

## Consciousness as a Troubleshooting Device? The Role of Consciousness in Goal Pursuit

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### Abstract

This chapter focuses on the role of consciousness in goal-directed behavior. It begins by reviewing evidence that goals can be activated outside awareness and run to completion without the person being aware. It then reviews literature concerning evaluation processes in conscious goal pursuit and explores whether people are indeed able to detect success and failure to attain unconsciously activated goals. It is argued that failure renders goal-related constructs highly accessible. In turn, this heightened accessibility of goal-related constructs can ultimately lead to conscious awareness of the goal. Evidence is presented that supports the idea that people start to think consciously about unconsciously activated goals when progress is problematic. The chapter ends with a discussion of whether conscious goal-related thoughts serve a regulatory function.

**Keywords:** goal-directed behavior, success, failure, unconscious goal pursuit

Imagine you are presenting your work at a major conference and your presentation meets with disaster. Your laptop crashes, your jokes fall flat, and a lot of people attending your presentation start to yawn. At some point, some of them even fall asleep. Immediately after this horrible fiasco, thoughts about the goal you actually pursued, the goal of making an excellent, lasting impression on your colleagues spontaneously keeps popping into consciousness. Moreover, you feel foolish, devastated even, and your self-esteem is tragically low. During the remainder of the day, thoughts about your failure keep intruding consciousness. The evening drinks only help a little bit.

As illustrated here, failure to attain your goals can have an impact on conscious

thoughts, feelings, and self-esteem. In this chapter, we focus on the role of consciousness in goal-directed behavior. Although recent research has shown that goals can be activated outside awareness and even run to completion without any conscious intervention (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001), there is no denying that we are often consciously aware of our goals. We are sometimes aware of the fact that we want to achieve, that we want to be honest, or, indeed, that we want to make a good impression at a major conference. This is an interesting conundrum: On the one hand, we are faced with the observation that goal pursuit does not need consciousness (at least under some circumstances); on the other hand, we know that

we are frequently aware of our goals. The question we want to address in this chapter is when and why we are aware of our goals? We argue that one cause of becoming consciously aware of goals is failure in goal-attainment. That is, we propose that especially when people fail to attain their goals, they will start to think consciously about these goals, as illustrated in the opening example.

This idea is in line with ideas proposed by others (Atkinson & Birch, 1970; Lewin, 1936; Mandler, 1975; McClelland, Atkinson, Clark, & Lowell, 1953; Morsella, 2005; Shiffrin & Schneider, 1977). Mandler (1975), for example, already argued that structures that are normally not represented in consciousness might be brought into consciousness when they are defective in their particular function. For example, if one key is stuck when typing a letter, then particular representations of that action may intrude consciousness. More recently, Morsella (2005; Chapter 30) introduced a framework that suggested that we become aware of our actions when there is conflict among different (unconscious) response systems. For example, normally you are not aware of your air intake or the blinking of your eyes. However, if for some reason this air intake or blinking is obstructed (i.e., when there is conflict), you become aware of your breathing or blinking.

Before answering the central question about when goals intrude consciousness, we first briefly review evidence that goals can be activated outside awareness and run to completion without the person being aware. Subsequently, we review literature concerning evaluation processes in conscious goal pursuit and explore whether people are indeed able to detect success and failure to attain unconsciously activated goals. We present some research conducted in our own laboratory investigating the consequences of success and failure to

attain unconsciously activated goals. We argue, in line with other research, that failure renders goal-related constructs highly accessible. In turn, we propose that this heightened accessibility of goal-related constructs can ultimately lead to conscious awareness of the goal. We present research from our own laboratory that supports our idea that people start to think consciously about unconsciously activated goals when progress is problematic. We end this chapter by speculating about whether such conscious goal-related thoughts serve a regulatory function.

### **Unconscious Goal Pursuit**

Today, the notion that goals can be activated by situational cues outside awareness and guide behavior unconsciously is widely accepted. Converging evidence has shown that the entire process from goal activation to goal completion can ensue without conscious awareness (e.g., Bargh, 1990; Bargh et al., 2001; Chartrand & Bargh, 1996; Fishbach, Friedman, & Kruglanski, 2003; for reviews, see Custers & Aarts, 2005a; Dijksterhuis, Chartrand, & Aarts, 2007). For instance, priming participants with the goal to achieve led to a better performance on an intellectual task relative to participants not primed with that goal (Bargh et al., 2001). Moreover, participants who were unobtrusively exposed to citrus-scented all-purpose cleaner kept their environment more clean during an experiment in which they had to eat than participants who were not exposed to the cleaner (Holland, Hendriks, & Aarts, 2005).

