

SOCIAL STEREOTYPES AND AUTOMATIC GOAL PURSUIT

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Our repertoire of social behavior may include the ability to grasp and take on the goals of others automatically—that is, without conscious intent. Two experiments tested and confirmed the hypothesis that priming social groups causes individuals to pursue the goals stereotypical for members of those groups. Study 1 found that participants provided more feedback to help another person optimizing a computer task after subliminal priming of social groups associated with a helping goal. Importantly, these goal priming effects were qualified by goal strength: participants helped more when the concept of helping more strongly preexisted as a goal or desired state in the participant's mind. Study 2 established that participants worked harder on an unrelated task instrumental in attaining the goal to make money after priming social groups related to this goal. Implications for stereotype activation and automatic goal pursuit are discussed.

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Several lines of experimentation suggest that most of our social behavior occurs in an automatic fashion and originates in the unconscious. The actual source of human behavior may often be beyond the grasp of conscious awareness (Wegner, 2002; Wilson, 2002). This notion does not only pertain to simple motor movements but also to behavior resulting from higher cognitive processes such as our goal pursuits (Bargh, 1990). Recent research suggests that goals can be elicited by mental processes that are put into motion by features of the social environment, and that goal pursuit can subsequently start and operate outside of conscious awareness to direct perception and behavior in the course of goal attainment (for an overview, see e.g., Custers & Aarts, 2005; Moskowitz, Li, & Kirk, 2004). That is, people are capable of setting and pursuing goals automatically—without conscious thought or intent—as their goals may be activated upon the perception of, and interaction with other people. The present research examined the potential social triggers of automatic goal pursuit. Specifically, in two experiments we tested whether the mental representations of stereotyped groups contain the goals that are believed to be held by that group. A representation that includes goal concepts would have the effect of perceivers automatically pursuing the goals that are stereotypical for the social group that has been primed.

AUTOMATIC GOAL PURSUIT

Central to the idea of automatic goal pursuit is the assumption that goals are mentally represented as desired states that may pertain to behaviors (e.g., to perform well, to help other people) or to an outcome (e.g., to own money, to be proud of oneself; see summaries by Carver & Scheier, 1998; Gollwitzer & Moskowitz, 1996). Although often implicitly assumed, conceptualizing goals as representations of desired states suggests the operation of two informational features: (a) a cognitive one that provides the knowledge of the state that has to be met; and (b) an affective-motivational one that signals the individual that the state has incentive value, and is desired and worth pursuing. Thus, activation of a goal state directs as well as energizes activity towards the attainment of the goal (e.g., Geen, 1995; Hyland, 1988; Toates, 1986).

Furthermore, goals are assumed to be part of mental structures including situations, the goal itself, and actions that may aid goal pursuit. This implies that goals can be primed by situational cues (Aarts & Dijksterhuis, 2000; Bargh & Gollwitzer, 1994; Kruglanski et al., 2002). Importantly, goal priming effects are more pronounced when there is a desire to attain the primed goal state. For instance, priming people with the goal of quenching thirst only enhances the selection of thirst-reducing items if participants are indeed already thirsty (Strahan, Spencer, & Zanna, 2002). Nonconsciously activated goals, then, are likely to put in motion if a primed goal construct already exists as an incentive or desired state in the mind of the individual (Fitzsimons & Bargh, 2004; see also Lewin, 1951). In other words, one can only prime goals when they are there.

Previous empirical work used conceptual priming procedures to test whether goals can be activated and pursued automatically (Bargh et al., 2001; Chartrand & Bargh, 1996; Hassin, 2005). This research has established that direct priming of goals via exposure to words that are closely related to them exerts an unconscious influence on action in a subsequent goal-relevant situation. For instance, Bargh and colleagues (2001) unobtrusively exposed participants to words such as “strive” and “succeed” to prime the achievement goal (a goal held by most students, although not always in operation), and then gave them a task measuring performance (finding as many words as possible in an anagram puzzle task). Results indicated that participants primed with the achievement goal outperformed those who were not primed with the goal. Bargh et al. (2001) also demonstrated that goal priming leads to qualities associated with motivational states or “goal-directedness,” such as persistence, flexibility and increased effort in working for the goal.

