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You can't always get what you want!

Consequences of success and failure to attain unconscious goals

ACADEMISCH PROEFSCHRIFT

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Preface

Most (if not all) action is goal-directed. For instance, the moving of my fingers on the computer keyboard serves to satisfy my goal of writing my dissertation, which in turn serves to satisfy my goal of receiving a doctorate degree in social psychology. However, as many of us may have experienced, not all goals will be pursued successfully. For example, the moving of my fingers on the computer keyboard often did not lead to a perfectly readable chapter of my dissertation, instead it led me to surf the internet for quite some time, leaving me with a very disappointed and dissatisfied feeling at the end of a day.

In the process of goal-directed behavior different stages can be identified: goal establishment, planning, goal striving, and revision (e.g. Austin & Vancouver, 1996; Bandura, 1981; 1986; Deci & Ryan, 1985; Fishbein & Ajzen, 1975; Gollwitzer, 1990; Locke & Latham, 1990; 2002). During goal establishment a goal is chosen or selected. The planning stage refers to the development of strategies to attain the goal. During the goal striving stage an individual engages in goal-directed behavior and progress towards goal-attainment is monitored. During the revision stage, whether or not the goal has been attained is tested. If the goal has not been attained, the individual has to decide whether to quit, revise, (temporarily) disengage, or persist in goal striving.

The stages described above suggest that the individual is aware of the goal at all these stages. However, recently it has been proposed that goals can be activated outside awareness and that the whole process of goal pursuit can ensue without

conscious awareness of the goal (e.g., Bargh, 1990; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Chartrand & Bargh, 1996; Fishbach, Friedman, & Kuglanski, 2003; Fitzsimons & Bargh, 2003; Shah, 2003). Indeed it has been shown that the activation of goals, for instance by priming people subliminally with goal-related concepts, resulted in goal-related behavior. For example, people who are primed with a goal to achieve perform better in a subsequent task compared to people not primed with a goal to achieve.

However, not much is known about whether or not people monitor their progress towards unconsciously activated goals. Do people feel or notice whether or not they have attained their unconscious goals? And are consequences of failing to attain unconsciously activated goals comparable to consequences of failing to attain consciously selected goals?

On the one hand, the present dissertation focuses on the consequences of success and failure to attain unconsciously activated goals on self-esteem. We already know that self-esteem can be threatened when (consciously chosen) goals are not fulfilled (e.g. Bandura, 1997; Carver & Scheier, 1981; 1990; Frijda, 1988). When self-esteem is threatened, people are motivated to protect their self-esteem to establish and maintain a positive self-image (e.g. Covington, 2000; Feick, & Rhodewalt, 1997; Jones & Berglas, 1978; Steele, 1988; Tesser, 1988; Thompson, 1994; Thompson, Davidson & Barber, 1995). In this dissertation I investigate whether self-esteem is also threatened when people are not able to attain their *unconsciously* activated goals and whether people use self-protecting mechanisms to maintain a positive self-image.

In addition, the present dissertation focuses on the role of consciousness in goal pursuit. When are people aware of the goals they are pursuing and when are they not? Recent findings that goals can be activated unconsciously and then run into completion without the person being aware are somewhat paradoxical, because there is no denying that in daily life we are often consciously aware of the goals we pursue. In this dissertation, whether failure to attain your unconsciously activated goals results in conscious awareness of these goals is examined. Furthermore, I investigate whether consciousness of a goal serves a regulatory function. Do people persist in goal striving or do they abandon the goal when they become aware of their goals after failure? Below I will outline my dissertation in more detail.

Overview of the Present Dissertation

In the present dissertation I examine the consequences of success and failure to attain unconsciously activated goals. I will start with a theoretical overview in Chapter 1. In this chapter evidence is presented that goals can be activated outside of awareness. Furthermore, literature is reviewed concerning evaluation processes in conscious goal pursuit and the existence of an implicit monitoring process in unconscious goal pursuit is explored. It is concluded that people are able to detect successes and failures to attain unconsciously activated goals. This chapter also discusses research that is reported in more detail in the subsequent chapters (2-4). Therefore, I did not include a separate chapter with general conclusions in my dissertation.

In Chapter 2 three studies are presented in which I investigate whether success and failure to attain unconsciously activated goals affect self-esteem, and the consequences of such failures for performance and motivation. More specifically, in Experiment 2.1 and Experiment 2.2 it is examined whether people who fail to attain their unconsciously activated achievement goal will report lower self-esteem than people who succeed in attaining their unconsciously activated achievement goal. In Experiment 2.3 it is investigated whether people are motivated to protect their self-esteem after failing to attain their unconsciously activated achievement goal.

In Chapter 3 four studies are presented in which I investigate whether failure to attain an unconsciously activated goal results in conscious thoughts about the goal. In the first three experiments, participants are subliminally primed with an achievement goal. In Experiment 3.1 and Experiment 3.3, conscious goal-related thoughts are measured after goal pursuit, while in Experiment 3.2 these goal-related thoughts are measured online during goal pursuit using a think aloud protocol. In all these studies it is demonstrated that unconsciously activated goals are likely to intrude consciousness when goal progress in problematic, and hence, that people become aware of their goals in the face of obstacles. Furthermore, in Experiment 3.4 these findings are replicated with another goal: the goal of being honest.

In Chapter 4 two studies are presented in which I investigate the regulatory function of these conscious thoughts. It is examined whether or not conscious awareness of the goal in the face of failure will be helpful for subsequent goal pursuit. In both experiments participants are subliminally primed with an achievement goal. In Experiment 4.1 conscious goal-related thoughts are measured

after goal pursuit. Then performance on a subsequent task is measured to investigate whether people still are motivated to attain their goal in the second task. In Experiment 4.2 the opportunity to think consciously is manipulated to investigate whether impaired performance on a subsequent task is instigated by conscious thoughts about the unattained goal or only by goal pursuit failure.

It should be noted in advance that all chapters are written as separate chapters. Therefore, any chapter can be read on its own in any random order. As a consequence, however, some parts of the chapters will have some overlap.

Karin Bongers

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Chapter 1

Consequences of Goal pursuit Failure

* This chapter is based on: Bongers, K.C.A., & Dijksterhuis, A. *(In Press)*. Consciousness as a Trouble-Shooting Device? The Role of Consciousness in Goal pursuit. In E. Morsella, J.A. Bargh, & P.M. Gollwitzer (Eds.), *The Psychology of Action* (Vol. 2, pp. xx-xx). New York: Oxford Universtiy Press, Inc.

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 who are attending your presentation start to yawn and some of them even fall asleep. Immediately after the 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 above, failure to attain your goals can have an impact on conscious thoughts, feelings and self-esteem. In this chapter we will 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), whereas on the other hand we know 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; Shiffrin & Schneider, 1977; Morsella, 2005). 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) 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 will first briefly review evidence that goals can be activated outside awareness and run to completion without the person being aware. Subsequently, we will review literature concerning evaluation processes in conscious goal pursuit, and we will explore whether people are indeed able to detect success and failure to attain unconsciously activated goals. Subsequently, we will 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 will present some recent research conducted in our own laboratory that supports our idea that people start to think consciously about unconsciously activated goals when progress is problematic. We will end this chapter by speculating about whether or not such conscious goal-related thoughts serve a regulatory function.

Unconscious Goal pursuit

Nowadays, 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, in press). 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, which 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 and colleagues (Aarts, Gollwitzer & 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, Gollwitzer & Hassin, 2004, Experiment 2), male participants were asked to read a short story in which the goal of seeking casual sex or not was primed. 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 or not? 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 initially chose (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, and Pribram, 1960; Powers, 1973; Wiener, 1948). For example, Miller, Galanter and Pribram (1960) described a feedback loop in their test-operate-test-exit (TOTE) 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 -this means the goal is attained- no further actions are necessary and the feedback loop is left (exit-phase). Basically, 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 also has effects on motivation, feelings and self-esteem. 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 two 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, Sommers, & Luthanen, 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, Sommers, & Luthanen, 2002) assessed self-esteem of college seniors applying to graduate programs several times during two 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 towards their intended goals. Because people evaluate their goal-directed behavior, self-esteem (and mood) are affected by success and failure. Though 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. Below we will start reviewing supporting evidence for such an "implicit monitoring" process.

Implicit Monitoring

In line with our reasoning, Moskowitz and colleagues (Moskowitz, Li, & 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 towards 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; 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 (RCZ), 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, Segalowitz, & Carter, 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 (ERP) 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 ms 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, Scheffers, & Coles, 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, Chapter 2; Bongers, Dijksterhuis, & Spears, 2006a). 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 & 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 of 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) only investigated 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 (see Chapter 2; Bongers, Dijksterhuis, & Spears, 2006a, Experiment 2.1) conducted an experiment in our own laboratory. The design of this experiment is comparable to the design used by Chartrand (1999; Chartrand & Bargh, 2002). Participants were primed with an achievement goal or not using a scrambled sentences task (Srull & Wyer, 1980). Subsequently, they were given either ten difficult (failure condition) or ten easy (success condition) items of the Raven progressive matrices test[1] (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 predominantly affect 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 only emerged for performance self-esteem and social self-esteem, but not for appearance self-esteem.

These effects were replicated in a second experiment (see Chapter 2; Bongers, Dijksterhuis, & Spears, 2006a, Experiment 2.2) in which the goal to achieve or not was primed subliminally and success and failure were manipulated by using a difficult or an easy scrabble task. Subsequently, state self-esteem was measured (Heatherton & Policy, 1991). Again, the findings demonstrated that after being primed with the goal to achieve, participants reported higher self-esteem after the easy scrabble task than after the difficult scrabble task, whereas for participants not primed with the goal no such effects emerged. Again, these effects only emerged for performance self-esteem and social self-esteem, but not for appearance self-esteem. These findings support the idea that unconsciously activated goals are being monitored. When no discrepancies are detected a positive evaluation follows resulting in higher self-esteem, whereas when discrepancies are detected a negative evaluation follows resulting in lower 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 will 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, 1977) 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 shifts 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, 1996a), 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 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, 1996a). These intrusive thoughts will enter consciousness unintentionally, even without the necessity of cues in the environment, and then interfere with what one is currently doing. 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, 1996a; 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 and Pryor, 1982; Williams, 1993). In the next section we will 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). Goals 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, Gollwitzer, & Hassin, 2004, Bargh & Gollwitzer, 1994; Carver & Scheier, 1998; Custers & Aarts, 2005b; Dijksterhuis, Chartrand, & Aarts, in press; Gollwitzer & Moskowitz, 1996). A major difference between mental representations of goals and other mental constructs is that goal-representations have a motivational content. Whereas non-motivational priming effects are known to decrease in strength over time (e.g., Dijksterhuis & Bargh, 2001; 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, Gollwitzer, Lee-Chai, Barndollar & Trötschel, 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; 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 homebuyer 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 homebuyer. 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 non-thirsty 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. 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 occurs 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 and colleagues (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 of the participants received success feedback and the other

half received failure feedback. Then participants were given an opportunity to project their goal. 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. 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 towards 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. Afterwards 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 period (suppression condition), thought more about white bears after that period 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, Liberman & Higgins, 2005; Kawada, Oettingen, Gollwitzer, & Bargh, 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 (see Chapter 3; Bongers, Dijksterhuis, & Spears, 2006b) investigated whether people would start to think consciously about unconsciously activated goals when they are frustrated in their goal pursuit. In one experiment (see Chapter 3; Bongers, Dijksterhuis, & Spears, 2006b; Experiment 3.1) participants were subliminally primed with either a goal to achieve or not in a lexical decision task. Afterwards, participants were asked to find all the pairs of identical cards in a memory game within a time given. Failure and success were manipulated by giving participants a maximum of respectively 3 minutes to complete the game (which was too short to complete it) or 12 minutes (which was more than time enough to complete it). After a break of two minutes participants were given a sentence completion test to measure conscious thoughts. They were asked to complete a number of sentences (i.e., I... and I wished...) with the first thing that came to mind. 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 3 conditions. These findings demonstrate that even when people are not aware of the goals they are pursuing, they will start to think consciously about these goals when progress is problematic.

To rule out the alternative interpretation of measuring mere accessibility rather than "true" conscious thoughts, we replicated these findings with a think aloud protocol (see Chapter 3; Bongers, Dijksterhuis, & Spears, 2006b; Experiment 3.2). After being subliminally primed with either a goal to achieve or not in a lexical decision task, participants were given a Dutch version of the remote associates test (Mednick, 1962) that was either difficult (failure condition) or easy (success condition)[2]. While performing the remote associates test, participants were asked to

say everything they were thinking out loud, regardless of the relation to the task. No more instructions were given. If participants spontaneously report conscious thoughts about the goal to achieve during the test, without receiving any cues to do so, we can conclude that we are indeed measuring conscious thoughts and not cognitive accessibility of goal-related constructs. The findings again demonstrated that participants who failed to attain their unconsciously activated achievement goal reported more conscious goal-related thoughts than participants in the other 3 conditions. We have replicated these findings several times, also within a different goal-domain. All the 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 will tentatively try to unravel these questions.

Consequences of Conscious Awareness

Most people will intuitively answer the above 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, matters 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 or not. There are a number of differences between the two examples described above. 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 afterwards.

As illustrated above, 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 (Martin & Tesser, 1996; Kuhl, 1981). 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, that is, for achieving. 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 non-smokers (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 performances 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 will do worse at an immediate language task, resulting in a worse performance in a subsequent language task than people who succeeded tot attain their goal.

Recently, we (see Chapter 4; Bongers, Dijksterhuis, & Spears, 2006c, Experiment 4.1) 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 no goal) in a lexical decision task. Subsequently, participants were asked to find all the identical pairs of cards in a memory game (see Chapter 3; Bongers, Dijksterhuis, & Spears, 2006b) within the time given. To manipulate success and failure participants were given a maximum time of either 3 minutes or 12 minutes respectively to complete the game. After a break of two minutes, conscious goal-related thoughts were measured with a sentence completion test. Finally, participants were given a word search puzzle and were asked to find all the ten words that were presented next to the puzzle. In fact, only five of the ten given words were hidden in the puzzle. Participants could quit the puzzle when they thought that they could not find any more words. Therefore, the time participants used to find all the words can be seen 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 3 conditions. Furthermore, the analyses showed that participants who performed the 3 minutes 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 minutes 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.

In a second experiment we (see Chapter 4; Bongers, Dijksterhuis, & Spears, 2006c, Experiment 4.2) investigated whether impaired performance on a subsequent task was instigated by conscious goal-related thoughts or only by goal pursuit failure. Therefore, rather than measuring conscious goal-related thoughts, we manipulated the possibility to think consciously about the goal. All participants were subliminally primed with an achievement goal in a lexical decision task. Subsequently, participants were given the same memory game as described above to manipulate success and failure. Then, half of the participants was given the sentence completion test to measure conscious thoughts, while the other half was given an *n*-back task (e.g., Jonides, et, al., 1997) to prevent them from consciously thinking. Finally, all participants were given the same word search puzzle as described above[3].

First, we replicated the finding that participants who failed to achieve in the memory game reported more conscious goal related thoughts than participants who succeeded to achieve in the memory game. However, we also found that participants who failed to achieve in the memory game made more mistakes in the *n*-back task than participants who succeeded to achieve in the memory game. Although the *n*-back task is relatively easy to perform, it needs a lot of cognitive capacity. So it seems that participants who failed to achieve in the memory game were cognitively 'too busy' to perform well in the *n*-back task. One may assume that they were consciously thinking about something else than the *n*-back task. It is highly likely that they were thinking about the goal they were pursuing unconsciously in the memory game.

In the subsequent word search puzzle we found that motivation to achieve was lower for participants who failed to achieve in the memory game than for

participants who succeeded to achieve in the memory game. These findings again demonstrate that people start to think consciously about their goals after failure and that those people are not motivated to achieve on a subsequent task.

Conclusions

In this chapter we focused on the role of consciousness in goal-directed behavior. Various people have shown that goals can be activated outside awareness and then guide behavior unconsciously. These findings lead to an interesting paradox. After all, there is no denying that we are often aware of the goals we are pursuing. On the one hand we are faced with the observation that goal pursuit does not need consciousness, whereas on the other hand we observe frequent conscious awareness of our goals. The question we addressed in this chapter was the issue of 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 conducted in our own laboratory we demonstrated that people who failed to attain their unconsciously activated goal started to think consciously about their goal compared to people who succeeded in attaining their unconsciously activated goal and to people who did not have activated a goal. Simply stated, we become aware of goals when the going gets tough.

We finished this chapter with speculating about the regulatory function of these conscious goal-related thoughts. We argued that it depends on many different factors whether consciously thinking about goal pursuit failure is helpful or not. In case of unconsciously activated achievement goals we showed that it is even detrimental to think consciously about goal pursuit failure. People who fail to attain their unconsciously activated achievement goal are not motivated to attain that goal in a subsequent task, and consciously thinking about goal pursuit uses up cognitive resources that are, ironically, needed for the goal.

Notes

1. Items on the original Raven test are ranked by difficulty, such that the first item is the easiest and the last is the most difficult (Raven, 1941). For the easy condition, the first ten items of the original Raven tests were selected, and for the difficult condition, the last ten 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 thirty randomly presented associations consisting of three words. After each association they were asked to indicate how difficult that association was. Based on these findings, ten difficult and ten easy associations were selected for this experiment.
3. One may argue that spending less time on the word search puzzle may indicate more motivation to achieve. That is, when the default is to quit the task after having found all the five words that were hidden in the puzzle, then participants who quit the task earlier should have found these words quicker. To rule this out, the total number of words found, rather than time spent in the word search puzzle was measured in this experiment.

Chapter 2

Self-Esteem Regulation in Unconscious Goal Pursuit

People are motivated to establish and maintain a positive self-image. When people fail to attain their goals self-esteem is threatened, and such threats elicit the motivation to protect or repair self-esteem. However, people often pursue goals of which they are not aware. In this chapter we investigate whether success and failure to attain *unconsciously* activated goals may affect self-esteem. In two experiments, we tested and confirmed the hypothesis that self-esteem is affected by success and failure to attain unconsciously activated goals. In one additional experiment, it was demonstrated that people were motivated to protect their self-esteem after failure to attain an unconsciously activated achievement goal.

