continue to strive toward some specific goals even as they accumulate success at those goals (Fishbach,

Zhang, & Koo, 2009; Fishbach et al., 2006). We also tested whether those who experienced failure at the achievement task would increase their efforts and show more implicit positivity toward the goal (e.g., Ferguson & Bargh, 2004, Experiment 3), or whether they would disengage from the goal and show less implicit positivity than those who succeeded at the goal (i.e., they would show similar implicit positivity to those without an active goal).

We included two goal conditions: one in which the goal was induced in a conscious, explicit manner, and one in which the goal was induced in a non-conscious manner. Given that most of the research on the effects of goals on implicit affective processes used conscious goals (e.g., Ferguson & Bargh, 2004; Sherman et al., 2003), the inclusion of a conscious goal condition allows a comparison of any current findings with past work. Furthermore, the inclusion of this condition allows us to make comparisons across conscious versus non-conscious goal processing more generally, which is necessary in order to better understand each type of pursuit (e.g., Bargh et al., 2001; Chartrand & Bargh, 1996; McCulloch, Ferguson, Kawada, & Bargh, 2008). Most importantly, by including a non-conscious goal condition we can test whether effects of success and failure on implicit goal evaluations emerge automatically, without deliberation or intentional regulatory efforts.

METHOD

Participants

Fifty-four undergraduates (16 men, 39 women) who were native English speakers participated in the study; they were compensated in cash.

Design

The experiment was a 3 (Achievement Goal: non-conscious, conscious, or no goal) by 2 (Task: succeed or fail) between-participants design.

Procedure and materials

Participants first completed a computer-based priming task. They were randomly assigned to either a non-conscious achievement goal condition or to a no-goal condition (those in the conscious-goal condition received the no-goal prime for this part of the experiment). Participants were asked to focus on the centre of the computer screen, where three stars appeared between each of the 75 trials. During each trial, forward and backward masked achievement words (achieve, strive, succeed) appeared for 50 ms in random quadrants of the screen for participants in the non-conscious-goal condition; those in the no-goal or conscious-goal conditions saw scrambled achievement words (evceiha, vetirs, euedccs). Participants identified whether the word flash appeared on the left or the right of the screen using assigned keys.

After the priming task, participants completed an anagram task that led to success or failure at achievement. The task included 40 anagrams in a paper and pencil booklet, only 34 of which were solvable; participants were given five minutes to work on the anagrams, which were described as a “fun filler task designed to clear your mind for the computer tasks that follow”. For participants in the conscious-goal condition, the front page of the booklet contained an additional sentence describing the task as a “good measure of intellectual ability, school success, and creativity”; the no-goal and non-conscious-goal condition booklets did not contain this sentence.

Goal success and failure were manipulated by setting different expectations regarding the number of anagrams participants would solve in five minutes. A pre-test on the same population ($N=188$) indicated that students completed an average of 20.6 out of the 40 anagrams ($SD=3.1$) in five minutes; to instantiate success or failure, we led study participants to expect that they would perform at plus or minus three standard deviations from the pre-test mean. The success booklets read: “Most students complete 10 or fewer anagrams in five minutes”. The failure booklets read: “Most students complete 30 or more

anagrams in five minutes". Assuming that performance has an approximately normal distribution, 99% of the population should not meet these performance expectations. Most individuals in the success condition should believe that they have completed roughly twice as many anagrams as the average student, while most individuals in the failure condition should believe that they have completed only two-thirds as many anagrams as the average student.