Furthermore, it has been shown that the representation of significant others can induce goal-directed behavior (Fitzsimons & Bargh, 2003; Shah, 2003). Activating the representation of a close friend led to more helping behavior (Fitzsimons & Bargh, 2003), and priming participants with their

father increased achievement. Shah (2003), for example, subliminally primed participants with words related to father or neutral words. Participants were then given an anagram task that was introduced as an important measure of analytic reasoning. After the anagram task, participants were asked to indicate how close they were with their father and whether their father valued the task goal (i.e., achievement). The findings showed that especially participants who were close to their father and perceived their father as wanting them to do well on the task were more committed to the task, were more persistent in the task, and performed better on the task (Shah, 2003).

Aarts, Gollwitzer, and Hassin (2004) recently demonstrated “goal contagion,” the tendency for people to engage in unconscious goal pursuit merely because other people in their environment are doing so. For example, in one experiment (Aarts et al., 2004, experiment 2), male participants were asked to read a short story in which the goal of seeking casual sex was primed, whereas other male participants were not primed with that goal. Subsequently, the tendency to help the experimenter, who was either male or female, was measured. The findings indicated that participants who were primed with the goal of seeking casual sex were more inclined to help the female experimenter than participants who were not primed with that goal, whereas no such differences were found when the experimenter was male.

Many authors have argued that goals that are frequently chosen consciously can over time develop the capacity of becoming unconsciously activated (e.g., Bargh, 1990; Bargh et al., 2001; Custers, 2006; Kruglanski, 1996; Shah, Kruglanski, & Friedman, 2003). When goals are consistently and repeatedly activated in a specific situation, such goals can be activated automatically whenever the person encounters that same

situation (Aarts & Dijksterhuis, 2000, 2003; Shiffrin & Dumais, 1981; Wegner & Bargh, 1998). For example, after consistently and repeatedly choosing the goal to be polite whenever you visit your parents-in-law, merely seeing your parents-in-law will unconsciously activate the goal of being polite.

Despite considerable research concerning the effects of unconsciously activated goals on behavior and cognition, very little research has been done to examine the effects of failure to attain such unconsciously activated goals (but see Chartrand, 1999; Riketta & Dauenheimer, 2003). We all know that goal setting does not always lead to successful goal pursuit. As illustrated in our opening example, especially when people fail to attain their goals, they start to think about these goals. But how do people know whether they succeed or fail if they are pursuing unconsciously activated goals? We propose that in order to know whether performed actions are in line with (unconsciously) activated goals, goal-directed behavior has to be monitored.

### Goal-Discrepancy Detection

We have all had the experience that setting a goal for ourselves does not always lead to attainment. Attempts to quit smoking, for example, very often remain attempts. So how do we know whether the selected actions are in accordance with our chosen goals? To make sure that the actions we are performing are indeed in line with the intended goals, we compare our behavior and its effects with the goal we pursue (e.g., Carver & Scheier; 1981, 1998; Powers, 1973; Scheier & Carver, 1988; Wiener, 1948).

Many self-regulation theories have proposed some kind of feedback control (e.g., Carver & Scheier; 1981, 1998; Miller, Galanter, & Pribram, 1960; Powers, 1973; Wiener, 1948; Chapter 16). For example,

Miller et al. (1960) described a feedback loop in their test-operate-test-exit model. According to this model, once a goal (or standard) is activated, the present behavior is tested against the standard (test phase). If discrepancies are detected between the goal and the present behavior, behavior has to be stopped, changed, or even reversed (operate phase). Subsequently, the altered behavior and its effects are tested against the standard (test phase). This feedback loop continues to operate until discrepancies are no longer detected. If no discrepancies are detected between the present behavior and the goal (indicating that the goal is attained), no further actions are necessary, and the feedback loop is left (exit phase). Feedback control works like the system we all have at home to control our heating: a thermostat. A thermostat checks the temperature and compares it to a set standard. When the temperature is below the standard, it activates the heating system. If the desired temperature is reached, the heating system is deactivated.