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We have all had the experience that setting a goal for ourselves does not always lead to it being successfully pursued. Attempts to lose weight or attempts to quit smoking, for example, very often remain attempts and the failure to attain such goals often results in disappointment or sadness. After struggling the entire week not to smoke, smoking a few cigarettes on Friday afternoon will leave a bitter aftertaste, and sadness, the next morning. By contrast, succeeding in your goals will often result in positive emotions. For example, finding out at the end of a week of dieting that you have lost four pounds will make you happy.

Success and failure to attain goals that are self-relevant can also affect self-esteem. Success in attaining these goals can increase self-esteem, whereas failure can decrease self-esteem. Imagine, for example, that you performed worse at an intelligent test. Besides eliciting negative mood, the failure to attain your goal of showing your smartness, may also decrease your self-esteem.

Several studies have shown that self-esteem can be affected by successes and failures (e.g., Brown & Dutton, 1995; Crocker, Sommers, & Luhtanen, 2002; Greenberg & Pyszczynski, 1985; Heatherton & Polivy, 1991). For example, Heatherton and Polivy (1991) examined the effects of academic failure on self-esteem. They showed that students who received a low grade for their midterm exam reported lower self-esteem than students who received a high grade for that exam and than students who received a mediocre grade.

However, evidence that self-esteem can be affected by successes and failures is somewhat equivocal. A number of studies have failed to show self-esteem changes as a function of ego-threatening manipulations (e.g., McFarlin & Blascovich, 1981; Nisbett & Gordon, 1967; Stotland & Zander, 1958). The lack of finding changes in self-esteem, however, may be attributed to the way self-esteem is measured in those studies. For example, Nisbett and Gordon (1967) measured self-esteem with the Janis-Field Feelings of Inadequacy Scale (Janis & Field, 1959) which assesses trait self-esteem that is quite stable over time (see Heatherton & Polivy, 1991). James (1890) already differentiated between stable and unstable components of self-evaluations. The stable component is a certain average tone of self-feelings that is largely independent of objective feedback, whereas the unstable component rises and falls as a functions of one's aspirations and success or failure experiences. Therefore, to find differences in self-esteem as a function of self-esteem manipulations the unstable component (i.e., state self-esteem) has to be measured rather than the stable component (i.e., trait self-esteem).

Another reason for the mixed evidence of goals on self-esteem is that a number of studies claim to measure self-esteem, but actually measure mood effects (Baumeister & Tice, 1985, Brockner & Elkind, 1985; Kernis, Brockner & Frankel, 1989; McFarland & Ross, 1982; Shrauger & Sorman, 1977). For example, Baumeister and Tice (1985) measured effects on mood and found changes only for specific mood items (such as humiliation) after evaluative feedback and McFarland and Ross (1982) found changes in mood items that were highly associated with self-esteem (such as pride, confidence, shame or stupidity) after failure and success.

Brown and Dutton (1995; see also Weiner, Russell, & Lerman, 1978) distinguished between two kinds of emotional reactions to evaluative events: outcome dependent emotions (such as happy, unhappy, sad and glad) and self-relevant emotions (such as proud, humiliated, ashamed and pleased with myself). Brown and Dutton (1995) argued that outcome dependent emotions involve general, undifferentiated reactions of pleasantness or unpleasantness, whereas self-relevant emotions involve a more sophisticated and differentiated response to the self-relevant implications of an evaluative event.

We argue that (outcome dependent) mood can be affected by an evaluative event independent of whether it is self-relevant or not. However, self-esteem (and probably self-relevant emotions) will be affected only when the evaluative event is self-relevant. In line with this, Crocker and colleagues (e.g., Crocker, Sommers & Luhtanen, 2002; Crocker & Wolfe, 2001; Wolfe & Crocker, 2002) proposed that self-esteem can be affected by successes and failures depending on the perceived relevance for people's self-worth. Crocker, Sommers, and Luhtanen (2002) demonstrated that students' self-esteem was affected by being accepted or rejected from graduate programs. They showed that self-esteem was higher after being accepted and lower after being rejected. Furthermore, the more self-relevant academic performance was for the student the greater was the impact of being accepted or rejected on self-esteem.

In sum, whereas trait self-esteem is a quite stable construct over time, state self-esteem can be affected by evaluative events that are relevant to the self. When people fail to attain self-relevant goals, self-esteem may decrease temporarily, whereas when people succeed in attaining these goals, self-esteem may increase temporarily.

Self-esteem regulation

People are motivated to establish and maintain a positive self-image (e.g. Covington, 1998, 2000; Steele, 1988, Tesser, 1988; Thompson, 1993, 1994). Therefore, when self-esteem is threatened, people try to restore their self-esteem. People use many different strategies to repair their self-esteem after failure. One such strategy, for example, is making self-serving attributions after failure. People tend to attribute failures more to external causes than to internal causes (e.g., Campbell & Sedikides, 1999; Zuckerman, 1979) and more to instable causes than to stable causes (e.g., Feather, 1987; Menapace & Doby, 1976). For example, when you perform poorly on a task, you can protect your self-esteem by arguing that the task at hand was not a valid task or that you performed poorly because it was too noisy in the room.

Another strategy people use to restore self-esteem is self-affirmation (Liu & Steele, 1986; Steele, 1988; Steele & Liu, 1983). People reevaluate or reinterpret experiences and events in ways that reaffirm the self's integrity and value. For example, when you performed poorly on a task, you may argue that the abilities measured by the task are not important ones.

Finally, another strategy to protect self-esteem after failure is to engage in (downward) social comparisons (e.g., Brown, Collins, & Schmidt, 1988; Wills, 1981; Wood, 1989). After failure, people tend to compare themselves with others who are "worse off" relative to themselves. For example, when you performed poorly on a task, you may feel better about yourself by comparing your performance to the performance of someone who did even worse. However, you are not always in a position to choose someone to compare yourself with and sometimes it is obvious that you performed worse than other people. Dunning and colleagues (Beauregard & Dunning, 1998; Dunning & Cohen, 1992) argued that people can be very creative in protecting self-esteem when confronted with people who are "better off". Dunning and Cohen (1992), for example, showed an egocentric contrast effect in low-performing participants. This is, low performing participants judged high-performing and moderate-performing targets as favorably, whereas high performing participants judged these targets as unfavorably. By rating these targets as favorably, low-performing participants could claim to have performed well themselves. That is, they could claim to be as athletic or intelligent as anyone else.

All the strategies described above have in common that people are generally not aware of using these strategies. If people are aware, for instance, that they diminish abilities that are measured by a task they failed at only to protect their self-

esteem, they may realize that they deceive themselves, and hence, it will not enhance their self-esteem. Although the use of these mechanisms is unconscious, the goals people pursue are virtually always conscious in studies investigating self-esteem protection. However, recent research has shown that people often pursue goals of which they are not aware (e.g., Aarts & Dijksterhuis, 2000; Bargh, 1990; Bargh, Gollwitzer, Lee-Chai, Barndollar & Trötschel, 2001; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Shah, 2003). The questions we want to address in this chapter is whether success and failure to attain unconsciously activated goals will also affect self-esteem, and whether people use self-protecting mechanisms to enhance their self-esteem. In the next section we will review evidence that goals can be activated and pursued outside of awareness.

Unconscious goal pursuit

Nowadays, there is considerable evidence showing that goals can be activated and pursued without conscious awareness (see Aarts & Dijksterhuis, 2000; Bargh, 1990; Bargh, Gollwitzer, Lee-Chai, Barndollar & Trötschel, 2001; Chartrand & Bargh 1996; Fishbach, Friedman, & Kruglanski, 2003; Fitzsimons & Bargh, 2003; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Shah, 2003; Shah, Kruglanski, & Friedman, 2003;). For instance, priming participants with an achievement goal lead to better performance in a subsequent task compared to participants not primed with that goal (Bargh, et. al., 2001). Moreover, participants who are unobtrusively exposed to citrus-scented all-purpose cleaner keep their environment more cleanly during an eating task than participants who are 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). Priming participants subliminally with their father increases the pursuit of a task goal, especially when participants are close to their father and perceive their father as wanting them to do well on the task (Shah, 2003). Activating the representation of a close friend lead to more helping behavior (Fitzsimons & Bargh, 2003).

Despite considerable research concerning the effects of unconsciously activated goals on behavior and cognition, very little research has examined the effects of failure on unconsciously activated goals (but see, Chartrand, 1999; Riketta & Dauenheimer, 2003). As already mentioned in the opening example of this

chapter, goal setting does not always lead to successful goal pursuit. Obviously, the same is true for unconsciously operating goals. The question is whether failure to fulfill unconsciously activated goals will also result in lower self-esteem. And if self-esteem is indeed threatened, will people be able and motivated to restore their self-esteem even when they were not aware of pursuing a goal? In the next section we will review some preliminary evidence that mood and self-esteem can be affected by success and failure in unconscious goal pursuit.

Success and failure in unconscious goal pursuit

Recently, Chartrand (1999; Chartrand & Bargh, 2002) started to explore the effects of success and failure to attain an unconsciously activated goal on mood. For example, after being primed with the goal to achieve or not participants performed either a difficult or an easy anagram task. The results showed that participants who were primed with the goal to achieve were in a better mood after performing the easy anagram task than after the difficult anagram task, whereas for participants who were not primed with that goal task difficulty did not affect their mood. 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 their moods.

Earlier we argued that mood can be affected by an evaluative event independent of whether it is self-relevant or not. Therefore, the interaction effect Chartrand found on mood is somewhat puzzling. That is, we would expect that doing well in an anagram task may invoke positive affect, whereas doing badly in an anagram task may invoke negative affect, independent of whether an unconscious goal to achieve was activated. Chartrand measured mood with four bipolar scales: bad versus good; sad versus happy; displeased versus pleased; and down versus elated. The mood scale thus consists of items measuring outcome related emotions as well as self-relevant emotions. Hence, this mixture may have caused the interaction effect rather than a main effect. That is, self-relevant emotions, which are closely related to self-esteem, may have been affected only when a goal was activated. In order to gain clear insight in the consequences of success and failure to attain unconscious goals, mood and self-esteem need to be disentangled.

Riketta and Dauenheimer (2003) made a first step in disentangling mood and self-esteem as a consequence of unconscious goal pursuit. They (Riketta and Dauenheimer, 2003) examined the effects of anticipated success on mood and self-esteem. Mood was measured with three bipolar scales (At this moment I am in a bad mood vs. in a good mood, At this moment I am feeling happy vs. feeling sad, and At this moment I am feeling good vs. feeling bad) and self-esteem was measured with the state self-esteem scale (Heatherton & Polivy, 1991). Participants were primed unconsciously with a knowledge-seeking goal or not. Before measuring mood and self-esteem some participants were told that they would receive a personality test with feedback on their results, thereby anticipating satisfying their goal to seek knowledge. However, other participants received this announcement after mood and self-esteem were measured. The results showed that when the announcement was given before measuring mood and self-esteem participants primed with the knowledge-seeking goal were in a better mood and reported higher self-esteem (in anticipation of fulfilling their knowledge-seeking goal) than participants not primed with that goal. However, when the announcement was given after measuring mood and self-esteem (with no anticipation of fulfilling their knowledge-seeking goal) no such differences were found.

Despite some limitations, these findings show that mood as well as self-esteem can be influenced by unconscious goal pursuit. However, one limitation is that the effects Riketta and Dauenheimer found were produced by the effects in the no goal condition rather than in the knowledge seeking goal condition. Furthermore, Riketta and Dauenheimer only investigated anticipated successful goal pursuit. Their findings do not predict whether actual success may also heighten self-esteem. Finally, because Riketta and Dauenheimer only investigated successful goal pursuit it is not clear whether failure to attain an unconsciously activated goal may impair self-esteem.

The first question we want to address in this chapter is whether actual success and failure to attain an unconsciously activated goal may affect self-esteem. We predict that successful goal pursuit will heighten self-esteem, whereas problematic goal pursuit will impair self-esteem. A second aim of this chapter is to address the consequences of such effects on self-esteem. As discussed before, a substantial body of research has indicated that people are motivated to maintain a positive self-image, and hence protect their self-esteem when opportunities are

given. Therefore, in the current research we also examine whether people are motivated and able to protect their self-esteem after failing to attain an unconsciously activated goal. Finally, we want to disentangle the consequences of successful and problematic unconscious goal pursuit on mood and self-esteem.

Experiment 2.1

In Experiment 2.1 we investigated whether success and failure to attain an unconsciously activated achievement goal will affect mood and self-esteem. After being primed with an achievement goal or not participants were given either a difficult or an easy version of the Raven Progressive Matrices Test (Raven, 1941). Subsequently mood and self-esteem were measured. We expected that participants who were primed with the goal to achieve would have lower self-esteem after the difficult Raven test than after the easy Raven test, whereas no such difference was expected for participants not primed with the achievement goal. Furthermore, we expected that participants who made the difficult Raven test would have a more negative mood than participants who made the easy Rave test, regardless of whether a goal was activated. It should be noted that we did not expect any differences as a function of goal prime on performance in the Raven test. We constructed the task in such a way that the task was extremely easy for the easy conditions (rendering a ceiling effect), whereas the selected items for the difficult conditions were extremely difficult (eliciting a floor effect).

Method

Participants and Design.

Ninety-three (22 men, 71 women) Dutch undergraduate students at the University of Amsterdam participated in the experiment, receiving either course credits or money (4 euro; approximately US$ 5) for their participation. They were randomly assigned to one of the four conditions in a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants design.

Procedure and Materials

Participants worked in separate cubicles and all instructions were provided by the computer. Participants started with a scrambled sentences task (Srull & Wyer, 1980),

in which they were primed with the goal to achieve or not. The task consisted of 24 sentences with six scrambled words. Participants were asked to create meaningful Dutch sentences with five of the six words. In the achievement condition 20 sentences contained words semantically related to the goal to achieve (e.g., to achieve; to win; to strive) and in the no goal condition these words were replaced by words that were unrelated to the goal to achieve (e.g., to play; to walk; to make).

After the priming procedure participants were given ten items of the Raven Progressive Matrices Test (Raven, 1941). The Raven test presents a series of incomplete figures. Participants were asked to judge which of the eight segments would accurately complete each figure. Generally, the Raven test is used to measure intelligence. Therefore, to prevent that all participants would become motivated to achieve on this test, we introduced it as filler. We expected that introducing this task as filler would make performance in this task less relevant for participants without an unconsciously activated achievement goal. However, priming participants with an unconscious goal to achieve, performance in this test would become relevant. The difficulty of the task was manipulated by giving participants either ten easy items (easy condition) or ten difficult items (difficult condition)[1].

Subsequently, mood and self-esteem were measured. Mood was measured with six bipolar items (good-bad; cheerful-sad; contented-discontented; satisfied-unsatisfied; encouraged-discouraged; happy-unhappy) and participants were asked to indicate how they felt at that moment on a 9-point scale. Half of the items were reversed to control for response bias. Subsequently, self-esteem was measured with the 20 items of the State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991), which could be answered on 9-point Likert scales. Heatherton and Polivy (1991) distinguished three types of self-esteem: performance self-esteem, social self-esteem, and appearance self-esteem. Performance self-esteem is related to academic abilities; social self-esteem is related to social confidence; and appearance self-esteem is related to body image. We predicted that success and failure to attain an achievement goal would predominantly influence performance self-esteem, because it is the domain of success or failure. It might perhaps influence social self-esteem, because the kind of statements used to measure social self-esteem are somewhat related to success and failure (e.g., “I am worried about whether I am regarded as a success or failure.” and “I feel inferior to others at this moment.”). And succeeding or failing to attain an achievement goal would have less or no influence on

appearance self-esteem, because it would presumably not influence the way you think about your appearance.

Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants was aware of the purpose of the experiment and none of the participants noticed a particular pattern or theme to the words in the scrambled sentences task. However, three participants were excluded from the analyses, because they did not participate seriously in the Raven test (they used less than 6 seconds per item).

Results

Self-esteem

The item scores of the SSES (α = .86) were averaged and subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). The analyses revealed a significant main effect of task, $F(1,86) = 4.13$, $p < .05$, $\eta_p^2 = .04$, indicating that participants reported higher self-esteem after performing the easy Raven test than after performing the difficult Raven test. This effect was qualified by the expected two-way interaction of goal and task, $F(1,86) = 5.79$, $p < .05$, $\eta_p^2 = .06$. Analyses of simple main effects indicated that participants primed with the goal to achieve, those who accomplished the easy Raven test reported higher self-esteem than participants who accomplished the difficult Raven test ($M = 6.71$, $SD = 0.84$ and $M = 5.81$, $SD = 0.95$, respectively), $F(1,87) = 9.82$, $p < .05$, $\eta_p^2 = .10$. This difference was absent for participants not primed with the goal to achieve ($M = 6.07$, $SD = 0.99$ and $M = 6.14$, $SD = 1.06$, respectively), $F(1,87) = 0.08$, *ns*.

The scores of the SSES were separated into performance self-esteem (α = .84), social self-esteem (α = .71), and appearance self-esteem (α = .82), and were subjected to three separate 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA)[2]. For performance self-esteem a main effect of task emerged, $F(1,86) = 9.44$, $p < .005$, $\eta_p^2 = .09$, indicating that participants reported higher performance self-esteem after the easy Raven test than after the difficult Raven test, see Table 2.1. As expected, this main effect was qualified by the two-way interaction between goal and task, $F(1,86) = 4.04$, $p < .05$, $\eta_p^2 = .04$. Analyses of simple main effects indicated that for participants primed with an achievement goal, those who accomplished the easy Raven test reported higher

performance self-esteem than those who accomplished the difficult Raven test, $F(1,87) = 13.08$, $p < .001$, $\eta_p^2 = .13$. This difference was absent for participants not primed with the goal to achieve, $F(1,87) = 0.58$, *ns*.