After the anagram task, participants completed a computer-based automatic evaluation task designed to measure implicit positivity toward the goal to achieve. For each one of 60 trials, participants saw either one of 15 neutral words (chair, tree) or one of three achievement-related words (achieve, strive, succeed). These neutral or achievement prime words appeared for 150 ms and then were replaced with either a positive (e.g., marvellous) or negative (e.g., hideous) adjective target; 12 adjectives of each valence were used (see Ferguson, 2007, 2008, for a similar paradigm). Participants classified the adjective as either positive or negative by pressing a specified key; the adjective remained on the screen until they responded. Participants completed 60 trials in a 2×2 within-subjects design (Adjective Valence: positive or negative; Prime Type: achievement or neutral), and saw 15 trials of each type. Thus, the three achievement prime words appeared 10 times each, the 15 neutral prime words appeared twice each, and the positive and negative adjective targets appeared five times each. The achievement and neutral prime words were paired an equal number of times with positive and negative adjective targets.

At the end of the study, participants indicated how well they thought they had performed on the anagram task (1–7 scale from “*performed poorly*” to “*performed well*”) and identified how many anagrams the average student usually solved. Participants also reported how important academic success was to them (1–7 scale, “*not at all important*” to “*very important*”), and answered some demographic questions. Finally, participants were given a funnel debriefing in which they were asked to speculate about the general purpose of

the study and whether they saw anything unusual throughout the experiment. They were asked whether they saw any words flash before the targets in the first computer (priming) task, and whether they thought any of the experimental tasks were related.

RESULTS

Measures

We excluded from analysis incorrect responses (6.4%) and response times that were below 250 ms or more than 3 standard deviations above each individual’s average response time (0.97%; Wilcox, 1997). Then we logged and averaged response times to each of the four trial categories: 2 (Prime Word: achievement or neutral) by 2 (Adjective Target: positive or negative). We created a dependent variable that measured overall relative positivity toward achievement words by subtracting the difference between response times to negative and positive adjective targets following achievement prime words ($RT_{\text{achievement prime/negative target}} - RT_{\text{achievement prime/positive target}}$), and computed a similar variable for response times following neutral prime words ($RT_{\text{neutral prime/negative target}} - RT_{\text{neutral prime/positive target}}$). We then created an overall difference score by subtracting the response time difference score for neutral primes from the response time difference score for achievement primes. This measure indicates relative implicit positivity toward achievement words: It shows how quickly individuals responded to positive over negative target adjectives that followed achievement primes, controlling for response times to positive and negative target adjectives that followed neutral primes. Higher scores therefore indicate relatively more implicit positivity toward achievement (see Ferguson, 2007, 2008).

Funnel debrief

No participants reported seeing any prime words in the computer task. Further, no participants

guessed the hypotheses or the relationship between the priming and other tasks.

Manipulation checks

We confirmed that the failure/success manipulation worked. At the end of the study, participants were asked to select how many anagrams the average student solved in five minutes: 5, 10, 15, 20, 25, 30, or 35. Seventy percent of participants in the failure condition correctly indicated that other students complete 30 or more anagrams in five minutes, while 82% of participants in the success condition correctly indicated that other students complete 10 or fewer anagrams in five minutes. Further, participants in the failure condition indicated that they had performed poorly on the anagram task, compared to those in the success condition, $F(1, 48) = 4.67$, $p = .035$ ($M_{\text{fail}} = 3.79$, $M_{\text{success}} = 4.48$). Participants' actual performance on the anagram task mirrored our pre-test findings. On average, participants completed 21 anagrams out of 40 in the five-minute time limit ($SD = 5.83$); as expected, given the constrained nature of the task, anagram performance did not vary by condition, $F < 1$.

Implicit positivity

Relative implicit positivity toward achievement was analysed with a 3 (Goal: non-conscious, conscious, none) by 2 (Task: succeed or fail) analysis of variance (ANOVA). The overall model was significant, $F(5, 48) = 2.40$, $p = .05$, with a main effect of the Task manipulation, $F(1, 48) = 4.63$, $p = .04$, and a Goal by Task interaction, $F(1, 48) = 3.90$, $p = .02$. No other factors were significant. Importance of academic achievement overall was not a significant predictor of implicit positivity, $F(1, 53) = 0.02$, $p = .89$, perhaps because achieving at school in general was very important for all of our participants ($M = 6.46$ on a 7-point scale, $SD = 0.84$). The main effect of Task indicated that individuals who had succeeded at the anagram task had higher implicit positivity toward achievement words than

individuals who had failed ($M_{\text{success}} = 95$ ms, $M_{\text{fail}} = -10$ ms).