SOCIAL TRIGGERS OF AUTOMATIC GOAL PURSUIT

The research described above provides evidence that motivational, goal-directed behavior can be automatically put into motion if the representation of the goal is directly primed. Recently, researchers have started to identify the specific aspects in the social environment that may trigger goals and thus cause people to automatically set and pursue goals. It has been shown that goals

and resultant actions may be activated by exposure to names of significant others whose goals are recurrently acted on in the past (Fitzsimons & Bargh, 2003; Shah, 2003). For example, capitalizing on the notion that the goal of helping is part of, and strongly associated with relationships with good friends, Fitzsimons and Bargh (2003) found that participants that were instructed to think of a good friend (compared to a control group) were more willing to help the experimenter on a subsequent task.

Aarts and colleagues (Aarts, Gollwitzer, & Hassin, 2004) identified another antecedent of nonconscious goal pursuit. Specifically, they proposed and empirically corroborated the idea that goals inferred from another person's actions may be readily adopted when these goals signify a positive, desired state for the perceiver—and thus people engage in goal-directed behavior in a rather nonconscious manner upon observing another person's goal pursuits. Aarts et al. (2004; Aarts & Hassin, 2005) labeled this automatic encoding and pursuit of the goals implied by other persons *goal contagion* to provide a general account for the social process by which our needs, desires and goals may materialize automatically in the presence of others in everyday life. The present work seeks to extend our knowledge of goal contagion by examining another potential naturalistic social trigger of nonconscious goal pursuit: the priming of social stereotypes.

Past research showed that features of social groups are capable of automatically activating goals and subsequent goal-directed activity relevant to the situation at hand. Moskowitz and colleagues' work on egalitarian motives and social stereotyping indicates that goals are part of our conception of stereotyped groups, and that those goals are triggered by cues in the environment (Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Moskowitz, Salomon, & Taylor, 2000). In one set of studies, Moskowitz and coworkers (1999) exposed their participants to a prime (a photograph of a male vs. female) that was then followed by an attribute (a personal trait) that participants were asked to pronounce. Weak egalitarian goal participants showed clear evidence for stereotype use—response latencies to stereotypical female traits were faster after female (vs. male) primes. Strong egalitarians, however, did not show this stereotyping effect, even when the Stimulus Onset Asynchrony (SOA) was too short to allow for con-

scious control. Moskowitz et al. further showed that these effects of egalitarian goals towards women do not result from differences in associations between the category women and stereotypes. In another study, Moskowitz and colleagues (2000) established similar effects with the African American stereotype. More specifically, in this work they suggest that for strong egalitarians black primes automatically activate their egalitarian goal that, in turn, controls the stereotype.

The work alluded to above shows that our own goals toward groups are automatically triggered by the perception of these groups. The present paper aims to extend this finding by showing that the goals of the group itself can be triggered and therefore adopted by perceivers automatically. It is well-known that stereotypes (e.g., of the elderly) semantically activate associated traits (“walking slowly”) that, in turn, activate representations of the corresponding motor actions (for details, see Dijksterhuis & Bargh, 2001). These effects are said to result from a common coding system for perception and action, and hence, are generally explained in non-goal directed terms. However, we propose here that stereotype activation does not always follow such passive perception–action link effects. Stereotypes may also motivate behavior, namely when these stereotypes contain knowledge of specific goals that members of a group are likely to pursue (see also Bargh et al., 2001; Wheeler & Petty, 2001). Accordingly, encoding the goals that are stereotypical for social groups may trigger perceivers to automatically pursue these goals themselves.¹

In the present research, we investigated whether exposure to

1. Social stereotypes are usually conceived of as a collection of stereotypical traits (e.g., Stangor & Lange, 1994). Unlike goals, that are relatively flexible and context-dependent, traits are seen as more stable mental characteristics. The relationship between “goals” and “traits”, however, may be less simple than this formulation suggests. To take just one example, it has been suggested (e.g., Read, Jones, & Miller, 1990; Read & Miller, 1989) that traits may be thought of as relatively stable structures of goals, plans for goal achievement and available resources. It is important for us to note that these views do not challenge the present assertion about stereotypes and automatic goal pursuit. As long as traits (e.g., walking slow, performing well, being cooperative and helpful) that are associated with social groups preexist as goals or desired behavioral states in perceivers’ mind, exposure to these social groups may cause them to exhibit goal-directed activity to attain these states.

social groups (e.g., nurses, stockbrokers) causes individuals to automatically pursue the goals (e.g., helping people, making money) that are associated with these groups. Given the compelling argument and abundant evidence for an automatic stereotype-behavior link (Dijksterhuis & Bargh, 2001), the default interpretation for any study priming a stereotype and examining subsequent behavior may be non-goal directed, non-motivational one. However, we are proposing a different process, one that is goal-directed in nature. We hypothesize that stereotype priming can lead to the activation of the representation of goals associated with those groups, and that the subsequent behavior can be goal-driven.