		Raven test	
Goal		Easy	Difficult
		Performance Self-esteem	
Achievement	*M*	7.11	5.95
	SD	1.07	1.23
Control	*M*	6.78	6.54
	SD	0.98	1.06
		Social Self-esteem	
Achievement	*M*	6.50	5.43
	SD	0.76	1.01
Control	*M*	5.64	5.75
	SD	0.98	0.97
		Appearance Self-esteem	
Achievement	*M*	6.48	6.09
	SD	1.30	1.06
Control	*M*	5.73	6.14
	SD	1.42	1.57

Table 2.1 *Self-esteem after the Raven test, distinguished into performance self-esteem, social self-esteem and appearance self-esteem (Experiment 2.1)*

Also, for social self-esteem a main effect of task emerged, $F(1,86) = 6.00$, $p < .05$, $\eta_p^2 = .06$, indicating that participants reported higher social self-esteem after an easy Raven test than after a difficult Raven test. This main effect was qualified by the two-way interaction between goal and task, $F(1,86) = 8.95$, $p < .005$, $\eta_p^2 = .09$. Analyses of simple main effects demonstrated that participants primed with the goal to achieve reported higher social self-esteem after the easy Raven test than after the difficult Raven test, $F(1,87) = 14.49$, $p < .001$, $\eta_p^2 = .14$, whereas no such differences were found for participants without the goal to achieve, $F(1,86) = 0.16$,

ns. As expected, for appearance self-esteem neither significant main effects nor the two-way interaction of task and goal emerged (All *F's* < 2, *ns*.).

Mood

The item scores of the mood scale (α = .92) were averaged and subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). The analyses revealed a significant main effect of task $F(1,86) = 12.93$, $p = .001$, $\eta_p^2 = .13$, indicating that participants who accomplished the easy Raven test were in a better mood than participants who accomplished the difficult Raven test, see Table 2.2. As expected, the two-way interaction of goal and task failed to reach significance, $F(1,86) = 2.29$, *ns*.

		Raven test	
Goal		Easy	Difficult
Achievement	*M*	6.77	5.44
	SD	1.34	1.23
Control	*M*	6.72	6.18
	SD	1.14	1.23

Table 2.2 *Mood after the Raven test (Experiment 2.1)*

Correlations between Mood and Self-esteem

To examine whether our measures of mood and self-esteem are conceptually distinguishable we calculated correlations. We found a moderate correlation between mood and self-esteem (r = .47). This correlation shows that mood and self-esteem have only 22% shared variance, indicating that the concepts have distinguishable content.

Performance

Participants' total number of correct items in the Raven test was subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). The analysis confirmed that participants in the easy conditions performed better than participants in the difficult conditions, $F(1,86) = 170.88$, $p < .001$, $\eta_p^2 = .66$, see Table 2.3. As expected, no effects of goal emerged. The

easy items were too easy and the difficult items were too difficult to find any differences as a function of goal prime.

		Raven test	
Goal		Easy	Difficult
Achievement	*M*	8.18	3.00
	SD	1.62	2.02
Control	*M*	8.43	3.00
	SD	1.75	2.25

Table 2.3 Number of correct solutions in the Raven test (Experiment 2.1)

In sum, the results of Experiment 2.1 showed that participants primed with an achievement goal reported higher self-esteem after an easy task than after a difficult task, whereas no such differences were found for participants not primed with an achievement goal. These effects only emerged for performance self-esteem and social self-esteem but not for appearance self-esteem, thereby supporting our hypothesis.

Furthermore, we found that participants' mood was influenced by the performance on that task regardless of goal-activation. That is, performing well on a test may improve your mood simply because it feels good to do well, and this effect may occur without goal-activation. The opposite is true for participants who performed poorly. Irrespective of goal-activation, performing poorly on a test does not feel good and results in a worse mood.

Experiment 2.2

The main purpose of Experiment 2.2 was to replicate the effects of successful and problematic goal pursuit on mood and self-esteem with a subliminal priming procedure and a different task difficulty manipulation. In Experiment 2.2 participants were subliminally primed with words related to the goal to achieve or with neutral words in a lexical decision task. After the priming procedure, participants were given either a difficult or an easy scrabble task. Subsequently, mood and self-esteem were administered.

Method

Participants and Design.

Seventy (21 men, 49 women) Dutch undergraduate students at the University of Amsterdam participated in the experiment, receiving either course credits or money (4 euro; approximately US$ 5) for their participation. They were randomly assigned to one of the four conditions in a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants design.

Procedure and Materials

On arrival at the laboratory, participants were allocated to separate cubicles and all instructions were provided by the computer. The first task was announced as a "language task". It was a lexical decision task in which participants were subliminally primed with words related to the goal to achieve (e.g., to win and to attain) or with neutral words (e.g., to use and to drag). These words were flashed on the screen for 17 milliseconds. A forward mask (a row of X's) preceded each word for 250 milliseconds and a backward mask (again a row of X's) followed each word for 33 milliseconds. Immediately after the backward mask a word was presented on the screen. Participants were asked to indicate as quickly and as accurately as possible whether the word on the screen was an existing Dutch word or not by pressing respectively the 'c' or the 'm' on the computer keyboard. Nine words were existing Dutch words and nine words were nonsense words, making a total of 18 trials.

The second task was a scrabble task (see Chartrand, 1999)[3]. This task was announced as a "pilot study for language use". We named it a pilot study to make the task less relevant for participants without an unconsciously activated achievement goal. However, for participants with an unconscious goal to achieve, performance in this test would be more relevant. Participants were given eight letters and they were asked to create as many as possible existing Dutch words within 6 minutes. Two restrictions were given: The letters could be used only once per word and the created words should contain at least three letters. Participants were asked to type words on the computer keyboard. The difficulty of the task was manipulated by giving participants in the easy conditions eight letters that are very common in Dutch language (k, a, e, l, r, o n, t) and participants in the difficult conditions eight letters that were not very common in Dutch language (p, u, v, z, o,

k, h, i). We did not expect any differences as a function of goal prime on performance. For participants in the easy condition it should be very easy to create a lot of existing Dutch words, whereas for participants in the difficult condition it should be very difficult to create existing Dutch words, eliciting a ceiling effect and a floor effect, respectively. After 6 minutes, the computer program automatically continued.

After the scrabble task, the same mood scale as used in Experiment 2.1 and the State Self-Esteem Scale were administered. However, in this experiment mood was measured on a 17-point scale (-8 to +8) and state self-esteem was measured on a 5-point Likert scale.

Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants saw something unusual in the lexical decision task and none of the participants was aware of the relationship among different parts of the experiment.

Results

Self-esteem

The item scores of the SSES (α = .89) were averaged and subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analysis of variance (ANOVA). A marginally significant two-way interaction of goal and task emerged, $F(1,66) = 3.20$, $p = .078$, $\eta_p^2 = .05$. The means suggest that for participants primed with the goal to achieve, those who performed the easy scrabble task reported higher self-esteem than participants who performed the difficult scrabble task ($M = 3.87$, $SD = 0.48$ and $M = 3.58$, $SD = 0.57$, respectively), although the analysis of simple main effects failed to reach significance, $F(1,67) = 2.78$, $p = .10$, $\eta_p^2 = .04$. Furthermore, no difference was found for participants not primed with the goal to achieve ($M = 3.71$, $SD = 0.46$ and $M = 3.89$, $SD = 0.63$, respectively), $F(1,67) = 0.91$, *ns*.

More importantly, the scores of the SSES were separated into performance self-esteem (α = .84), social self-esteem (α = .68), and appearance self-esteem (α = .82), and were subjected to three separate 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). For performance self-esteem the expected two-way interaction between goal and task emerged, $F(1,66) = 7.68$, $p < .01$, $\eta_p^2 = .10$, see Table 2.4. Analyses of simple main

effects showed that participants primed with an achievement goal reported higher performance self-esteem after the easy scrabble task than after the difficult scrabble task, $F(1,67) = 5.65$, $p < .05$, $\eta_p^2 = .08$, whereas no such difference emerged for participants not primed with the goal to achieve, $F(1,67) = 2.65$, *ns*.

		Raven test	
Goal		Easy	Difficult
		Performance Self-esteem	
Achievement	*M*	4.24	3.77
	SD	0.43	0.77
Control	*M*	3.88	4.23
	SD	0.61	0.60
		Social Self-esteem	
Achievement	*M*	3.78	3.31
	SD	0.46	0.55
Control	*M*	3.46	3.56
	SD	0.55	0.61
		Appearance Self-esteem	
Achievement	*M*	3.55	3.62
	SD	0.80	0.64
Control	*M*	3.72	3.89
	SD	0.75	0.85

Table 2.4 *Self-esteem after the scrabble task, distinguished into performance self-esteem, social self-esteem and appearance self-esteem (Experiment 2.2)*

For social self-esteem the two-way interaction between goal and task also emerged, $F(1,66) = 4.65$, $p < .05$, $\eta_p^2 = .06$. Analyses of simple main effects demonstrated that participants with the goal to achieve reported higher social self-esteem after the easy scrabble task than after the difficult scrabble task, $F(1,67) = 6.95$, $p < .01$, $\eta_p^2 = .09$, whereas no such difference was found for participants without the goal to achieve, $F(1,67) = 0.26$, *ns*. As expected, for appearance self-esteem neither

significant main effects nor the two-way interaction of task and goal emerged (All *F*'s < 1.5, *ns*.).

Mood

The item scores of the mood scale (α = .92) were averaged and subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). The analyses revealed a marginally significant main effect of task $F(1,66) = 3.66$, $p = .060$, $\eta_p^2 = .05$, suggesting that participants in the easy conditions were in a better mood than participants in the difficult conditions, see Table 2.5. As expected, the two-way interaction of goal and task again failed to reach significance, $F(1,66) = 0.54$, *ns*.

		Scrabble Task	
Goal		Easy	Difficult
Achievement	*M*	4.30	2.87
	SD	2.09	2.32
Control	*M*	4.57	3.94
	SD	1.68	2.74

Table 2.5 *Mood after the scrabble task (Experiment 2.2)*

Correlations between Mood and Self-esteem

We calculated correlations to examine whether our measures of mood and self-esteem are conceptually distinguishable. In this experiment we found a low correlation between mood and self-esteem (r = .39). This correlation shows that mood and self-esteem have only 15% shared variance, indicating that the concepts have distinguishable content.

Performance

It was confirmed that participants in the easy conditions created more existing Dutch words in the scrabble task than participants in the difficult conditions, $F(1,66) = 40.93$, $p < .001$, $\eta_p^2 = .38$, see Table 2.6. And as expected, there were no differences as a function of goal prime on performance.

To summarize, the results of Experiment 2.2 replicated the findings of Experiment 2.1. Participants primed with an achievement goal reported higher self-esteem after an easy scrabble task than after a difficult scrabble task, whereas this difference was absent for participants not primed with an achievement goal. As in Experiment 2.1, these effects only emerged for performance self-esteem and social self-esteem, and not for appearance self-esteem. Furthermore, we found the predicted main effect of task difficulty on mood.

		Raven test	
Goal		Easy	Difficult
Achievement	*M*	27.88	12.05
	SD	10.28	4.79
Control	*M*	26.00	12.25
	SD	15.14	5.81

Table 2.6 *Total number of words created in the scrabble task (Experiment 2.2)*

Experiment 2.3

Experiment 2.3 was designed to investigate whether people, whose self-esteem is threatened after failing to attain an unconsciously activated achievement goal, would be motivated to protect self-esteem, and whether this protection would indeed enhance self-esteem. In order to do so, participants were again primed with the goal to achieve or not in a scrambled sentences task as used in Experiment 2.1 and were then given either the difficult or the easy version of the Raven test as used in Experiment 2.1.

After measuring mood and self-esteem, we wanted to investigate whether participants who failed to attain their achievement goal would be motivated to restore their self-esteem by giving self-serving judgments of others' performance. All participants were asked to judge a mediocre paper of a peer student. Participants were told that different professors often judged similar papers of students differently and that the aim of the experiment was to investigate how students would judge such papers themselves.

In line with the egocentric contrast effect (Beauregard & Dunning, 1998; Dunning & Cohen, 1992) we expected that participants who failed to attain their unconsciously activated achievement goal would judge the mediocre paper favorably, hence award higher grades to the mediocre paper than participants who succeeded in attaining their unconsciously activated achievement goal. After all, people who just succeeded will use higher standards than people who just failed. For participants who just failed, using a low standard, (that is, awarding a higher grade to a mediocre paper) will make their own performance seem less poor. We did not expect these self-serving judgments for participants not primed with a goal.

Finally, mood and self-esteem were again measured. We expected that participants who failed to attain their unconsciously activated achievement goal would report lower self-esteem immediately after the Raven test (from now, at "time 1") than participants who succeeded in attaining that goal. Furthermore, we expected that after having judged the paper (from now on, at "time 2") participants who failed would show an increase in self-esteem, relative to the participants who succeeded. We did not expect these effects for participants who were not primed with the goal to achieve.

Method

Participants and Design.

One-hundred-and-two (38 men, 64 women) undergraduate students at the University of Amsterdam were randomly assigned to one of the four conditions in a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants design. They received either course credits or money (4 euro; approximately US$ 5) for their participation.

Procedure and Materials

Participants worked in separate cubicles and all instructions were provided by the computer. The procedure of Experiment 2.3 was identical to the procedure of Experiment 2.1, with two additions. Participants started with the scrambled sentences task in which they were primed with the goal to achieve or not. Subsequently, they were given either the easy or the difficult version of the Raven test and then mood and state self-esteem were administered on a 100-point scale. Although participants did not know that mood and self-esteem would be measured

twice, we wanted to prevent the participants from remembering their answers on these scales. Therefore, only a line and two scale ends were presented below the questions regarding mood and self-esteem and participants were asked to click with the mouse on the line. They were told that the closer they clicked to the scale end, the more they agreed with that scale end.

After completing the State Self-Esteem Scale, participants were asked to judge an introduction of a paper written by a peer student. In the cover story participants were told that it frequently happened that very similar papers were differently judged by professors and that this study was designed to investigate how students would judge those papers. Therefore, they were asked to give a grade between 1 and 10 according to the school system used in the Netherlands. They were allowed to give half grades (e.g., 7.5) resulting in a 19-point scale ranging from 1 to 10. After judging the paper, mood and state self-esteem were again measured on a 100-point scale, with only the line and two scale ends presented below the questions.

Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants was aware of the purpose of the experiment and none of the participants noticed a particular pattern or theme to the words in the scrambled sentences task. However, five participants did not participate seriously in the Raven test (used less than 6 seconds per item). These five participants were excluded from the analyses.

Results

Self-esteem protection

To investigate whether participants were motivated to protect self-esteem, the grades they gave for the paper in the judgment task were subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). As expected, the two-way interaction between goal and task emerged, $F(1,93) = 4.66$, $p < .05$, $\eta_p^2 = .05$, see Table 2.7. Analysis of simple main effects showed that the difference for participants who were primed with the goal to achieve was marginally significant between those who performed the easy Raven test and those who performed the difficult Raven test, $F(1,94) = 2.78$, $p < .10$, $\eta_p^2 = .03$. There was no difference for participants who were not primed with the goal to achieve between those who performed the easy Raven test and those who

performed the difficult Raven test, $F(1,94) = 1.80$, *ns*. Furthermore, there was no difference for participants who performed the easy Raven test between those who were and those who were not primed with the goal to achieve, $F(1,94) = 0.28$, *ns*. However, for participants who performed the difficult Raven test, the difference between those who were and those who were not primed with the goal to achieve was significant, $F(1,94) = 6.34$, $p < .05$, $\eta_p^2 = .06$.

		Raven test	
Goal		Easy	Difficult
Achievement	*M*	6.15	6.72
	SD	1.14	1.03
Control	*M*	6.32	5.88
	SD	1.07	1.34

Table 2.7 *Grades participants gave in the judgment task (Experiment 2.3)*

These findings indicate that participants who failed to attain their unconsciously activated goal gave somewhat higher grades than participants who succeeded to attain their goal, and gave higher grades than participants who performed the difficult Raven test but without having a goal. Therefore, it can be concluded that participants who failed to attain their goal lowered the standards for others performance to make their own performance seem less poor.

Self-esteem

To investigate the changes in self-esteem the item scores of both state self-esteem scales ($\alpha = .91$ at time 1 and $\alpha = .91$ as well at time 2) were averaged and subjected to a repeated measures analyses of variance (ANOVA)[4]. Goal (achievement vs. no goal) and task (easy vs. difficult) were the between-participants variables, whereas time of measuring self-esteem (time 1 vs. time 2) was the within variable.

As predicted, the three-way interaction of task, goal and time emerged, $F(1,93) = 6.26$, $p < .05$, $\eta_p^2 = .06$, see Table 2.8. To further investigate this three-way interaction we conducted two 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA) for time 1 and time 2 separately. At time 1, the predicted two-way interaction between goal and task emerged, $F(1,93) = 4.34$ $p < .05$, $\eta_p^2 = .04$. Analyses of simple main effects indicated

that participants primed with the goal to achieve reported lower self-esteem after the difficult Raven test than after the easy Raven test, $F(1,94) = 5.15$, $p < .05$, $\eta_p^2 = .05$, whereas no differences emerged for participants not primed with that goal $F(1,94) = 0.43$, *ns*. As expected, we found no such differences at time 2, all F's < 1.6, *ns*. Furthermore, to investigate whether the increase in self-esteem was reliable for participants in the goal-difficult condition (those who failed to attain their unconsciously activated achievement goal) we conducted a paired t-test. This analysis showed that the increase in self-esteem was indeed significant, $t(23) = 3.47$, $p < .005$, $d = .26$.

		Raven test	
Goal		Easy	Difficult
		Self-esteem time 1	
Achievement	*M*	66.84	58.50
	SD	13.45	12.28
Control	*M*	63.15	65.47
	SD	12.14	12.45
		Self-esteem time 2	
Achievement	*M*	66.14	61.88
	SD	14.99	13.22
Control	*M*	64.20	66.75
	SD	12.18	12.72

Table 2.8 *Self-esteem at time 1 and time 2 (Experiment 2.3)*

The test of within-participants revealed a main effect of time, $F(1,93) = 10.61$, $p < .01$, $\eta_p^2 = .10$, showing that participants reported lower self-esteem at time 1 than at time 2. Furthermore, a two-way interaction between task and time emerged, $F(1,93) = 7.84$, $p < .01$, $\eta_p^2 = .08$, showing that at time 1 participants reported lower self-esteem after performing the difficult Raven test than after performing the easy Raven test ($M = 62.13$, $SD = 12.73$ and $M = 64.95$, $SD = 12.80$, respectively), whereas this difference was absent at time 2 ($M = 64.41$, $SD = 13.05$ after the difficult test and $M = 65.15$, $SD = 13.52$ after the easy test).