Discrepancy detection has effects on feelings. If people detect discrepancies between their current and their desired states a negative evaluation will follow, resulting in a negative mood (e.g., Bandura, 1997; Carver & Scheier, 1981, 1990; Frijda, 1988). For example, when intending to go to the gym twice a week, finding out after 2 weeks that you did not visit the gym even once will likely lead to feelings of sadness and perhaps guilt. However, when no discrepancies are observed, a positive evaluation ensues, resulting in a positive mood.

Depending on the perceived self-relevance of goals, successful or problematic goal pursuit may also affect self-esteem (e.g., Crocker, Sommers, & Luthanen, 2002; Crocker & Wolfe, 2001; Wolfe & Crocker, 2002). For example, Crocker and colleagues (Crocker, Karpinski, Quinn, & Chase, 2003; Crocker et al., 2002) showed

that the more self-relevant academic performance is for students, the greater the fluctuations in self-esteem in response to positive and negative academic events will be. They (Crocker et al., 2002) assessed self-esteem of college seniors applying to graduate programs several times during 2 months. During this period, students were likely to receive acceptance letters as well as rejection letters from graduate programs. The findings showed that the more self-relevant academic performance was for the student, the greater was the impact of the letters on self-esteem.

To recap, people evaluate their progress toward their intended goals. Because people evaluate their goal-directed behavior, self-esteem (and sometimes mood) are affected by success and failure. Although the evidence reported thus far pertained to conscious goals, we argue that goals that are activated outside awareness will be monitored as well. That is, we propose that people will implicitly evaluate their progress toward goal-attainment and hence that self-esteem (and mood) are affected by success and failure on unconscious goals as well. Next we review supporting evidence for such an “implicit monitoring” process.

### **Implicit Monitoring**

In line with our reasoning, Moskowitz, Li, and Kirk (2004) also proposed that unconsciously activated goals are monitored. According to their implicit volition model, people are very likely to evaluate or monitor their progress toward their goals regardless of whether a goal is activated consciously or unconsciously. When discrepancies are detected between the current level of goal attainment and the desired state, some tension arises, instigating different kinds of goal operations, such as adjusting current behavior or inhibiting competing goals.

In the literature on thought suppression, such a monitoring process has been

proposed as well (Wegner, 1994, 1997; Wegner & Wenzlaff, 1996). It has been argued that while intentionally suppressing a certain thought from entering consciousness, an (ironic) monitoring process remains active in the background to search for mental contents that signal the failure to achieve the desired state. Concretely, when people are asked not to think about a white bear, they indeed try to consciously avoid thoughts of a white bear. Meanwhile, a monitoring process starts to search for information that may signal failure: thoughts about a white bear (e.g., Wegner & Erber, 1992). Although the goal to suppress thoughts in the thought suppression literature is activated consciously, the monitoring process is assumed to be unconscious.

Other support for implicit monitoring processes can be found in neurocognitive research (e.g., Angel, 1976; J. R. Higgins & Angel, 1970; Rabbitt, 1966; Rabbitt & Rodgers, 1977; Ridderinkhof, van den Wildenberg, Segalowitz, & Carter, 2004). It has been suggested that largely overlapping brain areas, clustering in the rostral cingulate zone, are involved in monitoring by searching for unfavorable outcomes and response errors (Ridderinkhof, Ullperger, Crone, & Nieuwenhuis, 2004). These brain areas signal that goals may not be achieved or that rewards may not be obtained (Ridderinkhof, van den Wildenberg, et al., 2004). An error detection system appears to compare a representation of the response actually made against a representation of the appropriate response (Bernstein, Scheffers, & Coles, 1995; Scheffers & Coles, 2000). Recent studies of event-related potentials have shown a negative potential (i.e., error-related negativity [ERN]) when participants make errors in a choice-reaction-time paradigm. This ERN reaches a peak about 150 milliseconds after the onset of the erroneous response (e.g., Dehaene, Posner, & Tucker, 1994; Falkenstein, Hohnsbein,

Hoormann, & Blanke, 1990; Gehring, Goss, Coles, Meyer, & Donchin, 1993). Moreover, the degree of mismatch between the two representations (or the degree of error detected by the system) is reflected in the amplitude of the ERN (e.g., Bernstein et al., 1995; Scheffers & Coles, 2000).