We therefore conducted two studies to test whether stereotype activation affects subsequent behavior via nonconscious goal pursuit. To make a convincing case for this, the behavioral effects would have to manifest features of goal-directedness (see also Aarts et al., 2004; Bargh et al., 2001). We tested this in two ways. First, we attempted to establish that the behavioral effects resulting from exposure to social groups are sensitive to goal strength (i.e., are more pronounced when the associated goal construct more strongly preexists as a desired state one wants to accomplish oneself; Study 1). Second, we measured behavior that could not be easily explained by the content of the stereotype itself (mouse-clicking speed upon being primed with money-making social groups, Study 2). In particular, we examined whether goal priming causes participants to work faster or harder toward a subsequent goal-related task if the road to successful goal attainment is potentially hampered by time constraints.

STUDY 1

The first study served as an initial test for the hypothesis that social stereotype priming can activate goal-directed behavior. In this study, participants were subliminally primed with social groups (e.g., nurses) that exemplify the goal of helping others. Subliminal priming was used as a way of enhancing the accessibility of the representation of the goal, while simultaneously preventing conscious attention to this goal (Dijksterhuis, Aarts, & Smith, 2005). Upon completion of the experimental session, par-

ticipants were asked to provide feedback on an earlier performed computer–skill task that was allegedly designed by an undergraduate. At this point participants could either decide to leave the lab as quickly as possible (and go on with other things) or to stay a little longer and give feedback. The question, then, was whether participants would help the student. We predicted that participants would provide more feedback when primed with groups associated with the goal of helping compared to a no–goal–control group.

Study 1 served two further important purposes. First, the assumption that goal priming rather than mere concept activation has occurred implies that the behavioral effects of exposure to social groups associated with the goal show features of goal–directedness. Accordingly, in the present study we analyzed whether a person’s goal strength (or the degree to which a goal is available as a current desired state) modulates the goal priming effects. One effective way of varying goal strength is by inducing needs or taking advantage of relative deprivation, as has been done in recent research on goal priming effects in drinking behavior (e.g., Aarts, Dijksterhuis, & De Vries, 2001; Strahan, Spencer, & Zanna, 2002). In the present study, we took a different route. We simply assessed participants’ degree of wanting to help other people, assuming that helping others more strongly preexists as a goal or desired state in some people than in others (e.g., Penner & Finkelstein, 1998). As a consequence (Atkinson, 1974; Gollwitzer, 1990; Wright, 1996), the consequences of goal priming should be more pronounced in participants having a strong goal of helping than in participants having a weak or no goal of helping others.

Secondly, we included a potential mediator variable to rule out alternative accounts for the observed goal priming effects. Specifically, priming social groups that are associated with the goal of helping may increase participants’ mood. Previous research has demonstrated that mood is positively related to helping (Carlson, Charlin, & Miller, 1988), and thus effects of goal priming on behavior may be attributable to variances in mood (cf. Fitzsimons & Bargh, 2003; Study 1). Hence, for the present purpose, mood seemed highly relevant to test for mediator effects.

METHOD

Participants

Thirty-six Dutch undergraduates (9 males, 27 females; M age = 21.50) participated in the experiment in exchange for € 3.

Experimental Task and Procedure

Upon arrival at the laboratory, participants were told that they would take part in research conducted by different research teams, and that they had to perform several tasks on a computer. The computer program provided the instructions. Participants worked in separate cubicles. After some general instructions and practice with the computer program, participants started with the first task of the experiment.

Computer-Skill Task. The first task was a Computer-Skill Task. As a cover story, participants were told that we were interested in people's ability to handle a computer mouse. The task consisted of two specific mouse-click tasks. Both tasks were designed to be rather easy and boring, so that participants would not be too enthusiastic about providing feedback later in the experiment.