To decompose the Goal by Task interaction, we first compared relative implicit positivity after success or failure for the conscious and non-conscious goal conditions. Individuals who had a conscious achievement goal had higher implicit positivity toward achievement words when they had succeeded versus failed at the anagram task, $F(1, 48) = 5.25$, $p = .02$ ($M_{\text{succeed}} = 197$ ms, $M_{\text{fail}} = -33$ ms). Individuals who had a non-conscious achievement goal also had higher implicit positivity toward achievement words when they had succeeded versus failed at the anagram task, $F(1, 48) = 4.00$, $p = .05$ ($M_{\text{succeed}} = 126$ ms, $M_{\text{fail}} = -62$ ms). Between the two goal conditions, there were no significant differences in response times following success, $F(1, 48) = 0.90$, $p = .35$, or failure, $F(1, 48) = 0.27$, $p = .61$.

Next, we examined responses to success and failure within the no-goal condition, and then compared the no-goal condition to the two goal conditions. Individuals in the no-goal condition showed no differences in implicit positivity regardless of success or failure at the anagram task, $F(1, 48) = 1.05$, $p = .31$ ($M_{\text{succeed}} = -22$ ms, $M_{\text{fail}} = 50$ ms). Within the success conditions, participants with a goal showed higher implicit positivity than participants with no goal, $F(1, 48) = 6.53$, $p = .02$ ($M_{\text{goal}} = 149$ ms, $M_{\text{no goal}} = -19$ ms). Within the failure conditions, participants with a goal showed directionally less implicit positivity compared to those with no goal, $F(1, 48) = 2.05$, $p = .15$ ($M_{\text{goal}} = -44$ ms, $M_{\text{no goal}} = 54$ ms; Figure 1).

Finally, we tested whether relative implicit positivity differed from zero following success or failure in the goal and the no-goal conditions (recall that a zero score indicates neutrality, or no difference in response times to achievement versus neutral words paired with positive or negative adjectives). Implicit positivity in the goal conditions was significantly higher than zero ($M = 148$ ms) when individuals had succeeded at the anagram task, $t(14) = 2.62$, $p = .02$, and was directionally lower than zero ($M = -44$ ms) when individuals had failed at the anagram task,

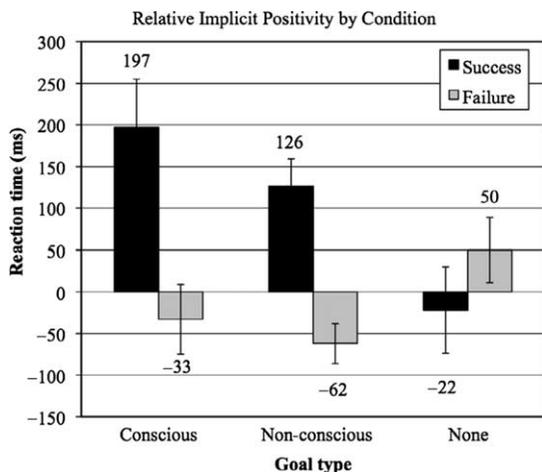


Figure 1. Relative implicit positivity toward achievement words by condition.

$t(14) = -1.66, p = .11$. Implicit positivity in the no-goal conditions did not differ from zero regardless of success or failure, $t_{\text{success}}(12) = -0.36, p = .72, t_{\text{failure}}(10) = 1.16, p = .27$.