Assuming that people indeed monitor their unconsciously activated goals, consequences of success and failure for mood and for self-esteem can be expected to be the same for unconsciously activated goals and consciously chosen goals. After all, changes in self-esteem are caused by people's ability to detect failures and successes. When goal progress is successful, no discrepancies are detected, resulting in a better mood and higher self-esteem, whereas when goal progress is problematic, discrepancies are detected, resulting in a worse mood and lower self-esteem.

Recently, Chartrand (1999; Chartrand & Bargh, 2002) started to explore the effects of success and failure to attain unconsciously activated goals on mood. In one of her experiments, participants were given either a difficult or an easy anagram task after being primed with the goal to achieve or not. Participants primed with the goal to achieve were in a worse mood after performing the difficult anagram task than after performing the easy anagram task. For participants not primed with that goal, no such differences were found (but see Bongers, Dijksterhuis, & Spears, 2008a). Chartrand (1999; Chartrand & Bargh, 2002) called the resulting moods "mystery moods." Participants were, depending on conditions, in a good or bad mood without knowing the origins of these moods.

Furthermore, Riketta and Dauenheimer (2003) investigated the effects of anticipated success on mood and self-esteem. Participants were primed with a knowledge-seeking goal or not. Before measuring mood and self-esteem, half the participants were told

that they would receive a personality test with feedback on their results, thereby anticipating to satisfy their goal. However, the other half of the participants received this announcement after mood and self-esteem were measured. The findings showed that, when mood and self-esteem were measured after the announcement, participants primed with the knowledge-seeking goal were in a better mood and reported higher self-esteem than participants not primed with that goal. However, when mood and self-esteem were measured before the announcement, no such differences were found.

Because Riketta and Dauenheimer (2003) investigated only anticipated successful goal pursuit, claims about a monitoring process may be somewhat bold. That is, participants were not yet pursuing the goal. However, their findings are difficult to explain without assuming a monitoring process. Why would mood and especially self-esteem increase by an announcement suggesting an opportunity to fulfill a goal if someone does not monitor their (unconscious) goal pursuit? Some kind of evaluative process (is the goal going to be attained or not?) starts to operate after a goal is activated. And this process will search the environment for cues that will promote goal pursuit, in this case the announcement, or will search for cues that signal failures to attain activated goals.

To investigate whether actual success and failure to attain unconsciously activated goals will affect self-esteem similarly as success and failure on consciously chosen goals, we (Bongers et al., 2008a) conducted several experiments in our own laboratory. The design of these experiments is comparable to the design used by Chartrand (1999; Chartrand & Bargh, 2002). However, we measured self-esteem rather than mood. In one of our experiments (Bongers et al., 2008a, experiment 1), we primed participants with an achievement goal or

not using a scrambled sentences task (Srull & Wyer, 1980). Subsequently, they were given either 10 difficult (failure condition) or 10 easy (success condition) items of the Raven Progressive Matrices Test<sup>1</sup> (Raven, 1941). Subsequently, self-esteem was measured with the state self-esteem scale (Heatherton & Polivy, 1991). Three types of self-esteem were distinguished: performance self-esteem, social self-esteem, and appearance self-esteem. If people indeed evaluate their behavior, one may expect the strongest effects on the type of self-esteem that is closest to the domain of succeeding or failing. Therefore, we expected that success and failure to attain an unconsciously activated achievement goal would affect mainly performance self-esteem and perhaps social self-esteem but not appearance self-esteem. The findings indeed demonstrated that participants primed with an achievement goal reported higher self-esteem after the easy test than after the difficult test, whereas no such differences were found for participants not primed with that goal. Moreover, these effects emerged only for performance self-esteem and social self-esteem but not for appearance self-esteem.

To recapitulate, although goals are activated outside awareness, people monitor their goal-directed behavior, and hence people are able to detect successes and failures. We already argued that especially when people fail to attain their goals, they will start to think consciously about these goals. In other words, when failures are detected, thoughts about the goal will spontaneously pop into consciousness. In the next section, we review theories concerning intrusive thoughts to shed more light on the kind of thoughts that are most likely to enter consciousness spontaneously.

