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Self-Esteem Regulation after Success and Failure to Attain Unconsciously

Activated Goals

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Abstract

People are motivated to establish and maintain a positive self-image. When people fail to attain their goals self-esteem is threatened, and this elicits the motivation to protect or repair self-esteem. We investigated whether success and failure to attain goals affects self-esteem if these goals were unconsciously activated. In three experiments, we tested and confirmed the hypothesis that self-esteem is indeed affected by success and failure to attain unconsciously activated goals. In two additional experiments, we demonstrated that people were motivated to protect or restore self-esteem after failure to attain an unconsciously activated achievement goal.

We all know that setting a goal does not always lead to successful goal-pursuit. In the new year we make plans to exercise more, but already in the second week of January we skip our intended visit to the gym. Attempts to lose weight or attempts to quit smoking very often remain just attempts and the failure to attain such goals often results in disappointment or sadness. After having struggled for an entire week, 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 cause pride and happiness.

Success and failure to attain goals not only affects various emotions, it can also influence self-esteem. Success in attaining self-relevant goals can increase self-esteem, whereas failure can decrease self-esteem. Winning a trivia quiz can make you feel very intelligent and will thereby heighten self-esteem, whereas a failure to quit smoking will make you feel like a weak person lacking willpower. The latter feeling will obviously lower self-esteem.

One question we want to address in the current research is whether success and failure to fulfill *unconsciously* activated goals will affect self-esteem. 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). Participants who were surreptitiously primed with an achievement goal performed better on a subsequent task than participants not primed with that goal (Bargh, et. al., 2001). Moreover, participants who were unobtrusively exposed to

citrus-scented all-purpose cleaner kept their table cleaner while eating a snack 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). 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 at hand (Shah, 2003).

Despite a considerable amount of research on the effects of unconsciously

activated goals on behavior and cognition, little research has examined the effects of

success and failure to attain unconsciously activated goals (but see, Chartrand, 1999;

Chartrand & Bargh, 2002; 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 activated goals. The

question we address here is whether unconsciously activated goals also affect self-

esteem, and, related to this first question, whether people also try to protect and/or

restore self-esteem as a result of failure to attain unconsciously activated goals. We

start out by exploring the first question.

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 task difficulty did not affect their mood. Chartrand (1999; Chartrand &

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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.

Riketta and Dauenheimer (2003) extended this research by examining the effects of anticipated success on mood and self-esteem. Participants were primed unconsciously with a goal to acquire knowledge or not and were then told that they were to complete a personality test in which they would receive feedback, thereby anticipating satisfying their goal to acquire knowledge. However, whereas some participants heard this announcement prior to the administration of the mood and self-esteem measures, other participants received this announcement afterwards. The results showed that when the announcement was given before measuring mood and self-esteem participants primed with the goal to acquire knowledge were in a better mood and reported higher self-esteem than participants not primed with that goal. However, when the announcement was given after measuring mood and self-esteem no such differences were found.

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 control condition rather than in the goal condition. In addition, 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. Hence, the main question we set to address - whether actual success and failure to attain an unconsciously activated goal may affect self-esteem - is still open.

Protecting and restoring self-esteem

Several studies have shown that self-esteem can be affected by success and failure (e.g., Brown & Dutton, 1995; Crocker, Sommers, & Luhtanen, 2002; Greenberg & Pyszczynski, 1985; Heatherton & Polivy, 1991). Heatherton and Polivy (1991), for example, 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. In addition, there is ample of evidence that people try to restore their self-esteem if self-esteem is threatened. People are motivated to establish and maintain a positive self-image (e.g. Covington, 1998, 2000; Steele, 1988, Tesser, 1988; Thompson, 1993, 1994).

People use many different strategies to repair their self-esteem after failure. One such strategy is to make self-serving attributions after failure. People tend to attribute failure more to external causes than to internal causes (e.g., Campbell & Sedikides, 1999; Zuckerman, 1979) and more to unstable causes than to stable causes (e.g., Feather, 1987; Menapace & Doby, 1976). For example, when you perform poorly on an exam, you can protect your self-esteem by arguing that the exam was ridiculously difficult and that 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 in a certain domain, you may argue that the domain is unimportant.