We also analysed response times using a mixed ANOVA with the following factors: Goal

(conscious, non-conscious, no goal) by Task (succeed or fail) by Target Valence (adjective targets: positive or negative) by Prime Type (prime word: achievement or neutral). In this model, Goal and Task are between-subjects factors, and Target Valence and Prime Type are repeated within-subjects factors from the automatic evaluation task. Confirming the results reported above, we found a significant two-way interaction between Target Valence and Prime Type, $F(1, 218) = 11.88, p = .001$, as well as the expected four-way interaction, $F(1, 218) = 5.84, p = .005$. No other effects were significant. Contrasts on the four-way interaction mirrored the results above; for average response latencies and contrasts by condition, see Table 1.

DISCUSSION

We examined implicit affective responses to goal-relevant stimuli following success or failure at that goal. This is the first empirical examination of implicit affect following goal pursuit where the

Table 1. Average reaction times (ms) to the automatic evaluation task by condition

Goal	Fail					
	Achievement prime words			Neutral prime words		
	Positive target adjective	Negative target adjective	PE ^a	Positive target adjective	Negative target adjective	PE ^a
Conscious	703 (174)	679 (110)	-24 (112) ^{b,d}	684 (149)	690 (133)	-6 (63)
Non-conscious	646 (106)	610 (69)	-36 (67) ^{c,e,h}	659 (106)	629 (84)	+30 (79) ^h
No goal	730 (132)	796 (221)	+76 (152) ^{d,e}	1099 (1030)	863 (331)	+236 (747)
Goal	Succeed					
	Achievement prime words			Neutral prime words		
	Positive target adjective	Negative target adjective	PE ^a	Positive target adjective	Negative target adjective	PE ^a
Conscious	847 (442)	988 (634)	140 (201) ^{b,f,i}	873 (517)	927 (624)	-54 (117) ⁱ
Non-conscious	683 (177)	787 (173)	104 (94) ^{c,g,j}	672 (117)	677 (111)	-5 (55) ^j
No goal	754 (337)	745 (247)	9 (238) ^{f,g}	755 (263)	726 (222)	28 (102)

Notes: Similar superscripts indicate that the marked pairs differ significantly at $p < .05$. Standard deviations are shown in parentheses.

^aPriming effect (negative - positive).

person has accumulated clear success or failure experience at the goal. Previous work has focused largely on implicit affective processes during goal activation, rather than after a successful or failed goal pursuit. The current findings show that individuals with either a conscious or non-conscious goal to achieve showed higher implicit positivity toward achievement-related words after they had succeeded at an achievement-related task, compared to those with no goal and to those who had failed at the achievement-related task. This pattern of findings supports our prediction that with an ongoing goal, such as achievement, that does not have a clear end-point or “finish line”, people continue to strive toward it after success experiences. We also found that those who experience failure at such a goal seem to disengage from the goal, and show similar levels of positivity as those in the control condition.

This overall pattern of results provides an interesting contrast with earlier work on finite goals (e.g., thirst, hunger) that suggested that success experiences might lead to decreased implicit positivity (e.g., Ferguson & Bargh, 2004; Fishbach et al., 2010; Seibt et al., 2007; Sherman et al., 2003), while failure experiences might lead to increased positivity (Ferguson & Bargh, 2004, Experiment 3). The current findings thus demonstrate the importance of considering the type of goal being pursued (whether finite or ongoing), as well as the outcome of goal pursuit (whether pursuit leads to success or failure). When a goal is finite and easy to evaluate as being finished or not, success may lead to decreased implicit positivity, which would essentially reflect disengagement from the goal. On the other hand, failure at such an easily assessed goal, especially when the goal is a biological imperative or allows for clear and easy improvement (Ferguson & Bargh, Experiment 3), may instead lead to increased efforts and correspondingly increased implicit positivity. In contrast, for goals that are ongoing or indeterminate, success may signal that the person should continue with the goal pursuit while failure may suggest that the person should wait for a better opportunity. Overall, the current results demonstrate that implicit affective re-

sponses to stimuli are influenced by the activation, operation, and continued pursuit of goals. Such affective processes may continue to play an important role throughout the self-regulatory trajectory, and future research can continue to examine the variables that might determine the exact nature of that role.