### **Motivated Conscious Thoughts**

According to Klinger (1975), conscious thoughts can be divided into two categories:

operant thoughts and respondent thoughts. Operant thoughts are a function of a person's current concerns. These thoughts are related to a person's current activity, are intentionally directed toward task completion, and are under a person's control, such as conscious thoughts about all-purpose cleaner while housekeeping. Respondent thoughts, on the other hand, are thoughts that are not related to a person's current activity, that enter consciousness unintentionally, and that shift attention away from the person's current activity. For instance, conscious thoughts about an argument with your best friend while housekeeping are respondent thoughts. These respondent thoughts, also called intrusive thoughts, are the ones that are important here.

Respondent or intrusive thoughts are mostly motivationally driven, although there are exceptions (Beckmann, 1998). Some intrusive thoughts have no motivational source (Martin & Tesser, 1989, 1996), as one thought may simply activate another thought by association. For example, thinking about a book you are reading may activate thoughts about the library, which may activate thoughts about the university, and so on. Another example of intrusive thoughts that are not always motivational is daydreaming (Singer, 1966, 1975). Although the content of daydreaming is usually positive, it shifts attention away from the person's current activity. Intrusive thoughts without a motivational source are not very vigorous and will extinguish over time. Conversely, motivationally driven intrusions are more persistent and powerful. In general, these intrusions concern incomplete intentions or frustrated goals. Such incomplete intentions instigate conscious thoughts about these unattained goals, such as thinking about your disastrous presentation (e.g., Beckmann, 1998; Klinger, 1996; Martin & Tesser, 1996). Intrusive thoughts will enter consciousness

unintentionally, even without the necessity of cues in the environment, and then interfere with what one is currently doing (Chapter 5). In addition, these thoughts are likely to keep intruding consciousness until the goal is either attained or abandoned (Beckmann, 1998; Klinger, 1996, 1999; Lyubomirsky & Nolen-Hoeksema, 1995; Martin & Tesser, 1989, 1996; Mikulincer, 1996).

Although the actual experience of the thought is considered to be conscious, the underlying mechanism is unconscious (Martin & Tesser, 1996). It is assumed that these conscious thoughts might be caused by heightened accessibility of goal-related concepts (see Rholes & Pryor, 1982; Williams, 1993). In the next section, we explore whether goal-related concepts are indeed more accessible after goal activation and whether these goal-related concepts remain highly accessible when goal progress is problematic.

### Accessibility

Goals can be seen as mental representations like semantic concepts or stereotypes (Bargh, 1990; Kruglanski, 1996), and they are mentally represented as desired states in a hierarchically ordered knowledge structure. Such hierarchical knowledge structure includes desired states, actions, and means to reach the desired states (Aarts & Dijksterhuis, 2000; Aarts et al., 2004, Bargh & Gollwitzer, 1994; Carver & Scheier, 1998; Custers & Aarts, 2005b; Dijksterhuis et al., 2007; Gollwitzer & Moskowitz, 1996). A major difference between mental representations of goals and other mental constructs is that goal representations have a motivational content. Whereas nonmotivational priming effects are known to decrease in strength over time (e.g., Dijksterhuis & Bargh, 2001; E. T. Higgins, Bargh, & Lombardi, 1985), goal-priming effects are known to be able to increase in

strength over time until the goal is attained (e.g., Atkinson & Birch, 1970; Bargh et al., 2001; Chartrand & Bargh, 1996). It has been suggested that the increase in strength over time is due to enhanced accessibility of goal-related concepts (e.g., Goschke & Kuhl, 1993; Marsh, Hicks, & Bink, 1998).

There is ample evidence that active goals are characterized by enhanced accessibility of goal-related constructs (e.g., Goschke & Kuhl, 1993; E. T. Higgins & King, 1981; Kuhl & Kazén-Saad, 1988). Classic work of Anderson and Pichert (1978) has shown that information becomes accessible if a related schema is invoked. For example, in experiment 2 (Anderson & Pichert, 1978), participants were asked to take either a burglar perspective or a home-buyer perspective and were then asked to read a story about two boys playing hooky from school. The story contained some points of interest to a burglar and some points of interest to a home buyer. The data demonstrated that depending on the goal (or perspective) that is active, information becomes accessible and is more likely to be recalled.

Furthermore, Aarts, Dijksterhuis, and De Vries (2001) showed that thirsty people were faster in responding to drinking-related items in a lexical decision task and had better memory for these items in a surprise free recall task relative to nonthirsty people. This indicates that thirst increases the accessibility of drinking-related items and heightens the perceptual readiness for environmental stimuli instrumental in the goal of reducing thirst.