Social Group Priming Task. Next, participants performed a letter-detection task in which they had to indicate as quickly as possible, by pressing a key, whether a string of similar letters contained a capital or not. Half of the letter strings contained a capital. Before each letter string a prime-word was presented. In the *help-goal condition* the primes consisted of four different names of social groups that are strongly associated with the goal of helping people. The words consisted of two female and two male labels for the group nurses (in Dutch these words are *verpleegster*, *zuster*, and *verpleger*, *broeder*, respectively). The selection of these groups were based on a pretest, in which 29 participants (drawn from another sample) indicated the extent they associate all kind of different groups with several goals on a 10-point scale that ranged from not at all (1) to very strongly (10). The selected groups were strongly associated with the goal to help people ($M = 8.47$; $SD = .87$). In the *no-goal-control condition*, four different non-words were used. Each trial began with a fixation-point on the computer-screen and had a duration of 500 ms.

The prime (in capital letters) was then presented for 23 ms, followed by a mask of random letters for 200 ms. Finally, the string of similar letters was presented and remained on the screen until a response was made. The inter-trial interval was 1.5 s. Each prime-word was presented 10 times. Participants were randomly assigned to one of the two conditions.

Behavior Assessment Task. Next, participants learned that the study was completed. They were further told the study was part of an international research project, and that one of the researchers would like to get feedback about the mouse-click task they had performed earlier. To increase the credibility of the request, participants were told that a foreign student designed this task. Participants could give their feedback by typing it into the computer. Two dependent measures were used to assess the amount of effort participants exerted in helping the student. The first consisted of the total number of words written in the feedback. The second measure was the time it took participants to give the feedback. The latter was measured from the onset of the request to type in the feedback, until the time participants pushed ENTER to submit their feedback (see Aarts et al., 2004, for a similar procedure to measure goal-directed helping behavior).

The Measurement of Mood. Immediately after the feedback task, the mood items from the modified version of Salovey and Birnbaum's (1989) Affect-Arousal Scale was administered. The items aim to differentiate feelings of mood on 10-point scales. The mood items were *bad-good*, *sad-happy*, and *displeased-pleased*. Participants responded to each item in terms of how they felt at that moment.

Debriefing. At the end of the session participants were debriefed by using a funneled debriefing procedure similar as to that suggested by Bargh and Chartrand (2000). The debriefing indicated that participants did not realize the true nature of the study, nor were they aware of the relationship between the priming task and the feedback task. Furthermore, participants were unaware of the primes.

Measurement of Goal Strength. After the experiment, participants were invited to engage in another unrelated paid study, in which the strength of the goal of helping was assessed (all

participants agreed to participate). At the end of this study, which took about 30 minutes, a short questionnaire was administered in which participants had to quickly respond to various items dealing with the personal importance and desire to accomplish all kind of issues and activities in daily life (e.g., social relations, academic performance). Participants were told that the investigators wanted to know whether and how people differ on these issues and activities, and that this information was allegedly needed for upcoming research. The instructions further stressed the importance of providing “honest” answers and that all answers would be treated confidentially. Among these items there were two questions embedded that assessed the goal strength of helping other people, namely, “How important is it to you to help other people?” and “How strongly do you want to help other people?”. These two questions were accompanied by a 10-point scale, ranging from *not at all* (1) to *very much* (10). By averaging the responses to these two items ($r = .58, p < .001$) we obtained a subjective measure of goal strength. Because this measurement procedure triggers thoughts about the goal of helping in all participants, we decided to measure goal strength after the experimental session, that is, about 30 minutes after the goal manipulation task and the measurement of the dependent variable (see Bargh & Chartrand, 2000, on the subject of unwanted effects of priming). The goal strength measure did not differ between the two (no goal and goal) conditions, $F(1,34) = 0.14, ns.$, indicating that participants’ reports on the goal strength items were not affected by the goal manipulation.