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. 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 that after a poor performance participants rated others' performances as good, regardless of whether this performance was actually poor, medium or good. The logic behind rating all performances as good is that participants who performed poorly do not need to label their poor performance as such. Conversely, after good performance participants rated other performance much more realistically (high performing others as high, medium and low performing others as low).

There is some evidence that people use self-protecting mechanisms after unconscious goal-pursuit failure. For instance, Chartrand and colleagues (see Chartrand & Bargh, 2002; Chartrand, Cheng & Tesser, 2001) showed that people who failed to attain unconsciously activated goals construed more self-serving definitions of success compared to people without unconsciously activated goals. Chartrand and colleagues argued that this form of self-enhancement was the result of the fact that participants did not know where their bad mood came from. Indeed, they showed that self-enhancement disappeared when participants were able to attribute their mood to the completed task by indicating how that task made them feel. We propose, however, that threat to the self needs to be involved and we expect that people still use self-protecting mechanisms after indicating their self-esteem.

To recapitulate, the first question we want to address in the current research is whether actual success and failure to attain an unconsciously activated goal may affect self-esteem. We predict that problematic goal pursuit will lower self-esteem compared to successful goal pursuit. A second aim is to address the consequences of such effects on self-esteem regulation. As discussed before, a substantial body of research has indicated that people are motivated to maintain a positive self-image, 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.

Experiment 1

In Experiment 1 we investigated whether success and failure to attain an unconsciously activated achievement goal will affect mood and self-esteem. To do so, we used a similar design as Chartrand (1999; Chartrand & Bargh, 2002). After being primed with an achievement goal or not participants were either given a difficult or an easy version of the Raven Progressive Matrices Test (Raven, 1941). Subsequently mood and self-esteem were measured. Mood was measured to make it easier to compare our findings to the work by Chartrand (1999; Chartrand & Bargh, 2002) and to the work by Riketta and Dauenheimer (2003). However, our most important dependent measure constitutes self-esteem. 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.

Method

Participants and Design.

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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 words in random order. 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 all participants from becoming motivated to

achieve on this test, we introduced it as filler (see also, Chartrand, 1999; Chartrand &

Bargh, 2002). We expected that introducing this task as a filler would make

performance in this task less relevant for participants without an unconsciously

activated achievement goal. However, for primed participants, performance in this test

was expected to become relevant. The difficulty of the task was manipulated by

giving participants either ten very easy items (easy condition) or ten very 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. Afterwards, 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 the 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."), we reasoned that our manipulation may affect social self-esteem as well. Finally, succeeding or failing to attain an achievement goal was not expected to influence appearance self-esteem.

Finally, participants were thoroughly debriefed. 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 take the Raven test seriously (they used less than 6 seconds per item).

Results

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 analysis of variance (ANOVA). The analysis confirmed that participants in the easy conditions performed better than participants in the difficult conditions ($M = 8.31$, $SD = 1.68$ and $M = 3.00$, $SD = 2.11$, respectively), $F(1,86) = 170.88$, $p < .001$, $\eta_p^2 = .66$. No effects of goal emerged, both F's < 0.1.

Mood

The item scores of the mood scale ($\alpha = .92$) were averaged and subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analysis of variance (ANOVA). The analysis revealed a significant main effect of task $F(1,86) = 12.93$, $p = .001$, $\eta^2 = .13$, indicating that participants who accomplished the easy Raven test were in a better mood than participants who accomplished the difficult Raven test ($M = 6.75$, $SD = 1.23$ and $M = 5.80$, $SD = 1.27$, respectively). The two-way interaction of goal and task failed to reach significance, $F(1,86) = 2.29$, *ns*.

Self-esteem

Preliminary analyses showed that, as expected, performance self-esteem and social self-esteem were affected by our manipulation, whereas appearance self-esteem was not. We obtained this pattern in all studies, and all analyses on the SSES were done on a combination of performance self-esteem and social self-esteem.