Förster, Liberman, and Higgins (2005) also showed that active goals enhance the accessibility of goal-related constructs (Chapter 9). Interestingly, after goal attainment, these constructs are inhibited, rendering them less accessible than before attainment and even less accessible than before goal activation. However, when goals

are not attained, goal-related constructs remain highly accessible. Thus, active goals enhance accessibility of goal-related constructs, and these constructs will remain accessible as long as people are motivated to attain these goals.

Furthermore, research of Kawada, Oettingen, Gollwitzer, and Bargh (2004) on implicit goal projection (ascribing one's own goals onto others) supports the idea that goal-related constructs are more accessible after failure than after success. Implicit goal projection results from heightened accessibility of goal-related constructs. Therefore, highly accessible concepts are more likely to be projected than less accessible concepts. It was hypothesized that people would project more after failure than after success. That is, after goal-pursuit failure, goals will remain highly accessible and hence will be more likely to be projected. However, after goal-pursuit success, goals will be less accessible or not accessible anymore and hence are not likely to be projected.

In one of their studies, Kawada et al. (2004, experiment 3) primed one-third of the participants subliminally with a goal to compete, one-third was given an explicit goal to compete, and another one-third was given no goal. Then participants performed an intermediate task on which they could compete. Participants were told that the computers were connected via the network, and they were made to believe that they would be playing with a (fictitious) partner. Half the participants were told that they outperformed the partner (success feedback), and the other half were told that the partner outperformed them (failure feedback). Then participants were given an opportunity to project their goal. Participants were asked to predict how many competitive moves the fictional characters would make when engaged in a prisoner's dilemma game. The results showed that

participants who were subliminally primed with a goal to compete and participants who were given an explicit goal to compete projected their competition goal only after failure and not after success feedback. That is, these participants ascribed more competitive moves to the partner after failure than after success feedback. Participants who did not have a competition goal did not project that goal, neither after success nor after failure.

We argue that heightened accessibility of goal-related constructs after failure is the stepping-stone to becoming consciously aware of the goal. When people are motivated to attain a goal toward which progress is problematic, a monitoring process detects discrepancies between the current state and the desired states, making goal-related concepts highly accessible and therefore making these goals susceptible to enter consciousness.

The classic Zeigarnik effect (Zeigarnik, 1938) is reminiscent of this idea. In a typical empirical demonstration, participants were asked to work on a series of tasks until each task was completed. However, during some of the tasks, participants were interrupted, and hence they were not able to complete them. Afterward they were asked to recall the tasks they had worked on. The findings showed that unfinished tasks were recalled twice as often as finished ones. Thus, interrupted tasks remained highly accessible and therefore were more likely to be (consciously) remembered, suggesting that these interrupted tasks are more likely to intrude consciousness.

In addition, Martin (1986) showed that participants who were interrupted during a priming task continued to think about the primed concepts during a subsequent impression-formation task and hence interpreted the target person in terms of the primed concepts. However, participants who were not interrupted during a priming

task did not engender thought preservation and hence did not interpret the target person in terms of the primed concepts.

The well-known “white bear” experiments by Wegner and colleagues (e.g., Wegner, 1994; Wegner & Erber, 1992; Wegner, Schneider, Carter, & White, 1987) also suggest that concepts that are highly accessible are more likely to intrude consciousness. Participants who were asked not to think about a white bear during an initial phase (suppression condition) thought more about white bears afterward than participants who were allowed to think about a white bear during the initial phase (no suppression condition). Hence, for participants in the suppression condition, a monitoring process starts to search for failures not to think about white bears, that is, for mental contents about white bears. It is assumed that the mental representation of white bears, therefore, becomes highly accessible and hence that participants in the suppression conditions start to think more about white bears after the initial phase than participants in the no-suppression condition.

In sum, failure leads to increasing accessibility of goal-related constructs (see Förster et al., 2005; Kawada et al., 2004). Therefore, it is likely that for people who fail, goals will enter consciousness. We present evidence for that idea in the next section.