RESULTS AND DISCUSSION

Effects on Helping Behavior

The number of words and seconds devoted to provide feedback ($r = 0.71, p < .001$) were first standardized and then averaged (using z -scores) prior to analysis. This composite measure of effort in helping was subjected to a no-goal vs. helping-goal between-participants ANOVA. The analysis yielded a main effect of Goal, $F(1,34) = 4.80, p = .03$, showing that

the helping-goal participants devoted more effort to helping ($M = 0.29$) than the no-goal-control participants ($M = -0.36$).²

Potential Mediation by Mood

With the assessment of participants' mood, we wanted to rule out a potential mediator for the goal priming effects on helping behavior. We first conducted a multivariate analysis of variance (MANOVA) using goal condition as the independent variable and the average of the three mood items ($\alpha = 0.63$) as the dependent variable. Next, we performed between-participants ANCOVAs with the mood measure as covariate. Analyses revealed no significant main effect of goal on the dependent variable, $F < 1$, indicating that mood was not affected by the goal conditions. Analyses of covariance yielded the same pattern of significant results for goal after controlling for mood [$F(1,33) = 4.90, p = .03$]. Taken together, then, these analyses indicate that the observed pattern of results is not attributable to changes in mood.

Moderating Role of the Goal Strength

According to our hypothesis, the goal priming effects should be dependent on the extent to which the act of helping others preexists as a goal or desired state in participants' mind: After priming of helping by exposure to social groups, people who more strongly want to help other people will show stronger behavior effects than those for which helping others is a rather weak or no goal. Thus, the strength of the goal of helping others is supposed to moderate the goal prime effects on actual helping behavior. To test this effect we subjected the behavioral measure to a moderated hierarchical multiple regression analysis (Baron & Kenny, 1986), in which the behavior is predicted by manipulated goal (coded as control = 1, goal = 2), goal strength, and the manipulated Goal \times Goal Strength interaction term. To reduce multicollinearity bias, all variables were standardized before the cross-product was computed (Dunlap & Kemery, 1987). This analysis showed that the prediction of behavior by manipulated goal, β -manipulated goal = 0.34, $t(32) = 2.13, p = .04$, and goal strength, β -goal strength = 0.24, $t(32) = 1.50, p = .14$, was improved

2. We also analyzed effects on the number of words and seconds separately. Analyses showed that effects on both measures followed the same pattern as on the composite measure. For the sake of simplicity, we report the effects on the composite measure.

by including the interaction term, β -interaction = 0.29, $t(32) = 1.89$, $p = .07$.

The nature of the interaction effect is revealed when computing Pearson Correlations between the goal strength measure and behavior for the goal priming and control condition. First, there was no relation between goal strength and behavior in the control condition, $r = -0.12$, *ns.*, which of course is due to the fact that the goal of helping was not primed, and hence, the goal was not active in guiding perception and behavior in the course of accomplishing the goal (in the present case, providing feedback on a boring computer task).

More importantly, the predicted relation between the goal strength measure and behavior in the goal prime condition was significant, $r = 0.48$, $p = .03$: As the desire of helping other people increases (that is, when the goal increases in strength), so does the amount of displaying goal-directed actions. In other words, the effect of priming the goal of helping on providing feedback to help is moderated by the extent to which helping preexists as a goal or desired state one aims to attain oneself. Figure 1 illustrates this effect by presenting the regression slopes of goal strength and helping behavior for the control and goal condition (Aiken & West, 1991).

In short, the results of Study 1 provide evidence that the priming of social groups that are stereotyped in terms of the goal of helping people caused participants to help another person by giving more feedback about a task designed by that other person. Importantly, these behavioral effects were dependent on goal strength: They were more pronounced for participants for whom the helping goal was more strongly available as a desired state, thereby providing support that the behavioral changes show features of goal-directedness.³ Moreover, this effect is automatic in

3. In another pretest we examined whether the goal strength measure is related to the measure of association strength between the social groups and helping goal. This pretest showed that there was no relation between these two measures, $r(52) = .08$, $p = .56$. This finding suggests that effects of goal priming as a function of goal strength are not attributable to differences in associations between the social groups and the construct of helping. More likely, participants for whom the helping goal more strongly preexisted as a desired state in mind more readily acted on it upon exposure to the social groups associated with the goal than participants for whom the goal was weak or less available.