The item scores of the SSES ($\alpha = .87$) were subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analysis of variance (ANOVA). The analysis revealed a main effect of task, $F(1,86) = 9.28$, $p < .005$, $\eta_p^2 = .10$, indicating that participants reported higher self-esteem after the easy

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Raven test than after the difficult Raven test, see Table 1. As expected, this main

effect was qualified by the two-way interaction between goal and task, $F(1,86) = 7.27$,

$p < .01$, $\eta_p^2 = .08$. Analyses of simple main effects indicated that for participants

primed with an achievement goal, those who accomplished the easy Raven test

reported higher self-esteem than those who accomplished the difficult Raven test,

$F(1,87) = 16.61$, $p < .001$, $\eta_p^2 = .16$. We did not find a difference for participants not

primed with the goal to achieve, $F(1,87) = 0.06$, ns.

We also analyzed the effects on self-esteem controlling for differences in

mood. Scores of the self-esteem scale were subjected to a 2 (goal: achievement vs. no

goal) x 2 (task: easy vs. difficult) between-participants analysis of variance (ANOVA)

with mood as a covariate. This analysis revealed that the effects on self-esteem were

still significant after controlling for differences in mood, $F(1,85) = 4.87$, $p < .05$, $\eta^2 =$

.05. Therefore, we can conclude that the manipulation did affect self-esteem and that

this is at least partly independent of a more general emotional reaction.

The results of Experiment 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. However, we did not replicate the two-way interaction of goal and

task on mood that was reported by Chartrand (1999; Chartrand & Bargh, 2002). It

may be the case that participants perceived the Raven test we used in this experiment

as more diagnostic for academic performance than the tasks used by Chartrand, and

hence, that participants' mood was influenced by the performance on that task

regardless of goal-activation. After all, performing well on an academic test may

improve your mood simply because it feels good to do well, and this effect may occur

irrespective of an achievement goal. The opposite may have been true for participants

who performed poorly. Performing poorly on an academic test does not feel good and results in a worse mood. Moreover, one big difference between Chartrand's instructions and ours is that she told participants that the data would not be collected. Although we did introduce this task as a filler task like Chartrand did, we did not tell our participants that the data would not be collected. So despite of introducing the task as a filler task, perhaps our participants may have seen the task as at least somewhat relevant or important. We assume that as long as the task is at least relevant, success or failure may instigate effects on mood, irrespective of the goal one is pursuing.

In contrast with previous research (e.g. Bargh, Gollwitzer, Lee-Chai, Barndollar & Trötschel, 2001), we did not find any differences as a function of goal prime. However, the difficulty of the goal task in previous research has never been manipulated and when manipulated performance on that task was not reported. One possibility for the lack of finding differences is that actual performance on a very easy or very difficult goal task is not the best way to measure differences in motivation. For example, if you do not know the answer on a very difficult question, the motivation to answer the question correctly will not necessarily result in giving the right answer. If it was, then all motivated students would always pass a difficult exam. Most likely, motivation to perform well will reflect in the time you use to find a good solution. Therefore, we think that actual performance on a very easy or very difficult task will be too insensitive to find motivational differences.

<div align="center">Experiment 2</div>

The main purpose of Experiment 2 was to replicate the effects of successful and problematic goal-pursuit on self-esteem with a subliminal priming procedure. Furthermore, we used a different task difficulty manipulation to examine the effects of goal-pursuit success and failure on mood and self-esteem. In Experiment 2

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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

Upon arrival in 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)[2]. This task was announced as a "pilot study for language use". We named it a pilot study to make the task less relevant. Participants were given eight letters and they were asked to create as many Dutch words as possible 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. After 6 minutes, the computer program automatically continued.

After the scrabble task, the mood scale (the same as in Experiment 1) and the SSES were administered. In this experiment mood was measured on a 17-point scale (-8 to +8) and state self-esteem was measured on 5-point Likert scales.

Finally, participants were thoroughly debriefed. Funneled debriefing indicated that none of the participants saw something unusual or notice any flashes during the lexical decision task and none of the participants was aware of the relationship among different parts of the experiment.

Results

Performance

It was confirmed that participants in the easy conditions created more Dutch words in the scrabble task than participants in the difficult conditions (*M* = 26.97, *SD*

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= 12.70 and M = 12.14, SD = 5.18, respectively), $F(1,66)$ = 40.93, p < .001, η^2 = .38.