## Consciousness in Goal Pursuit

In several studies, we (Bongers, Dijksterhuis, & Spears, 2008b) investigated whether people would start to think consciously about unconsciously activated goals when they are frustrated in their goal pursuit. In one of our experiments (Bongers et al., 2008b, experiment 1), participants were subliminally primed with a goal to achieve or not in a lexical decision task. To manipulate failure and success, participants were given a Dutch version<sup>2</sup> of the

Remote Associates Test (Mednick, 1962) that was either difficult or easy. While performing the Remote Associates Test, participants were asked to say everything they were thinking out loud regardless of the relation to the task. The findings indicated that participants who failed to attain their unconsciously activated achievement goal reported more conscious goal-related thoughts than participants in all other three conditions. These findings demonstrate that even when people are not aware of the goals they are pursuing, they will start to think consciously about unconsciously activated goals. Because participants reported these conscious goal-related thoughts without receiving any cues or hints to do so in the think-aloud protocol, we can conclude that people start to think consciously about unconsciously activated goals spontaneously when goal pursuit is problematic. We have replicated these findings several times, also within a different goal domain. All experiments demonstrated that people who are not aware of the goals they are pursuing spontaneously started to think consciously about these goals when progress was problematic.

Given that we become conscious of our goals in the face of failure, it is interesting to explore whether consciousness of a goal serves a regulatory function. Does it, or is conscious awareness merely an irrelevant epiphenomenon or perhaps even detrimental for goal pursuit? In the next section, we tentatively try to unravel these questions.

### **Consequences of Conscious Awareness**

Most people will intuitively answer the previously stated questions by saying that consciousness serves to correct for failures. For instance, imagine you are at a conference and during the morning session some of your colleagues are staring at you and

start to chuckle. After a while, you find out that you are wearing your shirt inside out. This discovery will lead to conscious thoughts about your goal to look respectable, and you will immediately change matters in order to look normal. However, things are not always that simple. Imagine, for example, that you receive a rejection letter of a paper you have worked on for several months. This rejection will lead to conscious thoughts about your achievement goal. However, it may not immediately stimulate you to proceed and rewrite your paper.

It is highly likely that it depends on many different factors whether conscious awareness of goals is helpful. There are a number of differences between the two examples described previously. For example, changing your shirt is very easy to do and will cost little effort, whereas rewriting your paper may be very difficult and time consuming. Furthermore, it is more likely that you will reach your goal to look respectable after changing your shirt than attaining your achievement goal after rewriting your paper since your paper may still be rejected afterward.

As illustrated previously, the motivation still to attain your goals may depend on the difficulty of the task, the effort it takes to engage in goal-directed behavior, and the likelihood of attaining the goal. These factors may therefore moderate the effects of consciousness of a goal on goal pursuit. If expectancies of goal attainment are high and the task is easy, people are often still motivated to attain the goal leading to renewed effort, whereas if expectancies of goal attainment are low and the task is difficult, people are often more likely to disengage from the goal and reduce effort or even quit trying (Carver & Scheier, 1998; Klinger, 1975; Wright, 1996; Wrosch, Scheier, Miller, Schulz, & Carver, 2003).

Another important factor that can potentially moderate the effects of consciousness of a goal on goal-pursuit concerns the cognitive resources it takes to think about your goal after failure. That is, conscious thoughts concerning goal-pursuit failure may use up cognitive resources that are needed for engaging in goal-directed behavior (Kuhl, 1981; Martin & Tesser, 1996). For instance, consciously thinking about the goal to achieve during a difficult exam may in itself take up resources that could better be used for the exam itself. Indeed, several studies in research on desire showed that intrusive desire-related thoughts use up considerable cognitive resources and that they impair performance on other tasks that compete for these resources (e.g., Cepeda-Benito & Tiffany, 1996; Sayette & Hufford, 1994). For example, exposure to an imagery script that was intended to elicit an urge to smoke subsequently impaired the accuracy of reading comprehension for smokers but not for nonsmokers (Zwaan & Truitt, 1998).

Similarly, Rude, Zentner, and Morrow (1993) showed that people who were given negative feedback about their intelligence were faster at recognizing words related to intelligence compared to people who were given positive feedback, whereas no differences were found for words unrelated to intelligence. Moreover, people who were given negative feedback showed lower reading comprehension than people who were given positive feedback. These findings indicate that higher accessibility of intelligence, evoking intrusions into consciousness, impaired performance on a second task.