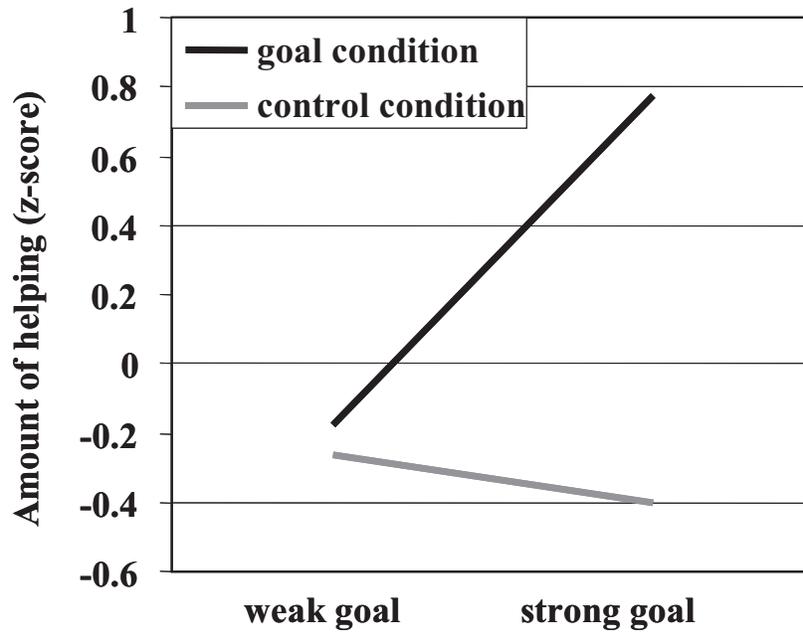


FIGURE 1. Behavior effects as a function of manipulated goal and goal strength.

the sense that no explicit instructions or conscious intent was required to encode and effectuate the goal after exposure of the social groups, as was shown by the subliminal priming procedure and the post-experimental debriefing.

STUDY 2

The second study served two main purposes. First, it is an attempt to demonstrate the generality of the hypothesized effect, by priming social groups stereotyped to pursue a different goal, in this case, the goal to make money. Second, we wanted to provide further support for the idea that the behavioral changes result from activated goals. In the previous study we found that primed goals increased goal-related concrete actions (e.g., providing feedback) appropriate for their pursuit (offering help). In this study, we

aimed to demonstrate that priming of goals enhances the utilization of opportunities to attain the goal. For instance, it is known that effort-enhancing effects of goals become manifest when a person has to deal with time constraints that require an acceleration in performance to reach the goal (Freedman & Edwards, 1988; Latham & Locke, 1975; Payne, Bettman, & Luce, 1996). In the present experiment we made use of this rationale. Specifically, we designed an experimental set-up in which successful goal attainment is either conditional on the alleged time left to start working on a goal-relevant task or not. We reasoned that the emergence of motivational effects (speeding-up one's behavior) of primed goals are more likely to occur if the road to successful goal attainment is hampered by time constraints.

In this study, participants were primed with names of social groups that are associated with the goal to make money (e.g., stockbrokers). After the goal priming procedure, participants learned that the study was almost completed, but that they had to perform a mouse-click task. In the no-imposed-time-constraint condition, participants were told that at the end of the study they will participate in a money-lottery task. This condition ensures participants that they will engage in the goal-relevant task, and thus they do not need to hurry up to get to the task. In the imposed-time-constraint condition, participants were told that this task only would be provided if there was sufficient time left. Accordingly, participants for whom the "money" goal is primed are expected to spend less time on the mouse-click (filler) task, because that would enable them to get to the goal-relevant task (see also Aarts et al., 2004). Thus, we expected an interaction effect between prime and imposed time constraint on the speed of performing the filler task.

Note that a behavior priming explanation (i.e., stereotypes activate behavior representations, which then leads to perform this behavior) would not be able to account for the effects predicted in this study, because our target dependent variable is not directly (semantically) associated with money-making behavior (if the stereotype is semantically related to the concept of speed, we then should expect a speed-up effect in the no-imposed-time-constraint condition as well). Rather, the critical dependent variable is speed on a mouse-clicking task, something that may become

related to the goal of making money in the present experimental situation if that goal is activated and one wants to have time left to take the opportunity to engage in the goal-related task.

METHOD

Participants and Design

Eighty Dutch undergraduates (38 males, 42 females; M -age = 20.10) volunteered for a short study that included a number of ostensibly unrelated tasks. They were randomly assigned to one of the four cells of a 2 (Goal: making money vs. control) \times 2 (Imposed time constraint: no vs. yes) between participants design.