Like in Experiment 1, there were no differences as a function of goal prime on

performance, both F's < 0.3, 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

analysis of variance (ANOVA). The analysis revealed a marginally significant main

effect of task $F(1,66)$ = 3.66, p = .06, η_p^2 = .05, suggesting that participants in the

easy conditions were in a better mood than participants in the difficult conditions (M

= 4.43, SD = 1.88 and M = 3.33, SD = 2.53, respectively). The two-way interaction of

goal and task again failed to reach significance, $F(1,66)$ = 0.54, ns.

Self-esteem

The item scores of the SSES (α = .85) were subjected to a 2 (goal:

achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analysis of

variance (ANOVA). The expected two-way interaction between goal and task

emerged, $F(1,66)$ = 7.77, p < .01, η_p^2 = .11, see Table 1. Analyses of simple main

effects showed that participants primed with an achievement goal reported higher self-

esteem after the easy scrabble task than after the difficult scrabble task, $F(1,67)$ =

7.86, p < .01, η_p^2 = .11, whereas no such difference emerged for participants not

primed with the goal to achieve, $F(1,67)$ = 1.55, ns.

Again, we analyzed the effects on self-esteem controlling for differences in

mood. Scores of the self-esteem scale were subjected to a 2 (goal: achievement vs. no

goal) x 2 (task: easy vs. difficult) between-participants analysis of variance (ANOVA)

with mood as a covariate. The results showed that the effects on self-esteem were still

significant after controlling for differences in mood, $F(1,65)$ = 7.06, p = .01, η^2 = .10.

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The results of Experiment 2 replicated the findings of Experiment 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. Whereas we used the same task as Chartrand (1999; Chartrand & Bargh, 2002) in this experiment, we again failed to replicate the interaction effect between goal and task on mood. Like in Experiment 1, we did not tell our participants that the data would not be collected. Therefore, our participants might have seen the task again as somewhat relevant or important, hence, instigating effects on mood irrespective of the goal one is pursuing.

Experiment 3

One problem of Experiment 1 and Experiment 2 is that we did not show any differences in performance as a function of our goal-prime manipulation. To be able to show differences as a function of our goal-prime manipulation in Experiment 3 we used a different achievement task. Specifically we used a Dutch version of the remote associates test (Bongers, Dijksterhuis, & Spears, 2008) that was either very difficult or very easy. To disentangle the motivation to perform well and actual performance as a result of our task difficulty manipulation participants were given an opportunity to try multiple times in case of an incorrect answer. Therefore, the motivation to perform well is indicated by the time participants used to find the correct answer rather than the number of correct answers that is mainly influenced by the difficulty manipulation of the task. Furthermore, we changed the order in which mood and self-esteem were measured. Rather than measuring mood before self-esteem is measured, as we did in Experiment 1 and 2, we first measured self-esteem and subsequently mood in Experiment 3.

Method

Participants and Design.

Eighty-eight (24 men, 64 women) undergraduate students at the Radboud University in Nijmegen participated in the experiment, receiving either course credits or money (2 euro; approximately US$ 2.50) 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

Upon arrival at the laboratory, participants were allocated to separate cubicles. All instructions were provided by the computer. Participants started with the same scrambled sentences task (Srull & Wyer, 1980) as used in Experiment 1 to prime an achievement goal or not.

Subsequently, participants were given the Dutch version of the remote associates test (Mednick, 1962; Bongers, Dijksterhuis, & Spears, 2008). Three words appeared on the screen and participants were asked to give a fourth word that was associated with all three words given. To manipulate the difficulty of the task participants were given 10 difficult associations or 10 easy associations (see, Bongers, Dijksterhuis, & Spears, 2008). To measure motivation to perform well participants were given the opportunity to try more often to find the correct solution. After each answer participants were given feedback on whether the answer was correct or not. If the answer was correct, participants received an announcement that their answer was correct and that the next association would appear on the screen. However, if the answer was not correct, participants received an announcement that their answer was incorrect. Furthermore, they were asked whether they would like to try again or whether they would prefer to continue with the next association. We did not expect any differences in the easy conditions, because participants will answer almost all

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associations correctly the first time. However, we did expect a difference in the difficult conditions in the number of trials and the time used to guess the correct association. Therefore, we expect to find an interaction effect between goal and task on the number of trials and the time used to give the correct association.