Goal		Raven test	
		Easy	Difficult
		Mood time 1	
Achievement	*M*	66.52	58.44
	SD	17.79	16.73
Control	*M*	68.83	59.03
	SD	12.69	15.42
		Mood time 2	
Achievement	*M*	66.64	66.57
	SD	18.82	14.41
Control	*M*	68.76	65.27
	SD	13.06	11.26

Table 2.9 *Mood of participants at time 1 and time 2 (Experiment 2.3)*

Mood

To investigate the changes in mood the item scores of both mood scales (α = .93 at time 1 and α = .94 at time 2) were averaged and subjected to a repeated measures analyses of variance (ANOVA). Goal (achievement vs. no goal) and task (easy vs. difficult) were the between-participants variables, whereas time of measuring mood (time 1 vs. time 2) was the within variable. The three-way interaction of task, goal and time failed to reach significance, $F(1,93) = 0.93$, *ns*. The test of between-participants revealed a main effect task, $F(1,93) = 4.00$, $p < .05$, $\eta_p^2 = .04$, showing that overall participants were in a better mood after performing the easy Raven test than after performing the difficult Raven test, see Table 2.9. The test of within-participants revealed a main effect of time, $F(1,93) = 10.46$, $p < .01$, $\eta_p^2 = .11$, showing that participants were in a worse mood at time 1 than at time 2. Furthermore, a two-way interaction between task and time emerged, $F(1,93) = 18.09$, $p < .001$, $\eta_p^2 = .16$, showing that at time 1 participants were in a worse mood after performing the difficult Raven test than after performing the easy Raven test, $F(1,93) = 9.68$, $p < .05$, $\eta_p^2 = .09$, whereas this difference was absent at time 2, $F(1,93) = 0.36$, *ns*.

Correlations between Mood and Self-esteem

We found a moderate correlation between mood and self-esteem (r = .61 at time 1 and r = .60 at time 2). This correlation shows that mood and self-esteem have around 36% shared variance. Although the concepts share more variance than in Experiment 2.1 and 2.2, the correlations (and shared variance) remain moderate, indicating that the concepts are not measuring identical constructs.

Performance

Participants' total number of correct items in the Raven test was subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). The analysis confirmed that participants in the easy conditions performed better than participants in the difficult conditions, $F(1,93) = 152.33$, $p < .001$, $\eta_p^2 = .62$, see Table 2.10. As expected, no effects of goal emerged.

		Raven test	
Goal		Easy	Difficult
Achievement	*M*	7.79	2.17
	SD	2.17	1.83
Control	*M*	7.36	2.36
	SD	2.41	1.73

Table 2.10 *Number of correct solutions in the Raven test (Experiment 2.3)*

To summarize, participants who failed to attain their unconsciously activated achievement goal reported lower self-esteem after failure than participants who succeeded to attain that goal, whereas no difference was found for participants who were not primed with the goal to achieve. However, participants who failed to attain their unconsciously activated achievement goal were able to protect their self-esteem by giving a higher grade for the paper, resulting in enhanced self-esteem afterwards.

General Discussion

Unconscious goals, self-esteem and mood

The current research showed that success and failure on unconsciously activated goals affect self-esteem. That is, failure results in lower self-esteem, whereas success results in higher self-esteem. Furthermore, people are motivated to protect their self-esteem when it is threatened after unconscious goal pursuit failure. Experiment 2.1 showed that people who were primed with the goal to achieve reported lower self-esteem after the difficult Raven test than after the easy Raven test, indicating that goal pursuit failure impaired self-esteem and goal pursuit success enhanced self-esteem. These differences were not found for people who were not primed with the goal to achieve. Furthermore, these effects emerged specifically for performance self-esteem and social self-esteem and not for appearance self-esteem. Experiment 2.2 replicated the effects of Experiment 2.1 with a subliminal priming procedure and a different task manipulation. After being subliminally primed with the goal to achieve people reported lower self-esteem after a difficult scrabble task than after an easy scrabble task, whereas no differences were found for people not primed with the goal to achieve. It can therefore be concluded that failure and success to attain unconsciously activated goals indeed affect self-esteem.

Although previous findings (Chartrand, 1999; Chartrand & Bargh, 2002) have demonstrated that mood was affected by task difficulty only after being primed with a goal, we found evidence that mood can be affected by task difficulty regardless of goal activation. We assume that performing well on almost any task may lead to a positive feeling and performing poorly may lead to a negative feeling. That is, performing well (or poorly) on almost any task may just feel good (or bad). However, when people are (unconsciously) pursuing a goal to achieve, a good or a worse performance on an achievement task may become more relevant to the self. Therefore, a good or a worse performance may affect self-esteem only after goal-activation. To gain clear insight in the consequences of success and failure, mood and self-esteem need to be disentangled in future research.

We propose (see Chapter 1; Bongers & Dijksterhuis, in press) that, although goals are unconsciously activated, they will still be monitored and evaluated implicitly. Such unconscious monitoring processes have been proposed in the thought suppression literature too (Wegner, 1994, 1997; Wegner & Wenzlaff, 1996). It is suggested that while intentionally seeking thoughts that will promote the

preferred state, an (ironic) monitoring process remains in the background of consciousness to search for mental contents that signal the failure to achieve the desired state. In case of unconsciously activated goals, we assume that although goal-directed behavior is not conscious, a monitoring process that searches for failures to achieve the goal may still be operational. In other words, people implicitly evaluate their progress toward goal-attainment. When progress toward goal-attainment is problematic, people will implicitly evaluate their performance negatively, hence resulting in lower self-esteem, whereas when progress toward goal-attainment is successful, people will implicitly evaluate their performance positively, hence resulting in higher self-esteem.

Future research will be necessary to explore the existence and functioning of such monitoring processes. Although there has been increasingly interest in the notion that automatic processes may be controllable, and hence, may be monitored and evaluated (e.g., Bargh, 2005; Fishbach, Friedman, & Kruglanski, 2003; Hassin, 2005; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999), such monitoring processes are still not well understood.

Self-esteem protection

In Experiment 2.3 we showed that people were motivated and able to protect their self-esteem after failing to attain unconsciously activated goals. Participants who were primed with the goal to achieve reported lower self-esteem after a difficult Raven test than after an easy Raven test and they were able to enhance their self-esteem after judging a paper of a peer student.

Future research might further explore the use of self-protective mechanisms after failure to attain unconsciously activated goals. For example, one may investigate whether people are able to use self-handicapping strategies (Jones & Berglas, 1978) or whether people are more likely to use self-serving attributions after failing to attain an unconsciously activated goal (e.g., Campbell & Sedikides, 1999; Feather, 1987; Menapace & Doby, 1976; Zuckerman, 1979).

In many situations people pursue goals of which they are not aware. Success in attaining these goals will lead to higher self-esteem. However, as with consciously chosen goals, unconscious goal setting will not always lead to successful goal pursuit. Despite the fact that people can be unaware of their goal pursuits, failure to attain unconsciously activated goals will lead to lower self-esteem and to the use of self-protective mechanisms.

Endnotes

1. Item-difficulty was determined for each item by its location on the original Raven test. Items on the Raven test are arranged by difficulty, such that there is a progression from easiest items first to most difficult items last. For the easy condition the first ten items of the original Raven test were selected and for the difficult condition the last ten items.

2. We chose to analyze the consequences of goal pursuit success and failure on the three subscales of self-esteem with three separate between-participants Analyses of Variances, rather than one within-participants analysis. Because we do not predict completely different patterns in the three subscales, (we only predict that impact might be stronger for one subscale than for another), a within-participants analysis would have less advantages and would make things more complex.

3. The scrabble task we used in Experiment 2.2 is comparable with the anagram task as used by Chartrand (1999). However, we prefer to name it a scrabble task, since the task at hand resembles that task more.

4. We also analyzed the effects on performance self-esteem, social self-esteem, and appearance self-esteem separately. These analyses showed that the effects on these measures followed the same pattern as shown in Experiment 2.1 and Experiment 2.2. For the sake of simplicity, only the effects on total state self-esteem are reported.

Chapter 3

On the Role of Consciousness in Goal Pursuit

Recent research has shown that goal attainment can proceed unconsciously. That is, the entire route from goal activation to goal completion can take place without conscious awareness of the goal. This observation is somewhat paradoxical, because there is no denying that in daily life people are often consciously aware of the goals they pursue. The question is when and why? In this chapter, we tested and confirmed our hypotheses pertaining to this question. In four experiments, in which two different goals were used, it was demonstrated that unconsciously activated goals are likely to intrude into consciousness when goal progress is problematic. In other words, people become aware of unconscious goals in the face of obstacles.

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"Just as a stream flows smoothly on as long as it encounters no obstruction, so the nature of man and animal is such that we never really notice or become conscious of what is agreeable to our will; if we are to notice something, our will has to have been thwarted…"

Arthur Schopenhauer

Imagine you are at the wedding ceremony of your friends and everything is very formal. All of a sudden, due to your clumsiness, you drop your glass of wine. Everyone looks at you and you feel very uncomfortable. Thoughts about the goal you actually have, the goal of making a good impression, immediately pops into consciousness. During the remainder of the day thoughts about your failure keep intruding into consciousness. In psychological terms, you become consciously aware of your goal (in this case making a good impression) upon the threat to fail to achieve the goal.

Traditionally, most theories concerned with self-regulation have emphasized the role of conscious awareness in the process of goal pursuit. People generally assume that we deliberately choose our goals, that we intentionally engage in goal-directed behavior and that progress toward goal-attainment is consciously evaluated (e.g., Bandura, 1981; Deci & Ryan, 1985; Locke & Latham, 1990). However, recently it was proposed that goals can be activated by situational cues outside of awareness and then guide behavior unconsciously. Indeed, it has been shown that the entire process from goal activation to goal completion can ensue without conscious awareness (e.g., Bargh, 1990; Chartrand & Bargh 1996; Fishbach, Friedman, & Kruglanski, 2003). For example, participants primed with the goal to achieve performed better on an intellectual task compared to participants not primed with that goal, without primed participants ever becoming aware of their goal (Bargh, Gollwitzer, Lee-Chai, Barndollar & Trötschel, 2001). Furthermore, it has been shown that the activation of the representation of significant others can induce goal-directed behavior (Fitzsimons & Bargh, 2003; Shah, 2003). Priming participants subliminally with father increased the pursuit of a task goal, especially when participants were close to their father and perceived their father as wanting them to do well on the task (Shah, 2003). In addition, it has been shown that activating the representation of a close friend led to more helping behavior (Fitzsimons & Bargh, 2003). Finally, Aarts and colleagues (Aarts, Gollwitzer & Hassin, 2004) recently

demonstrated "goal contagion", the tendency for people to engage in unconscious goal pursuit merely because of other people in their environment are doing so.

The recent notion that goals can be automatically activated is based on two underlying ideas. First, goals can be seen as mental representations like other concepts or knowledge structures such as semantic concepts or stereotypes (Bargh, 1990; Higgins, 1989; 1996, Kruglanski, 1996), and hence, they can, in principle, be automatically activated. Goals are mentally represented as desired states in a hierarchically ordered knowledge structure (Carver & Scheier, 1998; Vallacher & Wegner, 1987). Such hierarchical knowledge structure includes desired states, actions and means to reach the desired states (Aarts & Dijksterhuis, 2000; Aarts, Gollwitzer, & Hassin, 2004, Bargh & Gollwitzer, 1994; Custers & Aarts, 2005b; Dijksterhuis, Chartrand, & Aarts, in press; Gollwitzer & Moskowitz, 1996).

Second, goals can be automatically activated in specific situations because people learn to do so. That is, goals that were chosen consciously originally can develop the capacity of becoming unconsciously activated (e.g., Bargh, 1990; Bargh et al, 2001; Kruglanski, 1996; Shah, Kruglanski, & Friedman, 2003). When goals are consistently and repeatedly activated in a specific situation, due to principles of automatization, these goals will 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 affiliate whenever you go out for drinks, going out in itself can unconsciously activate the goal to affiliate.

However, we think that the recent findings demonstrating that goal pursuit can proceed completely unconsciously points to an interesting paradox. After all, 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 polite, or that we want to make a good impression on people. So we are on the one hand faced with the observation that goal pursuit does not need consciousness (at least under some circumstances), whereas on the other hand we observe frequent conscious awareness of our goals.

The question we want to begin to address in this chapter is when we become aware of our goals. We hypothesize, like Schopenhauer in the opening quote of this chapter suggested, that one determinant of conscious awareness of goals is failure to attain the goal. When (unconsciously activated) goals operate smoothly, no conscious awareness occurs. To turn back to our opening example, when you would not have dropped your glass of wine you might not have become aware of the goal

of making a good impression. However, when goals are frustrated, you do become aware of these goals. Below, we further elaborate on our hypothesis. We first discuss ideas of others about the possible relation between problematic goal pursuit and conscious awareness. Subsequently, we present the proposed underlying process explaining how problematic goal pursuit can lead to conscious awareness of the goal.

Problematic Goal pursuit and conscious awareness

Although the hypothesis that problematic goal pursuit leads to conscious thoughts about the goal has not been tested, it has been suggested before. According to Martin and colleagues (Martin & Tesser, 1989, 1996; Martin, Tesser, & McIntosh, 1993) conscious thoughts are generally goal-directed (e.g., Austin & Vancouver, 1996; Carver & Scheier, 1981; Gollwitzer & Moskowitz, 1996) and are often the product of incomplete tasks or frustrated goals. These intrusive thoughts concerning incomplete tasks or frustrated goals are persistent and powerful and will enter consciousness unintentionally. Moreover, it is suggested that intrusive (conscious) thoughts are caused by heightened accessibility of goal-related concepts (see Rholes & Pryor, 1982; Williams, 1993). Therefore, when goal pursuit is problematic these intrusive thoughts are likely to keep intruding consciousness until the goal is either met or abandoned (Beckmann, 1998; Klinger, 1975; 1996; Lyubomirsky & Nolen-Hoeksema, 1995; Martin & Tesser, 1996; Mikulincer, 1996).

Our hypothesis is also consistent with action identification theory (Vallacher & Wegner, 1987). According to this theory, actions can be identified at different levels of abstraction. People generally prefer to think in higher-level identities, that is the why-aspects of an action. However, if an action is disrupted people must concern themselves with the how-aspects of the action. Imagine for example that you are driving to the university. Mostly this action will be identified as 'going to your work' (if it is identified at all). However, if you have to take a different route because of obstructions, driving to the university is likely to be identified as 'making your way to the university', which instigates (conscious) elaboration on how to go to the university. Although people are initially aware of the goal in this example, it does illustrate that when a fairly automated action such as driving to the university is disrupted, people have to (consciously) think about their action at a lower level of abstraction in order to perform the action.

Whereas such more general theories predict problematic goal pursuit to lead to conscious awareness of these goals, this idea has not been tested. Moreover, it is also not clear how problematic goal pursuit could lead to conscious awareness. In what follows, we propose the underlying process.

Accessibility

A major difference between priming a motivational and a non-motivational mental representation is the strength of the priming effects over time. Perceptual (non-motivational) priming effects are known to decrease in strength over time (e.g., Dijksterhuis & Bargh, 2001; Higgins, Bargh, & Lombardi, 1985), while effects of goal priming (motivational) 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; Chartand & Bargh, 2002). It has been suggested that the increase in strength over time is due to enhanced accessibility of goal-related concepts, which is maintained as long as the goal is active and not yet attained (e.g., Goschke & Kuhl, 1993; Marsh, Hicks, & Bink, 1998).

There is indeed ample evidence that active goals are highly accessible (e.g. Custers & Aarts, 2005b; Goschke & Kuhl, 1993; Higgins & King, 1981; Kuhl & Kazen-Saad, 1988). For example, 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 non-thirsty participants. 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. Furthermore, research on desire (see Kavanagh, Andrade, & May, 2005) has shown that cigarette deprivation or an attempt to quit smoking resulted in heightened accessibility of cigarette-related concepts (Phillips, Kavanagh, May & Andrade, 2004).

Recently, Förster, Liberman and Higgins (2005) demonstrated that active goals enhance the accessibility of goal-related constructs and that goal fulfillment inhibits these constructs, rendering them less accessible than before fulfillment and even less accessible than under conditions without goal-activation. However, lack of fulfillment resulted in a maintained heightened accessibility of goal-related constructs.

Finally, the classic "Zeigarnik effect" (Zeigarnik, 1938) also shows that unfulfilled goals are highly accessible. 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. Afterwards participants 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. Moreover, when participants were told that task completion or incompletion is a measure of ability or intelligence, the classic Zeigarnik effect was found especially for participants high in need for achievement (Atkinson, 1953). That is, recall of incomplete tasks increased for participants who wanted to achieve (for reviews, see Butterfield, 1964; Weiner, 1966). These findings indicate that participants who failed to attain their goals (in this case failure to achieve) were more likely to report the tasks they failed at.

One should note that the Zeigernik-effect differs from our hypothesized effect in two respects. First, in studies on the Zeigarnik-effect, people recalled the tasks they had worked on and not the goals they had pursued (see also, Beckmann, 1994; 1998). Furthermore, although the interrupted tasks were recalled twice as often as finished ones, this happened only after people were asked to recall the tasks. Task-related thoughts did not intrude into consciousness spontaneously, as we propose happens with goal-related thoughts after failure.

To recapitulate, there is evidence showing that active goals enhance accessibility of goal-related concepts and that accessibility remains high until the goal is attained. The next question is whether heightened accessibility leads to conscious awareness.

From Accessibility to Conscious Awareness

Wegner and Smart (1997) have identified a mode of cognitive activation, so-called deep cognitive activation, in which a thought can be accessible but not currently conscious. This mode of activation is characterized by the temporary nature of this state. When a thought is not accessible enough it will decrease in accessibility and "extinguish" after a while. However, when the thought is sufficiently accessible it

will at some point intrude into consciousness. This is what we propose to happen with highly accessible goals.