Outstanding questions

This study raises a number of questions regarding the role of implicit affective processes in goal pursuit and self-regulation. First, there is the question of what exactly caused the ongoing implicit positivity for those who experienced goal success. We based our hypotheses on the notion that achievement goals are ongoing goals for which it is difficult to establish goal fulfilment. Our findings may demonstrate that individuals in the study still had an active achievement goal and that accomplishing a single achievement-related task was not sufficient to fulfil the goal—if this is the case, one could view the increased implicit positivity as future-oriented and still functioning to facilitate future achievement. This would be in contrast with earlier work on this topic that used goals that were easily and obviously fulfilled, such as quenching thirst or getting a nicotine fix (Sherman et al., 2003), where goal fulfilment decreases implicit positivity. This highlights the potential importance of the obviousness with which ongoing versus finite goals are fulfilled in determining implicit affective responses following goal pursuit.

However, our findings may also demonstrate satisfaction or positivity with having just succeeded at a goal (as opposed to simply fulfilling it, which might lead to neutrality)—in this case, one could view the increased implicit positivity as reflective of past success, or perhaps as reflective of changes in efficacy beliefs related to the goal (Chartrand, 1999). It would be possible to distinguish between these two accounts by measuring implicit positivity following successful goal pursuit either immediately or after a delay (e.g., see Förster, Liberman, & Friedman, 2007). If implicit positivity is related to future goal pursuit

and the achievement goal is still active despite the person having completed an achievement task, then these effects should demonstrate specific characteristics of goal activation, such as persistence or strengthening over time (Förster et al., 2005; Marsh et al., 1998). However, if the implicit positivity is reflective of success at the achievement task, this positivity should decrease over time.

A related question centres on implicit affect and its association with the goal itself versus its association with means to reach the goal. We measured implicit positivity after goal success using words related to the general goal to achieve (e.g., achieve, strive, succeed), but did not include words related to the means to achieve (e.g., anagram, solve, pencil); this would be an interesting distinction to examine in future work. Some work has found that implicit affective responses to the overall (abstract) goal itself, versus the concrete means to reach the goal, are more predictive of actual goal behaviour (Ferguson, 2007). Thus, if failure at an ongoing goal indicates that the current environment is not conducive to goal pursuit and that disengagement is functional, individuals should show less implicit positivity toward general goal words, as demonstrated in this study. In this situation, individuals may also show less positivity toward means related to the task at which they failed (e.g., anagrams, solve) but might show relatively more implicit positivity toward alternate means (e.g., study, text book) that are unrelated to the most recent failure. Note that studies examining means versus goal-words, or studies examining implicit affective responses over longer periods of time, would also address a limitation of the current study by providing strong evidence of goal activation and not other cognitive processes, such as knowledge activation or accessibility.

An additional question is when success versus failure at the pursuit of ongoing goals will foster subsequent goal pursuit or goal disengagement. Our findings indicate that success may foster subsequent goal pursuit whereas failure may cause individuals to disengage from goal pursuit. However, there are likely several variables that would

moderate this effect, such as motivation to accomplish the goal, knowledge about how to achieve the goal, or commitment to the goal. Consider the experiment by Ferguson and Bargh (2004, Experiment 3), where athletic participants were asked to think about a recent failure or success experience in athletics. Compared to non-athletes, varsity athletes showed more implicit positivity after thinking about an athletic failure versus an athletic success or in a control condition (see also Moskowitz, 2002).