After the remote associates test we first measured self-esteem and subsequently mood. Self-esteem and mood were measured on 100-point scales. A line with two scale ends below the questions regarding mood and self-esteem were presented 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. Then, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants was aware of the purpose of the experiment none of the participants noticed a particular pattern or theme to the words in the scrambled sentences task.

<div align="center">Results</div>

Performance

Participant's 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 analysis of variance (ANOVA). The analysis demonstrated that participants in the easy conditions gave more correct solutions than participants in the difficult conditions, $F(1,84) = 777.18$, $p < .001$, $\eta_p^2 = .90$ ($M = 9.18$, $SD = 0.99$ and $M = 1.57$, $SD = 1.47$, respectively). We did not find any effect of our goal prime manipulation on the number of correct solutions, both F's < 1.

To investigate whether participants in the difficult conditions were more motivated to perform well after being primed with an achievement goal, the number of trials, the total time they took, as well as the average time per trial participants used

were subjected to three separate 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants analysis of variance (ANOVA). For all three we found a main effect of task difficulty, indicating that participants in the difficult conditions tried more often ($F(1,84) =$ 59.36, $p < .001$, $\eta_p^2 = .41$), spent more time per trial ($F(1,84) =$ 47.06, $p < .001$, $\eta_p^2 = .36$) and spent more time in total ($F(1,84) = 91.41$, $p < .001$, $\eta_p^2 = .52$) than participants in the easy conditions, see Table 2.

Although we did not find a main effect of goal or an interaction effect between task and goal (both $F's < 1$) for the number of trials participants used, we did find effects of our goal prime manipulation for the time participants spend in total as well as the time they spent per trial. We found a marginally significant interaction between task and goal for the total time spent on the task, $F(1,84) = 3.09$, $p = .08$, $\eta_p^2 = .04$. Analyses of simple main effects showed that in the difficult conditions participants primed with an achievement goal spent more time to find the correct solution than participants not primed with that goal, $F(1,84) = 5.73$, $p < .05$, $\eta_p^2 = .06$, whereas in the easy conditions no such difference emerged $F(1,84) =$ 0.04, *ns.* In addition, we found a marginally significant main effect of goal for average time per trial, $F(1,84) = 3.15$, $p = .08$, $\eta_p^2 = .04$, suggesting that participants who were primed with an achievement goal spent more time per trial than participants who were not primed with that goal. As predicted, we also found an interaction effect between task and goal, $F(1,84) =$ 5.30, $p < .05$, $\eta_p^2 = .06$. Analyses of simple main effects demonstrated that participants in the difficult conditions spend more time per trial to find the correct solution when primed with an achievement goal compared to when not primed with that goal, $F(1,85) =$ 9.27, $p < .01$, $\eta_p^2 = .10$, whereas in the easy conditions no such difference emerged $F(1,85) =$ 0.09, *ns.*

Self-esteem

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The item scores of the SSES ($\alpha = .83$) were subjected to a 2 (goal:
achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants analysis of
variance (ANOVA). The analysis revealed a main effect of task, $F(1,84) = 7.58$, $p <$
.01, $\eta_p^2 = .08$, indicating that participants reported lower self-esteem after the difficult
remote associates test than after the easy remote associates test, see Table 1. This
main effect was qualified by the marginally significant two-way interaction between
goal and task, $F(1,84) = 3.54$, $p = .06$, $\eta_p^2 = .04$. Analyses of simple main effects
showed that participants who were primed with an achievement goal reported lower
self-esteem after the difficult remote associates test than after the easy remote
associates test, $F(1,85) = 12.27$, $p = .001$, $\eta_p^2 = .13$, whereas no difference emerged
for participants who did not have activated an achievement goal, $F(1,85) = 0.45$, *ns*.