Materials and Procedure

On the basis of a pretest ($N = 29$), we selected six social groups that were strongly associated with the goal to make money (e.g., manager, stockbroker; $M = 8.55$; $SD = .67$; 10-point scale). For the no-goal-control condition we selected six groups that were not associated with the goal to make money (e.g., journalist, operator; $M = 3.79$; $SD = 1.38$).

Upon arrival at the lab, participants were told that they would take part in research conducted by different research teams, and that they had to perform several tasks on a computer in a cubicle. The computer program provided the instructions.

Social Group Priming Task. The experiment started with the social group priming task consisted of a scrambled sentence test (Srull & Wyer, 1979). The test consisted of 10 items, each comprised of six words, five of which could be rearranged to make grammatically correct sentences. In the *goal-to-make-money condition* 6 of the 10 sentences included the social groups identified in pre-testing as stereotypical for the goal to make money people (e.g., "enters, the, the, lamppost, stockbroker, room" becomes "the stockbroker enters the room"). The other four sentences contained social groups that were not associated with the goal to make money (e.g., gardener). The same four sentences were presented in the *no-goal-control condition*, accompanied by the six sentences that were the same as the goal group except that the actors were not associated with the goal to make money.

Behavior Assessment Task. After the priming task participants learned that the experiment was almost completed and would be followed by one more task. In the *no-imposed-time-constraint condition*, participants were then told that at the end of the session they will participate in a money-lottery game. Thus, these participants know that they will engage in the goal-relevant task. In the *imposed-time-constraint condition*, participants were told that this opportunity to engage in the task would only be given if sufficient time was left. No specific amount of money that could be won was mentioned in either condition. Participants then completed the second required portion of the experiment, a mouse-click task, in which they had to click on boxes according to a specified pattern. Our main dependent variable was participants' speed on the mouse-click task. Prior to analyses, the time measure was logarithmically transformed to reduce the skewness of the response distribution (Fazio, 1990).

Awareness Check. After the mouse-click task participants completed an *awareness check* on the computer in the cubicle. They were asked to indicate on a 10-point response scale, ranging from *not at all* (1) to *absolutely* (10), whether they worked fast on the previous task to ensure that they could participate in the lottery task. Furthermore, it was stressed that they had to provide "honest" answers and that these answers would be treated confidentially. Participants' anonymous responses to this question thus served as a measure of conscious motivation to strive for the goal. Participants then took part in a lottery.

An ANOVA revealed that participants' reported motivation to reach the goal was equal across conditions, $F_s < 1.45$. In addition, there was a weak, but nonsignificant correlation between the awareness check and the actual speed measure ($r = -0.16$; $p = .15$), indicating that participants were not strongly aware of the fact that the experimental conditions might have speeded up their performance of the mouse-click task. Taken together, these results suggest that there is no strong association between consciously experienced striving of the goal of making money in the mouse-click task and the actual goal-directed behavior resulting from the goal priming manipulation.

Debriefing. Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants real-

ized the true nature of the study. Furthermore, none of the participants indicated that the scramble sentence task had influenced their responses to the mouse-click task.

RESULTS AND DISCUSSION

Speed of Goal Pursuit

The transformed latency scores pertaining to participants' speed of working on the mouse-click task were subjected to a 2 (Goal: making money vs. control) \times 2 (Imposed Time Constraint: no vs. yes) between-participants ANOVA. First, participants in the goal to make money condition worked slightly faster on the mouse-click task than no-goal-control participants, but the difference did not reach the conventional level of significance, $F(1,76) = 2.45, p = .12$. Furthermore, the main effect of Imposed Time Constraint was not significant, $F(1,76) = 1.17, ns$. More importantly, however, the analysis of variance revealed the predicted two-way interaction of Goal and Imposed Time Constraint, $F(1,76) = 4.81, p = .03$. Planned comparisons showed that in the time-constraint condition, making-money-goal participants were faster than no-goal-control participants, $F(1,77) = 6.84, p = .01$. However, this goal effect did not emerge in the no-time-constraint condition, $F < 1, ns$. Furthermore, goal primed participants were faster in the time-constraint condition compared to the no-time-constraint condition, $F(1,77) = 5.86, p = .02$, whereas for no-goal-control participants this difference was not significant, $F < 1, ns$. The mean (untransformed) working time scores across conditions are presented in Figure 2.