Support for the idea that heightened accessibility of thoughts may lead to conscious awareness is also found in the thought suppression literature (Wegner, 1989; Wenzlaff & Wegner, 2000). The evidence indicates that when thought suppression is relinquished, it leads to more thoughts about the target than when suppression had never been undertaken in the first place. The well-known "white bear experiments" illustrate this nicely (Wegner, 1994; Wegner & Erber, 1992; Wegner, Schneider, Carter & White, 1987). Participants who were asked not to think (i.e., to suppress) about a white bear during an initial phase period, thought more about white bears after that period than participants who were allowed to think about a white bear during the initial phase. The theory formulated by Wegner (1994) suggests that for participants in the suppression condition, a monitoring process starts to search for failures not to think about white bears, therefore making the mental representation of white bears highly accessible, hence resulting in more conscious thoughts about white bears (see also Macrae, Bodenhausen, Milne & Jetten, 1994). In sum, failure leads to increasing accessibility of goal-related constructs (see Förster, Liberman & Higgins, 2005) and hence it is likely that for people who fail, goals will enter consciousness.

Overview of Experiments

We report four experiments examining the hypothesis that people start to think consciously about unconsciously activated goals when goal pursuit is frustrated. In Experiment 3.1, participants were subliminally primed with an achievement goal or with no goal in a lexical decision task. Subsequently, participants were given either an easy or a difficult memory game to manipulate success or failure. To measure conscious thoughts, participants were given a sentence completion test. In this test, participants were asked to complete a number of sentences with the first thing that came to mind. We expected that participants who were primed with an achievement goal and performed the difficult memory game (hence failed to achieve), would start to think consciously about that goal, and hence, would complete more sentences in an achievement-related way than participants in all other conditions. It should be noted that we did not expect any differences as a function of goal prime on performance at the memory game. We constructed the

game in such a way that it was very easy in the easy conditions to complete the game (rendering a ceiling effect), whereas it was very difficult in the difficult conditions to complete the game (resulting in a floor effect).

To rule out the alternative interpretation of measuring mere accessibility instead of "true" conscious thoughts, we replicated the results of Experiment 3.1 with a think-aloud protocol in Experiment 3.2. After being subliminally primed with an achievement goal or not, participants were given a remote associates test (Mednick, 1962) that was either difficult or easy to manipulate failure or success. During this test, participants were asked to say everything they were thinking out loud. We expected that participants primed with the goal to achieve who performed the difficult test (hence failed to achieve) would report more conscious goal-related thoughts than participants in all other conditions. Again, we did not expect any differences as a function of goal prime on performance at the remote associates test, because the items in the easy conditions were extremely easy and the difficult associations were extremely difficult.

In Experiment 3.3, we investigated whether people would also start to think consciously about their goal when goal pursuit is moderately difficult. Therefore, participants were primed with an achievement goal or with no goal in a lexical decision task and subsequently all participants were given a moderately difficult remote associates test. We did not expect any floor effects or ceiling effects, because the task was only moderately difficult. Therefore, we expected that participants who were primed with an achievement goal would perform the remote associates test better than participants who were not primed with an achievement goal. Furthermore, we expected that participants who were primed with an achievement goal would report more conscious goal-related thoughts in a sentence completion test than participants who were not primed with an achievement goal. That is, although the task is moderately difficult, participants still failed to attain their achievement goal to some extent.

In Experiment 3.4, we replicated the results of goal pursuit failure on conscious thoughts in a different domain. Participants were subliminally primed with an honesty goal or with no goal. By tempting them to lie on a history test, goal pursuit of all participants was frustrated. Subsequently, conscious thoughts were measured with a sentence completion test.

Experiment 3.1

Method

Participants and Design.

One-hundred (25 men, 75 women) Dutch undergraduate students at the University of Amsterdam participated in the experiment, receiving either course credits or money (€4; approximately US$ 5) for their participation. They were randomly assigned to one of the four conditions in a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants design.

Procedure and Materials

Participants worked in separate cubicles and all instructions were provided by the computer. The first task was announced as a "language task". It was a lexical decision task, in which participants were subliminally primed with words related to the goal to achieve (e.g., to win and to attain) or with neutral words (e.g., to use and to drag). These words were flashed on the screen for 17 milliseconds. A forward mask (a row of X's) preceded each word for 250 milliseconds and a backward mask (again a row of X's) followed each word for 33 milliseconds. Immediately after the backward mask a word was presented on the screen. Participants were asked to indicate as quickly and as accurately as possible whether the word on the screen was an existing Dutch word or not by pressing respectively the 'c' or the 'm' on the computer keyboard. Fourteen words were existing Dutch words and fourteen words were nonsense words, making a total of 28 trials.

The second task was a memory game. The memory game consisted of eighteen pairs of identical cards in a grid of six cards by six cards and participants were asked to find all the pairs of cards within the time given. The difficulty of the game was manipulated by giving participants either a maximum of 3 minutes to complete it (difficult condition), which was too short to complete the game or a maximum of 12 minutes (easy condition), which was time enough to complete the game.

Afterwards, participants were given a break of two minutes. During this break we asked participants to do nothing and just sit and wait until the program continued. We expected that such a break would strengthen the effects on conscious

thoughts. After two minutes, the computer program automatically continued to the next task.

With the next task, a sentence completion test, we measured conscious thoughts. We asked participants to complete the sentences with the first thing that came to mind. The following sentences were used in sequential order: "I..., I am..., I feel..., I wished..., I tried..., The memory game..., During the memory game I wanted to..., During the memory game I tried to...". The first six sentences were presented three times and the last two sentences were presented only once. Two independent raters who were blind for conditions coded all twenty sentences into either goal-related thoughts or no-goal-related thoughts ($\kappa = .85$, $p < .001$). Goal-related thoughts are thoughts referring to the goal to achieve (e.g., I tried to do my best at the memory game) and no-goal-related thoughts are all other thoughts. To measure goal-related conscious thoughts, scores were computed by averaging the number of goal-related thoughts as coded by the two raters.

Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants was aware of the relationship among different parts of the experiment. However, the debriefing indicated that ten participants saw flashes during the lexical decision task. Data from these participants were excluded, because for these participants it cannot be guaranteed that goal activation was unconscious. One participant gave more than 20% incorrect responses in the lexical decision task. Data from this participant were also excluded, because it cannot be guaranteed that she followed our instructions.

Results

Performance

It was confirmed that all participants in the easy conditions, but none of the participants in the difficult conditions, completed the memory game within the time given. Thus, in the easy conditions everyone found all the 36 cards of the memory game, while in the difficult condition none of the participants found all the 36 cards of the memory game, resulting in a main effect of task difficulty, $F(1,85) = 450.45$, $p < .001$, $\eta_p^2 = .84$, see Table 3.1. As expected, no effects of goal emerged.

Memory game		Goal	
		Achievement	Control
Easy	*M*	36	36
	SD	(0.00)	(0.00)
Difficult	*M*	12.82	14.17
	SD	(7.82)	(6.15)

Table 3.1 *Total Number of Cards found in the Memory Game (Experiment 3.1)*

Conscious Thoughts

To test our prediction that participants who failed to attain their unconsciously activated achievement goal would report the most goal-related conscious thoughts compared to participants in all other 3 conditions, we conducted a planned comparison analysis. The results indeed showed that participants in the "goal-difficult" condition reported more conscious thoughts about the goal to achieve than participants in the other 3 conditions, $F(1,85) = 8.80$, $p < .01$, $\eta_p^2 = .09$, see Table 3.2. The other two orthogonal contrast analyses were not significant (both *F*'s < 1.32, *ns*.), confirming that there are no other effects in our data.

Memory game		Goal	
		Achievement	Control
Easy	*M*	2.03	2.44
	SD	(0.97)	(0.74)
Difficult	*M*	3.11	2.33
	SD	(1.79)	(0.91)

Table 3.2 *Number of Conscious Thoughts After Goal Pursuit Failure or Success (Experiment 3.1)*

One alternative interpretation for the findings that participants in the goal-difficult condition reported more conscious goal-related thoughts than participants in the easy conditions is that these latter participants may not have seen the task as relevant for the goal to achieve, due to the ease of the task. To rule out this

alternative interpretation we contrasted the total number of conscious goal-related thoughts between the two difficult conditions. This analysis demonstrated that participants in the goal-difficult condition reported more conscious goal-related thoughts than participants in the no goal-difficult condition, $F(1,85) = 5.13$, $p < .05$, $\eta_p^2 = .06$. These findings indicate that participants who failed to attain their unconsciously activated goals not only reported more conscious goal-related thoughts than participants in the easy conditions, but also more than participants in the other difficult condition. Therefore, the relevance interpretation seems to be not a very likely alternative.

Experiment 3.2

The findings of Experiment 3.1 support the idea that people will consciously think about unconsciously activated goals when these goals are hard to pursue. One may remark that the dependent variable used in Experiment 3.1 is an accessibility measure rather than a true measure of contents of consciousness. Therefore, in Experiment 3.2 conscious thoughts were measured online with a think-aloud protocol. After being primed with an achievement goal or not, participants were given a remote associates test that was either difficult or easy. Participants were encouraged to say everything they were thinking about out loud, regardless of the relation to the task. No more instructions were given. If participants spontaneously report conscious thoughts about the goal to achieve during the test, without receiving any cues to do so, we can conclude that we are indeed measuring conscious thoughts and not cognitive accessibility of goal-related constructs.

Method

Participants and Design.

Sixty-five (25 men, 40 women) Dutch undergraduate students at the University of Amsterdam were randomly assigned to one of the four conditions in a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants design. Participants received either course credits or money (4 euro; approximately US$ 5) for participating.

Procedure and Materials

On arrival at the laboratory, participants were allocated to separate cubicles. Participants were told that they would participate in a number of unrelated experiments and that for some experiments it would be necessary to speak out loud. Therefore, they were requested to attach a microphone to their shirt and the experimenter pushed the record button on the tape-recorder, which was placed on the table next to the computer. Furthermore, participants were told that all other instructions would be provided by the computer. Subsequently, the experimenter started the computer program and left the cubicle.

Participants started with a Dutch version of the remote associates test (Mednick, 1962), which was announced as a practice task. Three words appeared on the screen and participants were asked to give a fourth word that was associated with each of the words given, within one minute. During this task, participants were asked to say everything they were thinking about out loud. We emphasized that they could say everything that came to mind, regardless of whether it had something to do with the task or not.

We had conducted a pilot test with a Dutch translation and extension of the remote associates test. Thirty-four students were asked to solve thirty randomly presented associations consisting of three words. After each association they were asked to answer the following question: "How difficult was this association?" on a 5-point scale, ranging from 1 "very easy" to 5 "very difficult". Five neutral associations (M = 2.53, SD = 0.69) were selected for the practice task.

The second task was announced as a "language task". This task, in which participants were subliminally primed with the goal to achieve or not, was the same lexical decision task as used in Experiment 3.1.

After the lexical decision task, participants were given the remote associates test for which they had practiced. Participants received the same instruction as in the practice test and it was again emphasized that they should say everything they were thinking about out loud. To manipulate the difficulty of the task, ten difficult associations (M = 3.09, SD= 0.60) and ten easy associations (M = 2.19, SD = 0.70) were selected from the pilot test. Half of the participants were given the easy associations, the other half were given the difficult associations. Two independent raters who were blind to condition coded all conscious thoughts participants reported during the remote associates test. The thoughts were categorized as task-related thoughts (e.g. "I'm thinking, what is a possible solution?"), as irrelevant thoughts (e.g. "I

would like to go shopping") or as goal-related thoughts (e.g. "I want to do this very well"). Due to huge differences in total number of thoughts participants reported during the task, all thoughts were computed as percentages of the total amount of thoughts a participant had during the task. Since the inter-rater agreement was very high (r =.97 for task-related thoughts, r = .98 for irrelevant thoughts, and r = .90 for goal-related thoughts, all p's < .001) the scores of both raters were averaged.

Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants was aware of the relationship between the lexical decision task and the remote associates test. However, the debriefing indicated that one participant saw flashes during the lexical decision task. Data from this participant were excluded, because for this participant it cannot be guaranteed that goal activation was unconscious. Seven participants gave more than 20% incorrect responses in the lexical decision task. Data from these participants were excluded, because it cannot be guaranteed that these participants correctly followed our instructions.

Results

Performance

Participants' total number of correct solutions in the remote associates test was subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). The analysis confirmed that participants in the easy conditions performed better than participants in the difficult conditions, $F(1,53) = 255.25$, $p < .001$, $\eta_p^2 = .83$, see Table 3.3. As expected, no effects of goal emerged.

Conscious Thoughts

To test whether participants who failed to attain their unconsciously activated achievement goal reported more conscious goal-related thoughts than all other participants, we conducted a planned comparison analysis for goal-related conscious thoughts. The analysis confirmed that participants in the goal-difficult condition reported the most goal-related conscious thoughts compared to participants in all other 3 conditions, $F(1,53) = 9.29$, $p < .01$, $\eta_p^2 = .15$, see Table 3.4. The other two orthogonal contrast analyses were not significant (both F's < 1.20, *ns*.), confirming our predictions that there are no other effects in our data.

Remote associates test		Goal	
		Achievement	Control
Easy	*M*	8.27	7.87
	SD	(1.39)	(2.45)
Difficult	*M*	0.93	1.31
	SD	(1.07)	(1.18)

Table 3.3 *Total Number of Correct Associations in the Remote Associates Test (Experiment 3.2)*

To test whether participants in the goal-difficult condition reported more conscious goal-related thoughts than participants in the no goal-difficult condition we contrasted the number of goal-related thoughts between the two difficult conditions. The analysis showed that the difference between the goal-difficult condition and the no goal-difficult condition was marginally significant, $F(1,53) = 3.59$, $p = .064$, $\eta_p^2 = .06$.

Remote associates test		Goal	
		Achievement	Control
Easy	*M*	3.21	4.52
	SD	(4.09)	(2.92)
Difficult	*M*	9.12	5.52
	SD	(7.67)	(5.38)

Table 3.4 *Conscious Thoughts (in Percentages) During Goal Pursuit Failure or Success (Experiment 3.2)*

The task-related thoughts and the irrelevant thoughts were subjected to two separate 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA). The analyses showed that participants in the difficult conditions thought more about the task than participants in the easy conditions ($M = 76.95$, $SD = 14.56$ and $M = 67.71$, $SD = 20.46$, respectively), $F(1,53) = 3.99$, $p = .05$, $\eta_p^2 = .07$, and that participants in the easy conditions thought more

about irrelevant things than participants in the difficult conditions (M = 28.29, SD = 19.47 and M = 15.75, SD = 12.39, respectively), $F(1,53) = 8.51$, $p < .01$, $\eta_p^2 = .14$.

In sum, the results of Experiment 3.2 showed that participants who failed to attain their unconsciously activated achievement goal reported more conscious thoughts about this goal during goal pursuit than participants in all other 3 conditions.

Experiment 3.3

The main purpose in Experiment 3.3 was twofold. First, we wanted to replicate findings of previous research (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar & Trötschel, 2001) that participants who are primed with an achievement goal, will subsequently perform better in an achievement task compared to participants who are not primed with an achievement goal. And second, we wanted to investigate whether people would also start to think consciously about their goal when goal pursuit is moderately difficult.

Method

Participants and Design.

Forty-nine (18 men, 31 women) Dutch undergraduate students at the University of Amsterdam participated in the experiment. They were randomly assigned to one of the two conditions: achievement prime condition or no goal condition. Participants received either course credits or money (€4; approximately US$ 5) for participating.

Procedure and Materials

On arrival at the laboratory, participants were allocated to separate cubicles. Participants started with a same lexical decision task as used in Experiment 3.1, which was announced as a "language task". Half of the participants were subliminally primed with words related to an achievement goal and half of the participants were not primed with an achievement goal, i.e. they were subliminally primed with neutral words.

After the priming procedure, participants received a moderately difficult remote associates test. Participants were asked to find a word that was associated

with three words that appeared on the screen within one minute. Ten moderately difficult associations (M = 3.01, SD = 0.77) were selected from a previously conducted pilot test, see Experiment 3.2.

Subsequently, participants were given a break of two minutes as in Experiment 3.1. During this break we asked participants to do nothing and just sit and wait until the program continued. After two minutes, the computer program automatically continued to the next task.

In the next task, conscious thoughts were measured with a sentence completion test, as in Experiment 3.1. The reason we returned to using a sentence-completion test rather than a think aloud task is practical. Processing data from a think-aloud task is very time consuming.

Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants was aware of the relationship between the lexical decision task and the remote associates test. However, the debriefing indicated that three participants saw flashes during the lexical decision task. Data from these participants were excluded, because for these participants it cannot be guaranteed that goal activation was unconscious. Furthermore, three participants gave more than 20% incorrect responses in the lexical decision task. Data from these participants were also excluded, because it cannot be guaranteed that these participants correctly followed our instructions.

Results

Performance

Participants' total number of correct solutions in the remote associates test were compared between participants who were primed with an achievement goal and participants who were not primed with an achievement goal. As expected, the analyses showed that participants who were primed with an achievement goal performed better than participants who were not primed with an achievement goal (M = 5.23, SD = 1.51 and M = 3.76, SD = 2.00, respectively), $t(41) = 2.72$, $p < .01$, $d = .83$.

Conscious Thoughts

Two independent raters who were blind for conditions coded all twenty sentences into either goal-related thoughts or no-goal-related thoughts ($\kappa = .84$, $p < .001$). Goal-related thoughts are thoughts referring to the goal to achieve (e.g., I wanted to

perform the task as good as possible.) and no-goal-related thoughts are all other thoughts. To measure goal-related conscious thoughts, scores were computed by averaging the number of goal-related thoughts as coded by the two raters.

The analyses showed that the differences between participants primed with an achievement goal and participants not primed with an achievement goal was marginally significant, $t(41) = 1.76$, $p = .086$, $d = .54$. The means showed that participants who were primed with an achievement goal reported more conscious goal-related thoughts in the sentence completion test than participants who were not primed with an achievement goal ($M = 1.50$, $SD = 0.90$ and $M = 1.02$, $SD = 0.87$, respectively).