To sum up, on the one hand, one may hypothesize that consciously thinking about a goal after failure may be beneficial for subsequent goal pursuit. Again, discovering that you are wearing your shirt inside out will motivate you immediately to redress the situation (literally) in order

to attain your goal to look respectable. On the other hand, when it takes a lot of effort to engage in goal-directed behavior and the likelihood of attaining the goal is low, one may hypothesize that consciously thinking about a goal after failure may be detrimental for subsequent goal pursuit. Furthermore, when consciously thinking about goal-pursuit failure uses up cognitive capacity that is needed for goal-directed behavior, it may be detrimental as well.

Besides, it may be that conscious awareness of failure to attain a goal lowers expectancies for future performance and hence will lead to reduced effort toward goal attainment or even disengagement from that goal. In accordance with this reasoning, Chartrand (1999; Chartrand & Bargh, 2002) indeed demonstrated that people who failed to attain an unconsciously activated achievement goal in an initial language task believed that they would do worse at an immediate language task, resulting in a worse performance in a subsequent language task than people who succeeded in attaining their goal.

Recently, we (Bongers, Dijksterhuis, & Spears, 2006) conducted an experiment to investigate the effects of conscious thoughts concerning an unconsciously activated achievement goal on perseverance. Participants were subliminally primed with the goal to achieve or not in a lexical decision task. Subsequently, participants were asked to find all the identical pairs of cards in a memory game (Bongers et al., 2006) within the time given. To manipulate success and failure, participants were given a maximum time of either 3 minutes (which was too short to complete it) or 12 minutes (which was more than enough time to complete it), respectively. After a break of 2 minutes, conscious goal-related thoughts were measured with a sentence completion test. They were asked to complete a number of sentences (i.e., I . . . and I wished . . .)

with the first thing that came to mind. Finally, participants were given a word-search puzzle and were asked to find the 10 words that were presented next to the puzzle. In fact, only 5 of the 10 given words were indeed hidden in the puzzle. Participants could quit the puzzle when they thought that they could not find any more words. The time participants used to find the words was taken as motivation to achieve.

The results replicated earlier findings in that participants who failed to attain their unconsciously activated achievement goal reported more conscious goal-related thoughts than participants in all other three conditions. Furthermore, the analyses showed that participants who performed the 3-minute memory game (failure condition) quit the word-search puzzle earlier when primed with the goal to achieve than participants not primed with the goal to achieve. There were no such differences for participants who performed the 12-minute memory game (success condition). These findings indicate that consciously thinking about an achievement goal in the face of failure is not always functional for subsequent goal pursuit. This is also supported by the negative correlation we found between the conscious goal-related thoughts and the time participants spend at the word-search puzzle for participants who were primed with the goal to achieve. The more participants engaged in conscious goal-related thoughts, the less motivated they were in achieving at the word-search puzzle. No correlation was found for participants not primed with the goal to achieve. These findings were also replicated in another experiment (see Bongers et al., 2006).

## Conclusions

In this chapter, we focused on the role of consciousness in goal-directed behavior. Various researchers have shown that goals

can be activated outside awareness and then guide behavior unconsciously. As there is no denying that we are often aware of the goals we are pursuing, we have to deal with an interesting paradox. On the one hand, we are faced with the observation that goal pursuit does not need consciousness; on the other hand, we observe frequent conscious awareness of our goals. The question we addressed in this chapter was why and when we become aware of the goals we are pursuing.

We argued that when failures to attain a goal are detected, goal-related concepts will become highly accessible. This heightened accessibility of goal-related concepts will lead to conscious awareness of the goal. In various experiments from our own laboratory, we compared people who failed to attain their unconsciously activated goal with people who succeeded in attaining their unconsciously activated goal and to people who did not have activated a goal. We demonstrated that people who failed to attain their goals started to think about them. Simply stated, we become aware of goals when the going gets tough.

## Notes

1. Items on the original Raven test are ranked by difficulty such that the first item is the easiest and the last the most difficult (Raven, 1941). For the easy condition, the first 10 items of the original Raven tests were selected, and for the difficult condition, the last 10 items were selected.
2. We conducted a pilot test with a Dutch translation and extension of the Remote Associates Test. Participants were asked to solve 30 randomly presented associations consisting of three words. After each association, they were asked to indicate how difficult that association was. Based on these findings, 10 difficult and 10 easy associations were selected for this experiment.

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