Mood

The item scores of the mood scale ($\alpha = .94$) were averaged and subjected to a
2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants
analysis of variance (ANOVA), revealing a significant main effect of task difficulty,
$F(1,84) = 5.93$, $p < .05$, $\eta_p^2 = .07$, indicating that participants who did the difficult
remote associates test were in a worse mood than participants who did the easy
remote associates test. Furthermore, the interaction between goal and task was
marginally significant, $F(1,84) = 3.19$, $p = .08$, $\eta_p^2 = .04$. Analyses of simple main
effects revealed that participants who were primed with an achievement goal were in a
worse mood after the difficult remote associates test than after the easy remote
associates test ($M = 58.10$, $SD = 14.68$ and $M = 72.50$, $SD = 18.20$, respectively),
$F(1,85) = 10.11$, $p < .01$, $\eta_p^2 = .11$, whereas for participants who were not primed
with an achievement goal task difficulty did not affect mood ($M = 65.89$, $SD = 16.36$

after the difficult remote associates test and $M = 68.11$, $SD = 14.23$ after the easy remote associates test), $F(1,85) = 0.23$, *ns.*

In sum, when achievement motivation and actual performance are disentangled differences as a function of our goal prime manipulation appeared. When facing difficulties in a task, people who are primed with an achievement goal invest more time to find the correct solution than people who are not primed with the goal. Furthermore, we replicated findings of Experiment 1 and 2 showing that self-esteem is lower after goal-pursuit failure and higher after goal-pursuit success. Task-difficulty did not affect self-esteem of participants who did not have an achievement goal activated. Interestingly, when mood is measured after self-esteem consequences for mood are more pronounced after being primed with an achievement goal.

Experiment 4

Experiment 4 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. Rather than measuring self-esteem after failing or succeeding, in this experiment we investigated whether people show a self-serving bias. We expected that failure would be attributed externally and success internally and that this effect would be more pronounced when a goal to achieve was activated unconsciously compared to when no goal was activated.

Method

Participants and Design

Seventy-four (18 men, 56 women) undergraduate students at the Radboud University in Nijmegen participated in the experiment, receiving either course credits or money (2 euro; approximately US$ 2.50) for their participation. They were

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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

Upon arrival in the laboratory, participants were allocated to separate cubicles and told that all instructions would be provided by the computer. Participants started with the lexical decision task as used in Experiment 2 to activate an achievement goal or not. Then they continued with the Raven test that was either difficult or easy, as used in Experiment 1.

After participants completed the Raven test, we measured whether participants responded in a self-serving manner. In other words, we assessed whether they would attribute failure to external and unstable causes and success to internal and stable causes. To do so, participants were given four statements: "My performance on the task is a good indicator for how I generally perform these kinds of tasks" (stable); "It feels as if my performance on the task is caused by unforeseen circumstances" (external); "I had a prominent influence on my performance on the task" (internal); and "My performance on the task has nothing to do with my qualities to do these kind of tasks" (unstable). Participants were asked to indicate to what extent they agreed with each statement on a 7-point scale ranging from 1 'totally not agree' to 7 'totally agree'.

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 saw any flashes during that task.

Results

Performance

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The number of correct answers on the Raven test were analyzed with a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants analysis of variance (ANOVA). The findings indicate that participants in the easy conditions gave more correct answers than participants in the difficult conditions, $F(1,70) = 210.12$, $p < .001$, $\eta_p^2 = .75$ ($M = 7.59$, $SD = 1.85$ and $M = 2.00$, $SD = 1.45$, respectively). Consistent with Experiment 1 no effects of our goal-prime manipulation emerged, both F's < 2.3, *ns*.

Self-serving bias

The scores on the statements measuring stable and internal qualities were recoded and the self-serving bias was computed by averaging the scores of the four statements. These scores were subjected to a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between participants analysis of variance (ANOVA). Besides a main effect of task difficulty, $F(1,70) = 34.68$, $p < .001$, $\eta_p^2 = .33$, a marginally significant interaction effect appeared, $F(1,70) = 3.31$, $p < .08$, $\eta_p^2 = .05$. As can been seen in Table 3, these findings indicate that people who performed the difficult task attributed their performance more to unstable and external causes rather than to stable and internal causes, whereas people who performed the easy task attributed their performance more to stable and internal causes rather than to unstable and external causes. Importantly, this effect is more pronounced for people who had an activated achievement goal.