To conclude, we replicated previous findings that participants who were primed with an achievement goal subsequently performed better in an achievement task. Furthermore, we showed (although, marginally significant) that participants who moderately failed to attain their unconsciously activated achievement goal reported more conscious thoughts about their goal compared to participants who were not primed with an achievement goal.

Experiment 3.4

The main purpose of Experiment 3.4 was to replicate the effects of problematic goal pursuit on conscious thoughts in a different domain: the goal of being honest. For this reason, participants were subliminally primed with words related to honesty or with neutral words in a lexical decision task.

After the priming procedure, participants were given a history test, in which twenty names of historical people appeared on the computer screen. Participants were asked to indicate how well they knew each person. To let participants fail on their honesty goal, we tempted them to lie on this test, by giving them ten names of non-existing people. We assumed that participants would feel uncomfortable if they had to indicate not knowing half of the names given, and therefore, we expected that they would sometimes overstate their history knowledge. For practical reasons, we only used a failure condition in Experiment 3.4. It would be very difficult to conduct an appropriate success condition in this paradigm, because not lying is the default. Therefore, a condition in which participants would not be tempted to lie would be a neutral condition rather than a success condition. To measure conscious

thoughts of participants, a modified version of the sentence-completion test as used in Experiment 3.1 was given.

Method

Participants and Design.

Fifty (18 men, 32 women) undergraduate students at the University of Amsterdam participated in the experiment. They were randomly assigned to one of the two conditions: honesty prime condition or no goal condition. Participants received either course credits or money (€4; approximately US$ 5) for participating.

Procedure and Materials

Participants worked in separate cubicles and all instructions were provided by the computer. Participants started with the lexical decision task, which was announced as a "language task". The lexical decision task was the same as used in Experiment 3.1 except for the goal-related words, which were related to an honesty goal (e.g., honest, sincere, and true) in this experiment.

After the priming procedure, participants were given a history test. Participants were told that they would see twenty names of known historical persons and they were asked to indicate how well they knew each person on a five-point scale, ranging from 1 "I don't know this person" to 5 "I know this person very well". However, for the purpose of tempting participants to overstate their history knowledge, ten of the twenty names were invented, and hence, they referred to non-existing people. Furthermore, it was explained to participants that students had indicated, in a pilot test conducted previously, that these twenty people are well-known to them. In fact, no such pilot test was conducted. To inform participants how familiar students were with the historical people, they were shown the mean score of each person, both existing and non-existing randomly, from the fictitious pilot test. For non-existing people the minimum score given was 1.8 and the maximum score given was 3.2 (M = 2.47), and for existing people the minimum score given was 2.6 and the maximum score given was 4.8 (M = 3.96).

After the history test, participants were given a break of two minutes, as in Experiment 3.1, in which they were asked to do nothing and just sit and wait until the program continued. After two minutes the computer program continued automatically to the next task.

After the break, conscious thoughts were measured in a sentence completion test. As in Experiment 3.1, we asked participants to complete the sentences with the first thing that came to mind. The following sentences were used in sequential order: "I…, I am…, I wished…, I could…, I tried…, The history test I wanted…., the history test I tried…, The history test I have…". The first five sentences were presented three times and the last three sentences were presented twice. Two independent raters who were blind for conditions coded all 21 sentences into either goal-related thoughts (i.e., I tried to respond honestly in the history test) or not goal-related thoughts ($\kappa = .87$, $p < .001$). Differences between both raters were solved after discussion.

Finally, participants were thoroughly debriefed. None of the participants was aware of the relationship between the different parts of the experiment and none of the participants saw flashes during the lexical decision task. However, five participants gave more than 20% wrong responses in the lexical decision task, therefore these participants were excluded from the analyses.

Results

Honesty

Statements about how well participants knew the historical people were compared between participants with an honesty goal and participants without an honesty goal. The analyses showed that participants who were not primed with an honesty goal overstated their history knowledge more than participants who were primed with an honesty goal ($M = 2.87$, $SD = 0.43$ and $M = 2.55$, $SD = 0.34$, respectively), $t(43) = 2.81$, $p < .01$, $d = .83$, indicating that participants who were primed with an honesty goal were more honest than participants who were not primed with that goal. Note however, that although participants primed with an honesty goal were more honest than participants not primed with that goal, they lied on average. That is, completely honest people should have an average score of 1 ("I don't know this person") for the non-existing people. However, participants primed with an honesty goal scored significantly higher than 1 for non-existing people ($M = 1.26$, $SD = 0.28$), $t(20) = 4.23$, $p < .001$, and hence, still failed to attain their goal.

Conscious Thoughts

As predicted, participants primed with the honesty goal reported more conscious goal-related thoughts in the sentence completion test than participants who were not primed with that goal (M = 1.24, SD = 1.18 and M = 0.58, SD = 0.97, respectively), $t(43) = 2.04$, $p < .05$, $d = .61$.

To summarize, Experiment 3.4 replicated the findings of Experiment 3.1, 3.2, and 3.3 in a totally different domain, indicating that the effects of goal pursuit failure on conscious thoughts are not limited to achievement goals, but can be generalized to other goals. Participants primed with an honesty goal were more honest in a history test. However, they still failed to some extent and indeed reported more conscious thoughts after failure than participants who were not primed with an honesty goal.

General Discussion

People start to think consciously about (unconsciously activated) goals when goal progress is problematic. Experiment 3.1 showed that participants primed with an achievement goal who were not able to complete the memory game within the time given subsequently completed more sentences in a goal-related way than all other participants. Thus, after being primed with a goal to achieve, participants who failed to achieve at the memory game started to think consciously about that goal.

Experiment 3.2 replicated these effects with an online measure of conscious thoughts during goal pursuit. Participants who were primed with an achievement goal and who failed to achieve at the remote associates test reported the highest number of goal-related thoughts following a think-aloud protocol. In the think-aloud protocol no concrete instructions neither hints were given. All conscious thoughts were reported spontaneously.

Experiment 3.3 showed that participants who were primed with an achievement goal performed better at a moderately difficult remote associates test compared to participants who were not primed with an achievement goal. And after they had failed to attain their unconsciously activated achievement goal to some extent, they reported more conscious goal-related thoughts than participants who were not primed with an achievement goal.

Finally, Experiment 3.4 replicated the effects of problematic goal pursuit on conscious thoughts with an honesty goal. After failure, participants primed with an

honesty goal were more honest in a subsequent history test (although they were still lying somewhat) and subsequently they reported more conscious thoughts about that goal than participants not primed with that goal.

Implications

The findings that unconsciously activated goals intrude into consciousness after failure may have implications for our understanding of conscious goal seeking. Bargh and colleagues (e.g. Bargh, 1989; Bargh, 1994; Bargh, Chen & Burrows, 1996) have usually described conscious goals as a more powerful or effortful version of unconscious goals. However, the current findings suggest that it is, at least sometimes, a sign of problematic goal pursuit when goals intrude into consciousness.

In future research, (see also Chapter 4) we need to explore whether conscious awareness of a goal in the face of failure serves a self-regulatory function or whether it is merely an irrelevant epiphenomenon (or whether it is even detrimental for goal pursuit). It is highly likely that it depends on many different factors whether conscious awareness of a goal after failure is helpful or not. For example, the difficulty of attaining a goal, the effort it takes to engage in goal-directed behavior, and the expectancies people have about goal-attainment may all moderate the effects of conscious awareness on subsequent goal pursuit. If expectancies of goal-attainment are high, the task is easy and it takes less effort to engage in goal-directed behavior, conscious awareness may help, However, if expectancies of goal attainment are low, the task is difficult and it takes a lot of effort, people often disengage from the task (Carver & Scheier, 1998; Klinger, 1975; Wright, 1996; Wrosch, Scheier, Miller, Schulz, & Carver, 2003), and this disengagement may be caused by conscious awareness of the goal. Another important factor that can potentially moderate the effects of conscious awareness of a goal after failure on subsequent goal pursuit is the cognitive resources it takes to think about your goal. That is, consciously thinking about goal pursuit failure may use up cognitive resources that are needed for engaging in goal-directed behavior (e.g. Martin & Tesser, 1996; Kuhl, 1981). More research is necessary to explore conditions under which consciously thinking about unattained goals will be helpful and under which circumstances it will not be helpful for subsequent goal pursuit.

On the exact role of failure

In the introduction of this chapter, we cast our reasoning in terms of "problematic goal pursuit", and we operationalized this as failure in our experiments. And indeed, we have demonstrated in four experiments that at a group level, failure led to an increase in conscious thoughts about the goal. It follows from our proposed underlying process that the degree to which people fail should predict the number of conscious intrusions. However, in the experiments reported in this chapter we did not find a relationship between performance (that is, degree of failure) and conscious thoughts. We would like to propose though, that failure is subjective. Some students will see a B on an exam as a failure, whereas others see this as a success. Likewise, some people who want to make a good impression on a wedding party will only be satisfied when many people explicitly express their liking of them afterwards, whereas more clumsy people may actually be happy when they only knock over one glass of wine. In that sense, it is not surprising that, on an individual level, failure in did not significantly predicted conscious thoughts. After all, it merely reflected failure from the perspective of us, the experimenters. We propose that it is highly likely that a subjective sense of failure predicts conscious thoughts. To be able to better understand the underlying process of conscious intrusions after goal pursuit failure, future research should focus on the subjective feelings of failure (rather than objective performance) to constitute the best correlate for predicting conscious intrusions.

Conclusions

In many situations people pursue goals of which they are not aware. In fact, recent research shows that the entire process, from activation until completion, can operate without conscious awareness (Bargh, 1990; Chartrand & Bargh, 1996; Fishbach, Friedman, & Kruglanski, 2003). This sounds paradoxical, as there is no denying that we are often consciously aware of our goals. In the present work, we aimed to solve this paradox by examining when people become aware of their goals. We identified one factor that can predict whether people become aware of their goals: Failure to attain the goal. Basically, as Schopenhauer already argued a long time ago, we become aware of our goals when the going gets tough.

Chapter 4

A Regulatory Function of Conscious Awareness?

Recent research has shown that people become aware of their goals in the face of obstacles. In this chapter we will begin to unravel the question whether consciousness after goal pursuit failure serves a regulatory function. Because many different factors may potentially influence the regulatory function of conscious thoughts about goals, it is impossible to fully answer this question in one line of research. In the introduction of this chapter we discuss different factors that may influence whether consciously thinking about goal pursuit failure may be helpful or not. We choose to focus only on achievement goals and we demonstrate, in two experiments, that consciously thinking about an unconsciously activated achievement goal after failure is not functional for subsequent goal pursuit, at least within the confines of the present paradigm. We discuss whether other factors may have a different impact on the regulatory function of conscious thoughts after goal pursuit failure.

This chapter is based on: Bongers, K.C.A., Dijksterhuis, A., Spears, R. (2006c). *Is consciously thinking always helpful? The regulatory functions of consciousness in goal pursuit.* Unpublished manuscript.

Imagine you are at a conference and during the morning session a lot of your colleagues are staring at you. After a while you find out that you forgot to brush your hair after you took your morning shower and it really looks like an explosion. This discovery immediately instigates many conscious thoughts about your goal to look respectable. Furthermore, these conscious thoughts will immediately motivate you to style your hair in order to look normal.

Recent research (see previous chapter; Bongers, Dijksterhuis, & Spears, 2006b) has shown that people become aware of their unconscious goals in the face of failure. Bongers, Dijksterhuis, & Spears (see previous chapter, Experiment 3.2), for instance, demonstrated that people who were primed with an achievement goal, spontaneously reported more conscious thoughts about achieving during a very difficult remote associates test, compared to participants who were not primed with an achievement goal, and compared to participants who were working on a very easy remote associates test.

In this chapter we will begin to unravel the question whether consciousness of a goal in the face of failure serves a self-regulatory function. Does it? Or is conscious awareness merely an irrelevant epiphenomenon or perhaps even detrimental for goal pursuit? We concede at the outset that this exploratory issue will not be fully answered in this chapter. One reason is that it simply cannot be answered in a single line of research, and whether conscious thoughts about a goal are helpful or not is likely to depend on many different moderators.

First of all, the goal you are pursuing itself may influence whether consciously thinking about goal pursuit failure may be helpful or not. For instance, as the opening example of this chapter suggests, consciously thinking about your chaotic hair at a conference will make you style your hair immediately in order to look respectable. So in this case, consciousness of the goal serves to correct for failures. On the other hand, receiving a rejection of your paper will instigate many conscious thoughts about your goal to intellectually achieve. However, it will not immediately motivate you to rewrite your paper. Instead, you will feel frustrated and thoughts about the time you spend on the paper may come into mind as well. So in this case, consciously thinking about goal pursuit failure is not very helpful.

Whether consciously thinking about goal pursuit failure will lead to more (or less) motivation to engage in goal-directed behavior also depends on various factors. One important factor that can potentially moderate these effects on motivation to engage in goal-directed behavior is the expectancy people have about

the attainability of the goal (e.g., Wrosch, Scheier, Miller, Schulz, & Carver, 2003). When expectancies are high, people are still motivated to attain the goal, which leads to renewed effort. However, when conscious awareness of the goal leads to low expectancies ("I'll never be able to complete this"), people are more likely to disengage from the goal and reduce effort or even quit trying (Carver & Scheier, 1998; Klinger, 1975; Wright, 1996).

According to the self-efficacy theory (Bandura, 1997) people base their expectancies concerning future performance (or goal pursuit) on previous performance (or goal pursuit). Thus, when people have failed to attain their goal in a first task, people may change their beliefs about their skills, competency, and ability to perform well in a second task. Therefore, when people fail to attain their goal in a first task, they will have lower expectancies for future performance. Hence, their motivation to engage in goal-directed behavior will decrease and it is highly likely that they perform worse at a subsequent task. However, when people succeed in attaining their goal in a first task, they will have higher expectancies for future performance and their motivation to engage in goal-directed behavior will increase, likely leading to a better performance.

We propose that goals that are activated outside awareness will be monitored the same way as consciously chosen goals (see Chapter 1; Bongers & Dijksterhuis, in press). Therefore, we expect that failing or succeeding to attain unconsciously activated goals can influence expectancies people have for future performance the same way as failure or success at consciously chosen goals do. And these expectancies can influence whether people renew or reduce effort on a subsequent task. Recently, 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 will do worse at an immediate language task. This resulted in a worse performance in a subsequent language task compared to people who succeeded tot attain their goal.

Another related factor that can potentially moderate the effects of conscious thoughts about a goal after failure on the motivation to engage in goal-directed behavior concerns the difficulty of attaining that goal. When goals are difficult to attain, people are less motivated to persist in goal-directed behavior than when goals are easy to attain. When goals are easy to attain, people will feel confident about reaching the goal and are therefore more motivated and more persistent in attaining the goal. When goals are difficult to attain, people have more doubts

concerning goal attainment which can lead to less motivation and persistence in attaining the goal (Carver & Scheier, 1998; Ozer & Bandura, 1990).

In literature concerning intrusive thoughts, it has been suggested that conscious thoughts are generally goal-directed and that these thoughts are often the product of incomplete tasks or frustrated goals (Beckmann, 1998; Klinger, 1996, 1975; Martin & Tesser, 1996). These intrusive thoughts are persistent and powerful and enter consciousness unintentionally and then interfere with what one is currently doing (Beckmann, 1998; Klinger, 1996; 1999; Lyubomirsky & Nolen-Hoeksema, 1995; Martin & Tesser, 1989, 1996; Mikulincer, 1996).

Therefore, besides these motivational factors that moderate the impact on goal directed behavior, consciously thinking about the goal itself may also influence subsequent goal pursuit. For example, becoming aware of the goal to achieve during an exam may in itself take up resources that could better be used for the exam, that is, for achieving.

Indeed, studies on concurrent cognitive tasks in desire research show that intrusive desire-related thoughts engage 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 non-smokers (Zwaan & Truitt, 1998).

To summarize, consequences of conscious goal-related thoughts on subsequent behavior are dependent on a number of potential moderators such as the cognitive resources needed in the goal-related task and the expectancies people have concerning goal-attainment. In this chapter we want to investigate whether consciously thinking about an unconsciously activated achievement goal in the face of failure will be helpful or not for subsequent goal pursuit. Because the goal itself may have an impact on the regulatory function of these conscious thoughts, as we already have argued in the beginning of this chapter, we choose to focus on one specific goal. We choose to focus on achievement goals to make these experiments more comparable with previous research (see Chapter 3; Bongers, Dijksterhuis and Spears, 2006b) where mainly achievement goals were activated.

Overview of the Experiments

In the present research we want to replicate previous findings that people start to think consciously about unconsciously activated goals when goal pursuit is frustrated (see previous chapter; Bongers, Dijksterhuis, & Spears, 2006b). More importantly, however, we want to investigate the consequences of conscious awareness of a goal. Does it serve a positive regulatory function, or is it perhaps detrimental? It is hypothesized that in the case of achievement goals, becoming consciously aware of your goal after failure is likely to be detrimental. First, when people have conscious thoughts related to an unattained goal, this thinking can interfere with performance on a subsequent task (e.g., Martin & Tesser, 1989, 1996). That is, consciously thinking about goal pursuit failure needs cognitive capacity, and due to limited cognitive resources, less cognitive capacity is left for the subsequent task. Second, when discovering that you are not able to attain your goal, you may disengage from that goal and reduce effort toward goal attainment, especially when people feel insecure about their abilities to complete the task successfully or when expectancies of future performance are low (e.g., Bandura, 1977; Klinger, 1975).

Experiment 4.1

Method

Participants and Design.

Eighty-six (24 men, 62 women) Dutch undergraduate students at the University of Amsterdam participated in the experiment, receiving either course credits or money (4 euro; approximately US$ 5). Participants were randomly assigned to one of the four conditions in a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants design.

Procedure and Materials

Participants worked in separate cubicles and all instructions were provided by the computer. Participants started with a lexical decision task, which was announced as a “language task”. In the lexical decision task participants were subliminally primed

with words related to the goal to achieve (e.g., to attain and to win) or with neutral words (e.g., to use and to drag). These words were flashed on the screen for 17 milliseconds. A forward mask (a row of X's) preceded each word for 250 milliseconds and a backward mask (again a row of X's) followed each word for 33 milliseconds. Immediately after the backward mask a word was presented on the screen. Participants were asked to indicate as quickly and as accurately as possible whether the word on the screen was an existing Dutch word or not by pressing respectively the 'c' or the 'm' on the computer keyboard. Twenty-eight words were existing Dutch words and 28 words were nonsense words, making a total of 56 trials.