First, why would such participants show no increase in positivity toward the goal after thinking about a success experience (compared with the control condition)? Just as with thirst, hunger, and smoking, athleticism might similarly be able to be easily interpreted and evaluated, especially by these varsity participants. For them, their goal of athleticism was clearly and unambiguously met, presumably temporarily, after thinking about a recent success; thus, knowledge or experience may influence whether individuals perceive specific tasks as finite or as related to ongoing goals.

Second, why would such participants show increased positivity after thinking about a failure (compared with those in the control condition)? Perhaps these varsity athletes knew exactly what to do to address a goal failure. That is, they may have been particularly practiced at knowing how to physically train and improve their athletic skills (e.g., run an extra 10 miles, double the number of push-ups during training, etc.). These participants may have been both confident that they *could* improve and also knowledgeable about *how* to improve. These might be necessary ingredients for showing increased motivation to continue to strive toward a goal following a goal failure. In other words, this kind of “rebound” effect might be restricted to those who are confident and knowledgeable about how exactly to improve following a failure, and also have the opportunity to do so.

Thus, in cases where there are no obvious actions to improve, or no opportunities to do so, people may instead disengage from the goal following a failure experience. It is also possible that the temporal delay between the failure and the measure of implicit affect is important; in our

study, implicit affect was measured immediately after failure—disengagement may be an immediate response in the aftermath of failure, but this may not persist in the longer term, especially for those who are committed or knowledgeable.

It may also be the case that the exact details of the failure (or even success) experience are important. In the current study, participants received feedback about an anagram task, and it may be that those who experienced failure at this task disengaged from the goal at that moment because the task seemed trivial. If participants were to receive failure feedback on a task that they deemed highly relevant to their achievement goals (e.g., an intelligence test) they might be more likely to show a rebound effect (Gollwitzer, Wicklund, & Hilton, 1982). Conversely, it may be that the type of task does not matter as much as long as the person receives positive (success) feedback. A wealth of research shows that people are more willing to accept and believe in the validity of a task or test that affords them positive (vs. negative) feedback (e.g., Dunning, 2005). As a result, participants who experience success even on a task that might be regarded as circumscribed or trivial may still persist in striving toward the goal.

The issue of when success and failure are motivating versus disengaging is related to work examining the relationship between subgoals (e.g., solve anagrams; exercise today) and superordinate goals (e.g., achieve; lose weight). Fishbach and colleagues (Fishbach et al., 2006) have shown that accomplishing a subgoal can facilitate or inhibit pursuit of related subgoals, depending on whether individuals view the accomplishment as reflective of either commitment or progress toward the superordinate goal. When individuals view either success or failure as indicating progress toward the overall goal, they tend to disengage from related subgoals. However, when success or failure is viewed as indicating commitment to the overall goal, they tend to engage more with related subgoals (Fishbach et al., 2006). The variables discussed above, such as expertise or task type, may influence whether individuals view their success or failure as indicative of progress or commitment.

Indeed, there is some evidence that negative feedback becomes more motivating as expertise in an area increases; experts view failures as indicative of insufficient progress (and so are more motivated) while novices view failures as indicative of insufficient commitment (and so are less motivated; Finkelstein & Fishbach, 2009). Related research also indicates that encountering problems or discrepancies during goal pursuit leads to increased persistence and commitment if control beliefs are high, but leads to a downgrading of subjective goal importance and disengagement from the goal if control beliefs and action resources are low (Brandstädter & Rothermund, 2002a; Carver & Scheier, 2000; Rothermund & Brandstädter, 2003; Wrosch & Heckhausen, 1999).

Conclusions

The current work moves beyond questions about how the initial activation of a goal influences implicit affect, to questions about how the actual pursuit itself influences implicit affect. In doing so, this research addresses the impact of success or failure experiences on people's implicit affective reactions to stimuli related to a chronically important and ongoing goal. Such affective reactions are likely to influence a person's immediate and future decisions and behaviours related to the goal. In this way, the results shed some light on how implicit affect functions in the aftermath of a motivational pursuit.

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