Experiment 5

In Experiment 4 it was shown that people who were not able to attain their unconsciously activated achievement goal were motivated to protect their self-esteem by attributing their failure to external and unstable causes. The aim of Experiment 5 was to investigate whether such protection strategies indeed enhance self-esteem. In

order to do so, participants were again primed with the goal to achieve or not and were then given either the difficult or the easy version of the Raven test.

After measuring mood and self-esteem, we investigated 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. We asked all participants to judge a mediocre paper of a peer student. Participants were told that different professors often vary wildly in their assessments of similar papers 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, and hence, that they would give 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 (or at least to a lesser extent) expect such 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

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would show an increase in self-esteem. 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 5 was identical to the procedure of

Experiment 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. After that, mood and state self-esteem were

administered. We wanted to prevent participants at time 2 from remembering their

answers at time 1. Therefore, we measured mood and self-esteem on 100-point scales

as we did in Experiment 3. After completing the SESS, participants were asked to

judge a paper written by a peer student. In the cover story participants were told that it

frequently happened that very similar papers were judged differently 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 take the Raven test

seriously (used less than 6 seconds per item). These participants were excluded from

the analyses.

<div align="center">*Results*</div>

Performance

Participants' total number of correct answer in the Raven test was subjected to

a 2 (goal: achievement vs. no goal) x 2 (task: easy vs. difficult) between-participants

analysis of variance (ANOVA). The analysis confirmed that participants in the easy

conditions performed better than participants in the difficult conditions (M =7.57, SD

= 2.39 and M = 2.27, SD = 1.76, respectively), $F(1,93) = 152.33$, $p < .001$, $\eta_p^2 = .62$.

As expected, and consistent with Experiment 1, 2 and 4, no effects of goal emerged,

both F's < 0.6, *ns*.

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 analysis of

variance (ANOVA). Indeed, the two-way interaction between goal and task emerged,

$F(1,93) = 4.66$, $p < .05$, $\eta_p^2 = .05$, see Table 4. 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

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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, $F(1,94) = 1.80$, 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, $F(1,94) = 6.34$, $p < .05$, $\eta_p^2 = .06$.

These findings indicate that participants who failed to attain their unconsciously activated goal gave higher grades than participants who succeeded to attain their goal, and than participants who performed the difficult Raven test but without having a goal. Indeed, participants who failed to attain their goal lowered the standards for others' performance to make their own performance better.

Mood

To investigate the changes in mood the item scores of both mood scales ($\alpha = .93$ at time 1 and $\alpha = .94$ at time 2) were averaged and subjected to a repeated measures analysis 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 test of within-participants revealed a two-way interaction between task and time, $F(1,93) = 18.09$, $p < .001$, $\eta_p^2 = .16$, 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. The three-way interaction of task, goal and time failed to reach significance, $F(1,93) = 0.93$, ns.

Self-esteem

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To investigate the changes in self-esteem the item scores of the SSES (α = .86 at time 1 and α = .88 at time 2) were averaged and subjected to a repeated measures analysis of variance (ANOVA). 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-participants variable.

At time 1, the predicted two-way interaction between goal and task emerged, $F(1,93)$ = 4.23 $p < .05$, η_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, $F(1,94)$ = 6.93, $p = .01$, η_p^2 = .07, whereas no differences emerged for participants not primed with that goal $F(1,94)$ = 0.06, ns., see Table 5. As expected, we found no such differences at time 2, all F's < 1.4, ns. Furthermore, to investigate whether the increase in self-esteem was reliable for participants 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, $t(23)$ = 3.25, $p < .005$, d = .22.

The test of within-participants revealed a two-way interaction between task and time, $F(1,93)$ = 6.42, $p < .05$, η_p^2 = .07, showing that at time 1 participants reported lower self-esteem after performing the difficult Raven test than after performing the easy Raven test (M = 61.54, SD = 11.55 and M = 65.45, SD = 12.34, respectively), whereas this difference was absent at time 2 (M = 64.76, SD = 11.81 after the difficult test and M = 65.176, SD = 13.51 after the easy test). The three-way interaction of task, goal and time was marginally significant, $F(1,93)$ = 3.24, $p < .08$, η_p^2 = .03.