After the priming procedure, participants were asked to complete a memory game. The memory game consisted of eighteen pairs of identical cards in a grid of six cards by six cards and participants were asked to find all the pairs of cards within a time given. The difficulty of the game was manipulated by giving participants either a maximum of 3 minutes to complete it (difficult condition), which was too short to complete the game or a maximum of 12 minutes (easy condition), which was time enough to complete the game.

Subsequently, participants were given a break of two minutes in which they were asked to do nothing and just wait until the program continued. We expected that such a break would strengthen the effects on conscious thoughts. After two minutes the computer program automatically continued to the next task.

Then conscious thoughts were measured with a sentence completion test. Participants were asked to complete the sentences with the first thing that came to mind. The following sentences were used in sequential order: "I..., I am..., I feel..., I wished..., I tried..., The memory game..., During the memory game I wanted to..., During the memory game I tried to...". The first six sentences were presented three times and the last two sentences were presented only once. Two independent raters who were blind for conditions coded all twenty sentences into either goal-related thoughts or no-goal-related thoughts ($\kappa = .84$, $p < 001$). Goal-related thoughts are thoughts referring to the goal to achieve (e.g., I tried to do my best at the memory game) and no-goal-related thoughts are all other thoughts. Conscious goal-related thoughts were computed by averaging the number of goal-related thoughts as coded by the two raters.

To investigate the consequences of conscious thoughts on subsequent task performance, participants were given a word search task after completing the

sentence completion test. The word search task was introduced as a pilot study. Participants were asked to search the ten given neutral words in the puzzle. In fact, only five of the given words were hidden in the puzzle. Participants were told that they could quit the puzzle when they had the feeling that they could not find any more words. The measure under interest was the motivation of participants to achieve in the puzzle, which was measured by the time participants spent on the word search task.

After the word search task, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants was aware of the relationship among different parts of the experiment. However, the debriefing indicated that seven participants saw flashes during the lexical decision task. Data from these participants were excluded, because for these participants it cannot be guaranteed that goal activation was unconscious.

Results

Performance

It was first confirmed that all participants in the easy conditions, but none of the participants in the difficult conditions, completed the memory game within the time given. Thus, in the easy conditions everyone found all the 36 cards of the memory game, while in the difficult condition none of the participants found all the 36 cards of the memory game, resulting in a main effect of task difficulty ($F(1,75) = 200.52$, $p < .001$, $\eta_p^2 = .73$), see Table 4.1. We did not expect any differences as a function of goal prime on performance at the memory game. The game was constructed in such a way that it was very easy in the easy conditions to complete the game (rendering a "ceiling effect"), whereas it was very difficult in the difficult conditions to complete the game (resulting in a "floor effect"; see Chapter 3; Bongers, Dijksterhuis, and Spears, 2006b).

		Goal	
Memory game		Achievement	Control
Easy	*M*	36	36
	SD	(0.00)	(0.00)
Difficult	*M*	19.20	18.11
	SD	(7.16)	(8.96)

Table 4.1 *Total Number of Cards found in the Memory Game (Experiment 4.1)*

Conscious Thoughts

To replicate previous findings (see Chapter 3; Bongers, Dijksterhuis, & Spears, 2006b) that participants who failed to attain their unconsciously activated achievement goal reported the most goal-related thoughts compared to participants in all other 3 conditions, we conducted a planned comparison analysis with the total number of conscious goal-related thoughts. The results indeed showed that participants in the "goal-difficult" condition reported more conscious thoughts about the goal than participants in all other 3 conditions ($F(1,75) = 4.62$, $p < .05$, $\eta_p^2 = .06$), see Table 4.2. To show that there are no other effects in our data, we also conducted the two other orthogonal contrast analyses and both were not significant (both F's < 1.60, *ns*.).

		Goal	
Memory game		Achievement	Control
Easy	*M*	1.48	2.07
	SD	(1.09)	(1.43)
Difficult	*M*	2.57	1.74
	SD	(1.41)	(1.32)

Table 4.2 *Number of Conscious Thoughts After Goal Pursuit Failure or Success (Experiment 4.1)*

To test whether participants in the goal-difficult condition reported more conscious goal-related thoughts than participants in the no goal-difficult condition, we

contrasted the two difficult conditions. The analysis showed that the difference between the goal-difficult condition and the no goal-difficult condition was marginally significant, $F(1,75) = 3.38$, $p = .07$, $\eta_p^2 = .04$, indicating that participants primed with an achievement goal reported (marginally significant) more conscious goal-related thoughts after failure than participants not primed with an achievement goal. We also contrasted the number of conscious goal-related thoughts between participants in the goal-difficult condition and participants in the goal-easy condition. The contrast analysis showed that participants in the goal-difficult condition reported more conscious goal-related thoughts than participants in the goal-easy condition, $F(1,75) = 6.30$, $p < .05$, $\eta_p^2 = .08$.

Regulatory Function

Although we predicted that participants who failed to attain their unconsciously activated achievement goal would be less motivated to achieve in a subsequent task after becoming aware of their goal, we did not have any specific a priori expectations. Therefore, to investigate the regulatory function of these conscious thoughts, the time participants spent on the word search task was subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analyses of variance (ANOVA) rather than a planned comparison analysis. The analysis showed that participants who were primed with the goal to achieve quit earlier than participants who were not primed with that goal, $F(1,75) = 9.44$, $p < .005$, $\eta_p^2 = .11$. As can be seen in Table 4.3, this effect was qualified by the two-way interaction between goal and task, $F(1,75) = 7.75$, $p < .01$, $\eta_p^2 = .09$. There was no difference between participants with and without an achievement goal in the time they spent on the word search task when they had first completed the easy memory game, $F(1,76) = 0.05$, *ns*. However, when participants had first completed the difficult memory game, a difference emerged. Participants without an achievement goal spent much more time on the word search task than participants with an achievement goal, $F(1,76) = 15.32$, $p < .001$, $\eta_p^2 = .17$, suggesting, ironically, that consciously thinking about goal pursuit failure leads to less motivation to achieve on a subsequent task. This is also supported by the correlations found between conscious thoughts and time spent on the word search task. For participants, who were primed with an achievement goal, we found a negative correlation between conscious thoughts and time spent on the word search task ($r = -.36$, $p < .05$), indicating that the more they consciously thought about their achievement goal, the

less they were motivated to spent time in the subsequent word search task. For participants who were not primed with an achievement goal, no such correlation was found (r = -.12, ns.).

		Goal	
Memory game		Achievement	Control
Easy	*M*	303	305
	SD	(99)	(93)
Difficult	*M*	219	379
	SD	(75)	(164)

Table 4.3 *Time (in Seconds) Participants Used in the Word Search Task (Experiment 4.1)*

In sum, participants who failed to attain their unconsciously activated achievement goal started to think consciously about this goal and, because of that, they reduced effort towards goal attainment in a subsequent task.

Experiment 4.2

Experiment 4.2 was designed to investigate whether impaired performance on a subsequent task was instigated by conscious thoughts about the unattained goal or only by goal pursuit failure. In other words, will goal pursuit failure lead to less motivation to perform well in a subsequent task regardless of conscious thoughts participants had? Or is reduced effort the consequence of these conscious thoughts? In Experiment 4.2, rather than measuring conscious thoughts, we manipulated the possibility to think consciously about the goal. All participants were primed with a goal to achieve, and were then given either a difficult or an easy memory game. To replicate the effects found in Experiment 4.1 on conscious thoughts, half of the participants were then given a sentence completion test. However, the other half of the participants was instead given a cognitive load manipulation to prevent them from thinking about their goal. Subsequently, all participants were given a word search task to measure the motivation to achieve. We hypothesized that participants who were not able to think consciously about their unconsciously activated goal

would not show a decrease in motivation in the word search task if conscious thought is the crucial factor.

Method

Participants and Design.

Ninety-eight (42 men, 56 women) undergraduate students at the Free University of Amsterdam were randomly assigned to one of the four conditions in a 2 (memory game: easy vs. difficult) x 2 (conscious thoughts: yes vs. no) between participants design. Participants received either course credits or money (4 euro; approximately US$ 5) for participating.

Procedure and Materials

On arrival at the laboratory, participants were allocated to separate cubicles and all instructions were provided by the computer. All participants were subliminally primed with the goal to achieve in a lexical decision task, which was announced as a "language task". This task was the same as used in Experiment 4.1.

After the lexical decision task, participants were given the same memory game as used in Experiment 4.1. To manipulate the difficulty, participants were given either 3 minutes to complete the game (which was not time enough to complete it) or 12 minutes to complete the game (which was time enough to complete it).

Subsequently, half of the participants were given the sentence completion test to measure conscious thoughts, which was the same as used in Experiment 4.1. The other half was given an *n*-back task instead (e.g. Jonides et al., 1997), to prevent them from consciously thinking about their goal. The *n*-back task consisted of 150 trials in total, in which letters or numbers appeared on the screen on a random location. Letters were used in the first 60 trials and numbers in the last 90 trials. Participants were asked to press the spacebar of the computer keyboard when the letter or number on the screen was the same as the letter or number presented two trials earlier.

Then all participants were given the same word search task as used in Experiment 4.1. In this experiment, however, instead of measuring the time participants used to solve the puzzle, the total numbers of words participants found in puzzle was measured[1].

Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants saw anything unusual in the lexical decision task and none of the participants was aware of the relationship among different parts of the experiment.

Results

Performance

It was first confirmed that all participants in the easy condition, but none of the participants in the difficult condition completed the memory game within the time given. Thus, all participants in the easy condition found all the 36 cards of the memory game (M = 36, SD = 0.00) and that none of the participants in the difficult condition found all the 36 cards of the memory game (M = 11.60, SD = 6.06), resulting in a main effect of task difficulty, $t(96) = 27.89$, $p < .001$, $d = 5.70$.

Conscious Thoughts

Half of the participants performed the sentence completion test and all thoughts were categorized as goal-related thoughts or as not goal-related thoughts by two independent raters who were blind for conditions ($\kappa = .84$, $p < .001$). To measure conscious goal-related thoughts, scores were computed by averaging the number of goal-related thoughts as coded by the two raters. As predicted, participants who performed the difficult memory game reported more conscious thoughts about the goal to achieve than participants who performed the easy memory game (M = 2.18, SD = 1.20 and M = 1.48, SD = 1.12, respectively), $t(48) = 2.13$, $p < .05$, $d = .60$.

Regulatory Function

The total number of words found in the word search task was subjected to a 2 (memory game: easy vs. difficult) x 2 (conscious thoughts: yes vs. no) between-participants analyses of variance (ANOVA). Only a main effect of memory game emerged, $F(1,94) = 9.06$, $p < .005$, $\eta_p^2 = .09$, indicating that participants who performed the difficult memory game found fewer words in the subsequent word search task than participants who performed the easy memory game, see Table 4.4. The predicted two-way interaction between memory game difficulty and ability to think consciously was not significant, $F(1,94) = 1.12$, *ns*.

		Conscious Thoughts	
Memory game		Yes	No
Easy	*M*	4.68	4.87
	SD	(0.56)	(0.34)
Difficult	*M*	4.32	4.12
	SD	(1.07)	(1.30)

Table 4.4 *Total number of words found in the Word Search Task (Experiment 4.2)*

Although we did predict this difference in total number of words found for participants who were able to think consciously about their goal, we did not predict this difference in total number of words found for participants who were not able to think consciously. Based on these findings, one might conclude that regardless of conscious awareness of the goal, goal pursuit failure leads to less motivation to engage in goal-directed behavior. However, another conclusion might be that the *n*-back task was not effective in preventing participants from consciously thinking about their goal. As was also described in the introduction of this chapter, thoughts concerning frustrated goals are persistent and powerful and enter consciousness unintentionally and then interfere with what one is currently doing (Beckmann, 1998; Klinger, 1996; 1999; Lyubomirsky & Nolen-Hoeksema, 1995; Martin & Tesser, 1989; 1996; Mikulincer, 1996). If this latter conclusion is indeed the case, then participants who did the difficult memory game could have had conscious thoughts about their goal during the *n*-back task. Because the *n*-back task needs a lot of cognitive capacity to perform well, consciously thinking about your goal has to interfere with performance on the *n*-back task. To verify this conclusion, we should find a difference in performance in the *n*-back task between participants who did the easy memory game and participants who did the difficult memory game. And this is indeed what we found: Participants who first did the difficult memory game performed less well (made more mistakes) than participants who first did the easy memory game (correct answers: $M = 128.68$, $SD = 21.31$ and $M = 138.52$, $SD = 8.11$, respectively), $t(46) = 2.08$, $p < .05$, $d = .61$, suggesting that when participants have failed to complete the memory game, they were too "cognitively busy" to perform well in the *n*-back task.

So for participants who made lots of errors in the *n*-back task, we cannot be sure whether they were distracted or not and whether they were consciously thinking about something else than the *n*-back task – i.e. their unconsciously activated goal. It seems plausible that participants who were not performing well in the *n*-back task were consciously thinking about their unconsciously activated goal during the *n*-back task, and that participants in this condition (like participants in the other difficult condition) therefore performed poorly on the word search task. If our speculations are correct, then we should find a high correlation between performance on the *n*-back task and the total number of words found in the word search task for participants who performed the difficult memory game, but not for participants who performed the easy memory game.

As expected, for participants who performed the easy memory game, there was no correlation between performance in the *n*-back task and the number of words found in the word search task, $r = .09$, ns. However, in line with our predictions, for participants who performed the difficult memory game, a significant correlation was found, $r = .67$, $p < .001$. This indicates that for participants who performed the difficult memory game, the worse they performed in the *n*-back task (and hence, we assume, the more they consciously thought about the goal to achieve), the less motivated they were to find many words in the word search task. Furthermore, these correlations were significantly different from each other, $p < .05$.

To summarize, starting to think consciously about unconscious goal pursuit failure leads to reduced effort toward goal pursuit in a subsequent task and it is likely that this reduction is due to conscious thoughts about the goal and not due to goal pursuit failure itself.

General Discussion

Experiment 4.1 and 4.2 were designed to shed more light on the regulatory function of conscious thoughts in the face of failure. In Experiment 4.1 we replicated previous findings that people start to think consciously about their unconsciously activated goal after goal pursuit failure. Furthermore, we showed that participants who were consciously thinking about their goal after failure were less motivated to achieve in a subsequent task.

In Experiment 4.2 we again replicated previous findings that participants start to think consciously about their unconsciously activated goal after goal pursuit

failure. However, the consequences of these thoughts for the regulatory function were somewhat more complicated. Although we replicated findings of Experiment 4.1 that participants who were consciously thinking about their goal after failure were less motivated to achieve in a subsequent task, we also found that participants who were put under cognitive load were less motivated to achieve in a subsequent task. This may indicate that goal pursuit failure leads to less motivation to engage in goal-directed behavior regardless of conscious awareness of the goal. However, participants who failed to achieve in the first task unexpectedly showed impaired performance on the *n*-back task. The *n*-back task is a relatively easy task to perform, but uses up many cognitive resources. This suggests that participants who showed impaired performance on the *n*-back task were cognitively busy during that task. We argue that these participants were thinking consciously about their goal pursuit failure and these thoughts interfered with cognitive resources needed to perform well on the *n*-back task. Because these participants were not distracted by the *n*-back task, and thus able to think consciously about their goal pursuit failure, motivation to achieve in the subsequent word search task decreased. This hypothesis was supported by the high correlation found between performance in the *n*-back task and the number of words found in the word search task for participants who were in the difficulty condition and thus failed to achieve in the memory game. This correlation demonstrates that the more people were thinking about something else (i.e. their unconsciously activated goal) during the *n*-back task, the less motivated they were to achieve in the word search task.

Future research is necessary to further explore the regulatory function of conscious thoughts in the face of failure. Under which circumstances will consciously thinking about unattained goals lead to enhanced motivation to achieve and when will it lead to reduced motivation? As we already argued in the introduction of this chapter, whether or not people are motivated to achieve a goal after failure depends on many different factors. For example, the difficulty of attaining your goal to achieve in a second task may have an impact on the motivation to attain that goal after failure (e.g. Carver & Scheier, 1998; Ozer & Bandura, 1990). In both experiments we described in this chapter the second task was difficult. People were not able to find all the words in the word search task, because only half of the words were hidden in the puzzle. Therefore, satisfying the goal to achieve in this task is very unlikely, and hence people reduced effort. It is

important to investigate the role of consciousness in predicting the motivation to attain your goal when subsequent goal pursuit is difficult as well as easy.

Another factor we described in the introduction of this chapter that may moderate the effects of conscious awareness of goals after failure on the motivation to attain your goal in a second task is the expectancy people have about goal pursuit attainment (e.g. Bandura, 1997; Klinger, 1975; Wright, 1996). Presumably, conscious awareness of your goal after failure will have an impact on perceived expectancies of goal-attainment. Future research is necessary to further explore the role of consciousness in adjusting expectancies about goal pursuit attainment.

According to our findings, one can conclude that consciously thinking about unattained achievement goals will lead to reduced motivation in subsequent goal pursuit. However, we do not know whether consciously thinking about other unattained goals will also lead to reduced motivation. As the opening example of this chapter suggests, consciously thinking about your goal to make a respectable impression after failing to do so, will lead to increased motivation to attain that goal later. Although difficulty of changing clothes and the expectancy to make respectable impression later on may play a role, it is interesting to investigate the role of conscious awareness in other domains than achievement goals.

For now, I would like to finish with this recommendation: Do not think consciously about your goals after failure, if you still want to attain these goals!

Endnotes

1. One might argue that spending less time on the word search task may indicate more motivation to achieve, because when the default is to quit the task after having found all the words that were in the puzzle, then these participants found the five hidden words in the task quicker. To rule this out, the total number of words found in the word search task was measured in Experiment 4.2, instead of measuring the time used on the word search task.