In sum, participants who failed to attain their unconsciously activated achievement goal reported lower self-esteem after failure than participants who

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succeeded to attain that goal, whereas no difference was found for participants who were not primed with the goal to achieve. Also, participants who failed to attain their unconsciously activated achievement goal were able to restore their self-esteem by giving a higher grade for the paper, resulting in enhanced self-esteem afterwards. Like Experiment 1 and 2, we did not replicate the interaction effect between goal and task on mood (Chartrand, 1999; Chartrand & Bargh, 2002). Again, we did not tell participants that the data would not be collected, nor did we measure self-esteem before measuring mood as we did in Experiment 3.

Discussion

Unconsciously activated goals, self-esteem and mood

The current research showed that success and failure to attain unconsciously activated goals affect self-esteem. Goal pursuit failure results in lower self-esteem compared to goal pursuit success. Furthermore, people are motivated to protect their self-esteem when it is threatened after failing to attain an unconsciously activated goal. Experiment 1 showed that people who were primed with the goal to achieve reported lower self-esteem after doing a difficult Raven test than after doing an easy Raven test, indicating that goal pursuit failure lowered 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. Experiment 2 replicated the effects of Experiment 1 with a subliminal priming procedure and a different task manipulation.

In Experiment 3 we replicated previous findings (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar & Trötschel, 2001) that people who were primed with an achievement goal were more motivated to perform well in a subsequent task compared to people who were not primed with that goal. In our experiment, this was especially the case when facing difficulties in the task.

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Although previous findings (Chartrand, 2001) have demonstrated that mood was affected by task difficulty only after being primed with a goal, we found evidence for mood to be affected by task difficulty regardless of goal activation. We assume that performing well on almost any (somewhat relevant) task may lead to a positive feeling whereas performing poorly may lead to a negative feeling. However, when people are pursuing a goal to achieve, a good or a bad performance on an achievement task may be more applied to the self. Therefore, a good or a poor performance may affect self-esteem only when it is relevant for a current goal. This reasoning is supported by the analyses in Experiment 1 and Experiment 2, indicating that the effects on self-esteem remained after controlling for differences in mood.

Self-esteem protection

In Experiment 4 and 5 we showed that people were motivated and able to protect self-esteem after failing to attain unconsciously activated goals. Experiment 4 showed that participants attributed failure externally and success internally and that this effect was more pronounced when a goal to achieve was activated unconsciously. Furthermore, Experiment 5 demonstrated that 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 by judging a mediocre paper of a peer student rather favorably. Future research may 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 engage in stereotyping after failing to attain an unconsciously activated goal (Fein & Spencer, 1997).

Implications and future research

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In our experiments we measured self-esteem explicitly. It would be interesting to examine whether implicit self-esteem will be affected as well. Because goals were activated unconsciously, the effects on an implicit measure of self-esteem may even be stronger than the effects on an explicit measure of self-esteem. Another interesting idea is to measure implicit and explicit self-esteem before the experiment to distinguish people with *secure* high self-esteem from people with *fragile* high self-esteem. People with high explicit self-esteem and high implicit self-esteem have secure high self-esteem, whereas people with high explicit self-esteem and low implicit self-esteem have fragile high self-esteem (Kernis, Abend, Goldman, Shrira, Paradise, & Hampton, 2005). Recent research has demonstrated that people with fragile high self-esteem are more prone to react defensively to negative feedback than people with secure high self-esteem (Bosson, Brown, Zeigler-Hill, & Swann, 2003; Epstein & Morling, 1995; Jordan, Spencer, & Zanna, 2002). This suggests that people with fragile high self-esteem will be more likely to protect their self-esteem after failing to attain an unconsciously activated goal than people with secure high self-esteem.

Future research may also explore whether goals differ in how threatening they are. In the current research we only used unconsciously activated achievement goals. However, failing to attain some goals might be more threatening than failing to attain others, and hence, they may instigate more defensive reactions.

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

such unconsciously goals will lead to lower self-esteem and to the use of self-

protective mechanisms.

Notes

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. The scrabble task we used in Experiment 2 is comparable with the anagram task used by Chartrand (1999). However, we named it the "scrabble task", since the task at hand resembles the well-known game.

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