Samenvatting

Summary in Dutch

De meeste gedragingen zijn doel-gerelateerd. Het bewegen van mijn vingers op het toetsenbord, bijvoorbeeld, dient mijn doel een proefschrift te schrijven. En het schrijven van een proefschrift dient weer mijn doel om de graad van doctor te behalen in de Sociale Psychologie. Echter, zoals iedereen wel eens heeft ervaren, niet alle doelen worden succesvol behaald. Het bewegen van mijn vingers op het toetsenbord, bijvoorbeeld, resulteerde niet altijd in een goed leesbaar hoofdstuk van mijn proefschrift. In tegenstelling, het resulteerde ook vaak in het surfen op het internet voor een tijd, waardoor ik op het einde van de dag met een heel onvoldaan en ontevreden gevoel naar huis ging.

In recent onderzoek is aangetoond dat doelen niet altijd bewust worden gekozen, maar dat ze ook onbewust geactiveerd kunnen worden. Als deze doelen eenmaal geactiveerd zijn, dan kunnen ze gedrag sturen zonder je daarvan bewust te zijn. Zo is recentelijk bijvoorbeeld aangetoond dat mensen, waarbij een onbewust doel om te presteren wordt geactiveerd, beter presteren op een intellectuele taak dan mensen waarbij dit onbewuste presatiedoel niet wordt geactiveerd.

Dat doelen onbewust geactiveerd kunnen worden is gebaseerd op twee onderliggende ideeën. Ten eerste, doelen kunnen na verloop van tijd automatisch worden geactiveerd. Als een doel bijvoorbeeld consistent en herhaaldelijk in een specifieke situatie wordt geselecteerd, dan zal dit doel op een gegeven moment automatisch worden geactiveerd als je in die specifieke situatie komt. Als je bijvoorbeeld iedere keer als je met de trein reist een kop koffie op het station koopt,

dan zul je op een gegeven moment automatisch een kop koffie kopen als je op het station bent zonder er bewust over na te denken.

Ten tweede, doordat doelen mentaal zijn gerepresenteerd als een hiërarchische kennisstructuur met gewenste staten, acties en middelen om het doel te bereiken, kunnen doelen geactiveerd worden wanneer kenmerken in de omgeving een van deze componenten saillant maakt. Als je bijvoorbeeld 's ochtends in de keuken komt, dan kan het waarnemen van het koffiezetapparaat automatisch het doel om koffie te drinken activeren.

Zoals het voorbeeld in het begin van deze samenvatting al impliceert, niet alle gekozen doelen kunnen worden behaald. Dit geldt ook voor onbewuste doelen. Je bent niet altijd in staat om onbewust geactiveerde doelen te behalen. In dit proefschrift wordt onderzocht of het niet behalen van onbewust geactiveerde doelen dezelfde consequenties kan hebben voor iemands zelfwaardering als het niet behalen van bewust gekozen doelen. Daarnaast wordt in dit proefschrift onderzocht wat de rol van het bewustzijn is bij onbewust geactiveerde doelen die niet kunnen worden behaald.

In Hoofdstuk 1 wordt een theoretisch kader gegeven, waarin literatuur wordt beschreven dat aantoont dat doelen inderdaad kunnen worden geactiveerd zonder je ervan bewust te zijn. Tevens wordt beschreven hoe evaluatie processen werken bij bewust gekozen doelen en er wordt onderzocht of onbewust geactiveerde doelen worden gemonitored. Er wordt geconcludeerd dat mensen inderdaad in staat zijn te detecteren of doelen wel of niet worden bereikt.

Consequenties van falen voor zelfwaardering

In hoofdstuk 2 heb ik onderzocht wat de consequenties zijn van het niet behalen van onbewust geactiveerde doelen voor zelfwaarding. Het is vaak aangetoond dat mensen gemotiveerd zijn een positief zelfbeeld te krijgen en te handhaven. Wanneer mensen hun (bewust gekozen) doelen niet kunnen behalen kan iemands zelfwaarding worden aangetast. Om dan toch een positief zelfbeeld te kunnen krijgen of te handhaven, gebruiken mensen vaak zelfbeschermings-mechanismen. Als studenten bijvoorbeeld een tentamen heel slecht hebben gemaakt, dan kan dit gevolgen hebben voor hun zelfwaardering. Een vaak gebruikte manier om jezelf te beschermen is bijvoorbeeld zeggen tegen anderen dat je toch niet je best hebt gedaan of zeggen dat je vantevoren niet echt goed had geleerd. Hierdoor kan het

niet behalen van je tentamen extern worden geattribueerd (dus doordat je je best niet hebt gedaan of doordat je niet goed hebt geleerd) in plaats van intern ("Oh wat ben ik dom, omdat ik dit niet beter heb gemaakt"). Hiermee wordt een aantasting van je zelfwaardering voorkomen of hersteld. In dit hoofdstuk onderzoek ik of het niet behalen van *onbewust* geactiveerde doelen dezelfde gevolgen heeft voor zelfwaardering en het gebruik van zelfbeschermings-mechanismen.

In Experiment 2.1 en Experiment 2.2 onderzoek ik of zelfwaardering inderdaad lager is bij mensen die hun onbewust geactiveerde doel niet kunnen bereiken vergeleken met mensen die hun onbewust geactiveerde doel wel kunnen bereiken. Uit beide experimenten blijkt dat mensen waarbij een onbewust doel om te presteren is geactiveerd, een lagere zelfwaardering hebben na falen en een hogere zelfwaardering hebben na succes. Bij mensen waarbij geen onbewust doel om te presteren is geactiveerd, heeft falen of succes geen invloed op zelfwaardering.

In Experiment 2.3 onderzoek ik of mensen die hun onbewust geactiveerde doel niet kunnen bereiken zichzelf proberen te beschermen en of deze zelfbescherming leidt tot het herstellen van de aangetaste zelfwaardering. In dit experiment repliceer ik de resultaten van Experiment 2.1 en 2.2 dat het niet behalen van een onbewust prestatiedoel zelfwaardering verlaagd en het wel behalen van een onbewust prestatie doel zelfwaardering verhoogd, terwijl zelfwaardering niet wordt beïnvloed bij mensen waarbij geen prestatiedoel was geactiveerd. Nadat mensen de mogelijkheid hadden gekregen om zichzelf te beschermen ging de zelfwaardering van mensen die hadden gefaald weer omhoog en van mensen die succes hadden weer omlaag. Bij mensen die geen prestatiedoel hadden geactiveerd, was er geen verandering van zelfwaardering.

Kortom, ook wanneer mensen hun *onbewust* geactiveerde (prestatie)doelen niet kunnen behalen wordt zelfwaardering aangetast en wanneer zij deze doelen wel kunnen behalen gaat zelfwaardering omhoog. Tevens zijn mensen gemotiveerd zichzelf te beschermen als hun zelfwaardering is aangetast nadat ze hun onbewuste doelen niet hebben behaald.

Consequenties van falen voor het bewustzijn

In hoofdstuk 3 heb ik onderzocht wanneer we bewust zijn van de doelen die we nastreven en wanneer we daar niet van bewust zijn. Zoals ik heb beschreven in de introductie van deze samenvatting heeft recent onderzoek aangetoond dat doelen

onbewust geactiveerd kunnen worden. Als deze doelen geactiveerd zijn, kunnen ze ons gedrag sturen zonder dat we daar bewust van zijn. Echter, vaak zijn we ook bewust van de doelen die we nastreven. In dit hoofdstuk onderzoek ik wanneer mensen bewust worden van doelen die ze onbewust nastreven.

Recent onderzoek heeft aangetoond dat doelgerelateerde constructen verhoogd toegankelijk zijn wanneer een doel is geactiveerd. Wanneer het doel wordt behaald worden deze doelgerelateerde constructen minder toegankelijk. Wanneer het doel daarentegen niet wordt behaald, blijven deze doelgerelateerde constructen verhoogd toegankelijk. Verwacht wordt dat deze aanhoudende verhoogde toegankelijkheid ertoe kan leiden dat mensen bewust worden van hun onbewust geactiveerde doelen. Er wordt dus verondersteld dat mensen bewust worden van onbewust geactiveerde doelen als ze deze doelen niet kunnen behalen.

In Experiment 3.1 onderzoek ik of mensen over een onbewust prestatiedoel gaan nadenken als ze dit doel niet kunnen behalen. Bewuste doelgerelateerde gedachten werden in dit experiment gemeten aan de hand van een zinnen-afmaak-taak. Hierbij werd verondersteld dat hoe meer mensen over het doel om te presteren nadachten, hoe meer zinnen zij op een doel-gerelateerde manier zouden aanvullen. De resultaten laten inderdaad zien dat mensen die hun onbewust prestatiedoel niet konden behalen de meeste zinnen op een doelgerelateerde manier afmaken vergeleken met mensen die hun onbewust prestatiedoel wel konden behalen en vergeleken met mensen die geen onbewust prestatiedoel hadden geactiveerd. Dit toont dus aan dat mensen die hun onbewust geactiveerd prestatiedoel niet kunnen behalen, bewust gaan nadenken over dit doel.

Om de alternatieve verklaring te weerleggen, dat met de zinnen-afmaak-taak toegankelijkheid van het doel wordt gemeten in plaats van bewustzijn, heb ik in Experiment 3.2 bewuste gedachten online, dus tijdens de prestatietaak, gemeten. Mensen werd gevraagd om alles waar ze aan dachten tijdens de taak hardop te zeggen. Er werd benadrukt dat ze alles konden zeggen waar ze aan dachten, onafhankelijk van of het met de taak te maken had of niet. Verder werden er geen hints of andere instructies gegeven. Dus als mensen bewust over het doel om te presteren nadachten, dan zouden zij dus meer doelgerelateerde gedachten moeten rapporteren. De resultaten laten zien dat mensen die een onbewust geactiveerd prestatiedoel niet kunnen behalen meer doelgerelateerde gedachten hebben tijdens de prestatietaak vergeleken met mensen die een onbewust geactiveerd prestatiedoel

wel kunnen behalen en vergeleken met mensen die geen onbewust prestatiedoel hadden geactiveerd.

Een beperking van Experiment 3.1 en 3.2 is dat er door de moeilijkheidsmanipulatie van de prestatietaak geen effecten gevonden worden van de doelprime op de mate van presteren. Doordat de de prestatietaak in Experiment 3.1 en 3.2 zo makkelijk of zo moeilijk is, doet iedereen het respectievelijk heel goed of heel slecht. Hierdoor is het niet mogelijk effecten te vinden als gevolg van de doelprime. Om eerder onderzoek te kunnen repliceren, dat mensen die een onbewust prestatiedoel hebben geactiveerd ook beter presteren op de prestatietaak, heb ik in Experiment 3.3 een redelijk moeilijke prestatietaak gebruikt in plaats van een hele moeilijke of een hele makkelijke. Verwacht wordt dat mensen met een onbewust geactiveerd prestatiedoel beter presteren op de prestatietaak dan mensen zonder onbewust geactiveerd prestatiedoel en dat zij na de taak ook meer over het doel om te presteren nadenken dan mensen die geen onbewust prestatiedoel hadden geactiveerd. Bewuste doelgerelateerde gedachten werden weer gemeten aan de hand van de zinnen-afmaak-taak die ook is gebruikt in Experiment 3.1. De resultaten laten inderdaad zien dat mensen die een onbewust prestatiedoel hadden geactiveerd beter presteren op de prestatietaak en meer bewust over het doel om te presteren nadenken dan mensen die geen onbewust prestatiedoel hadden geactiveerd. Belangrijk hierbij is dat ook al presteren mensen met een onbewust geactiveerd prestatiedoel beter dan mensen zonder onbewust geactiveerd prestatiedoel, ze presteren nog steeds niet goed op deze taak. Oftewel, ze falen nog steeds op hun prestatiedoel.

Tenslotte heb ik in Experiment 3.4 onderzocht of de gevolgen van het niet behalen van onbewust geactiveerde doelen voor het bewust worden van deze doelen generaliseerbaar zijn. Daarvoor werd er in dit experiment een doel om eerlijk te zijn geactiveerd in plaats van een prestatiedoel. De resultaten laten zien dat mensen die een onbewust eerlijkheidsdoel hadden geactiveerd eerlijker waren dan mensen die geen onbewust eerlijkheidsdoel hadden geactiveerd en daarna ook meer over het doel om eerlijk te zijn nadachten dan mensen zonder onbewust eerlijkheidsdoel. En ook hierbij geldt dat ook al zijn mensen met een eerlijkheidsdoel eerlijker dan mensen zonder eerlijkheidsdoel, ze logen nog steeds een beetje, en dus faalden nog steeds op hun eerlijkheidsdoel.

Kortom, wanneer mensen niet in staat zijn hun onbewuste doelen te behalen gaan zij bewust nadenken over deze doelen. Deze effecten zijn niet alleen beperkt

tot onbewuste prestatiedoelen, maar kunnen worden gegeneraliseerd naar andere onbewuste doelen, zoals bijvoorbeeld een onbewust doel om eerlijk te zijn.

De regulatieve functie van bewustzijn

In hoofdstuk 4 onderzoek ik of het bewust nadenken over onbewust geactiveerde doelen na falen functioneel is bij het behalen van deze doelen in een volgende taak. Aan de ene kant zou je verwachten dat het bewust nadenken over een doel nadat je dat doel niet hebt bereikt positief zal bijdragen aan het behalen van dat doel in een volgende taak. Namelijk, je weet dat je het nog niet behaald hebt. Als je bijvoorbeeld een tentamen niet hebt gehaald, dan zul je waarschijnlijk harder gaan leren voor een hertentamen om alsnog dat vak te behalen.

Uit literatuur blijkt dat er veel factoren invloed kunnen hebben op deze regulatieve functie. Bijvoorbeeld verwachtingen die mensen hebben ten aanzien van het behalen van het doel kan een rol spelen in de motivatie om alsnog een bepaald doel na te streven. Als mensen denken dat ze een hertentamen niet kunnen behalen, zullen ze ook minder gemotiveerd zijn om te gaan leren voor dat hertentamen. Aangezien mensen hun verwachtingen vaak baseren op eerdere resultaten, zullen verwachtingen waarschijnlijk lager zijn na falen dan na succes. Dus wanneer mensen een onbewust (prestatie)doel niet kunnen behalen en ze worden daar bewust van, dan zullen ze waarschijnlijk lagere verwachtingen hebben voor toekomstig presteren, waardoor ze minder gemotiveerd zijn om voor een volgende taak hun best te doen.

Een andere factor die een rol kan spelen in de regulatieve functie is de moeilijkheid van het behalen van het doel. Wanneer het behalen van een doel heel moeilijk is, dan zullen mensen er minder vertrouwen in hebben dan wanneer het behalen van een doel heel makkelijk is. Als bijvoorbeeld het hertentamen heel moeilijk is, dan zullen mensen minder gemotiveerd zijn om te presteren dan wanneer het hertentamen een stuk makkelijker is.

Of bewust nadenken over een onbewust geactiveerd doel helpt bij het nastreven van dat doel hangt ook af van een andere niet-motivationele factor. Namelijk de cognitieve capaciteit die mensen beschikbaar hebben om het doel te kunnen behalen. Als je een onbewust doel niet hebt bereikt, en je gaat daar bewust over nadenken, dan zal het bewust nadenken juist de cognitieve capaciteit innemen die eigenlijk nodig is om het doel na te streven. Als je bijvoorbeeld tijdens het

hertentamen steeds nadenkt over hoe slecht je het vorige tentamen hebt gemaakt, dan zullen deze gedachten alleen maar interfereren met het goed maken van het hertentamen.

Er wordt dus verwacht dat mensen die bewust gaan nadenken over een onbewust geactiveerd prestatiedoel nadat ze gefaald hebben, minder goed presteren op een tweede prestatietaak. Dit heb ik in twee experimenten onderzocht. In beide experimenten repliceer ik eerst de resultaten uit Hoofdstuk 3: Mensen die een onbewust geactiveerd prestatiedoel niet kunnen behalen hebben de meeste doelgerelateerde gedachten vergeleken met mensen die een onbewust geactiveerd prestatiedoel wel kunnen behalen en vergeleken met mensen die geen onbewust prestatiedoel geactiveerd hadden. Tevens laten de resultaten zien dat mensen die in de eerste prestatietaak hebben gefaald op een onbewust geactiveerd prestatiedoel minder goed presteren op de tweede prestatietaak vergeleken met mensen die dezelfde eerste taak hadden gemaakt, maar geen onbewust geactiveerd presatiedoel hadden. Voor mensen die een makkelijke eerste taak hadden maakte het wel of niet hebben van een onbewust prestatiedoel geen verschil in de prestatie op de tweede taak. Ook laten de resultaten zien dat hoe meer mensen met een onbewust geactiveerd prestatiedoel bewust nadenken over het doel, hoe minder goed ze presteren op de tweede taak. Het lijkt er dus op dat bewust nadenken over een onbewust geactiveerd prestatiedoel niet functioneel is voor het nastreven van dit doel op een tweede taak.

Toekomstig onderzoek is nodig om meer inzicht te krijgen in de regulatieve functie van bewuste gedachten na falen, aangezien er veel factoren zijn die een rol spelen in deze regulatieve functie. Toch wil ik op basis van Experiment 4.1 en 4.2 voorzichtig concluderen dat onder bepaalde omstandigheden bewust nadenken over onbewust geactiveerde doelen na falen niet echt functioneel is voor het alsnog behalen van dat doel.

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Karin Bongers.

Biography

Karin Christina Adriana Bongers was born on May 14, 1977 in Veghel and was raised in Uden. After primary school she continued her education at the Rivendell College (indeed named after the place in the Lord of the Rings, but unfortunately changed its name into Comenius College after a merger with the St. Aloysius). After her graduation in 1995, she started to study Work & Organizational management in 's-Hertogenbosch and graduated four years later. Meanwhile, she started to study psychology at Utrecht University and switched after two years to the University of Amsterdam where she obtained her masters degree *Cum Laude* in Social Psychology in 2002. She then started her PhD-project at the University of Amsterdam, which resulted in the present dissertation. Karin currently works as a postdoctoral researcher at the department of Social Psychology of the Radboud University Nijmegen.

The "Kurt Lewin Institute Dissertation Series" started in 1997. Since 2005 the following dissertations have been published:

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