The results of Study 2 further support our notion that goal-directed behavior can be activated by exposure to social stereotypes. Specifically, participants who were primed with social groups associated with the goal to make money accelerated their performance on the mouse-click task to move to the goal-relevant task, but only when they were confronted with a potential time constraint to reach the goal-relevant task. These findings thus show that goal-primed participants speeded up their behavior to make sure they had enough time left to engage in the goal-task. Note that this interaction pattern cannot be easily explained in terms of an automatic behavior priming effect (that is, it cannot explain why participants worked faster on a

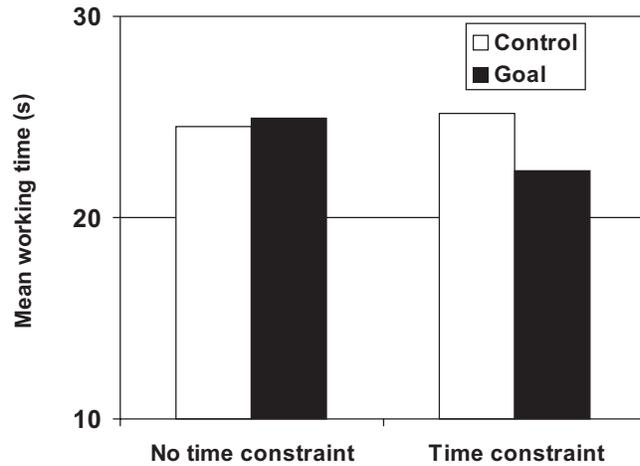


FIGURE 2. Behavior effects as a function of imposed time constraint and goal.

mouse-click task when time left to engage in a goal-related task was at stake). Consistent with a goal priming explanation, the exposure to the social stereotypes motivated participants to work faster to take advantage of the opportunity to make money. This result also shows that automatic goal pursuit can result from a variety of social stereotypes and for different behaviors, thus revealing the generality of the effect. Furthermore, the results of the awareness check and the post-experimental debriefing procedure suggest that our participants were not aware of the activation and operation of the goal at issue, indicating that the experimental set-up was able to unobtrusively capture effects of motivation and goal priming (see for similar findings, Aarts et al., 2004; Bargh et al., 2001; Fitzsimons & Bargh, 2003).

GENERAL DISCUSSION

A growing number of studies suggest that much of our social behavior is put into motion by features of the social environment

and operates outside of conscious awareness. One of the most investigated effects in this domain is the activation of social stereotypes upon the mere perception of the diagnostic features of social groups. Stereotypes are thought to impinge on behavior in an automatic, though non-goal directed, fashion. That is, these effects are generally understood in terms of semantic activation: stereotypes ("professors") semantically activate associated traits ("being intelligent") that in turn, semantically activate representations of more concrete actions ("think and concentrate") (see for details, Dijksterhuis & Bargh, 2001).

The present research, however, established that stereotypes also cause goal-directed activity automatically. We found that behavioral changes were manifested after supraliminal as well as subliminal priming of different social groups associated with different goals and occurred for different actions without participants' conscious awareness of the source causing their goal-directed actions. Specifically, the behavioral effects resulting from stereotype priming evidenced features of goal-directedness. First, they were affected by goal strength, in the sense that they were more pronounced when the associated goal of helping more strongly preexisted as a behavioral state the perceiver wants to accomplish oneself. These findings also indicate that stereotype priming did not render the associated goal more desirable. In line with the concept of automatic goal pursuit, it only enhanced the accessibility of the mental representation of the preexisting or available goal to help. The enhanced accessibility made participants in the stereotype help goal priming condition of Study 1 exhibit behavior (i.e., giving more feedback) instrumental to accomplish the goal. Furthermore, the behavioral effects demonstrated opportunity-seeking features by showing that participants in the stereotype making money goal priming condition of Study 2 worked harder or faster to attain the goal when the road to successful goal attainment was potentially hampered by time constraints.

Our results extend previous research on automatic social behavior in two important ways. First, we show that representations of type of people, such as nurses and stockbrokers, do not only contain knowledge of specific traits and concrete actions (e.g., Hamilton & Sherman, 1994; Stangor & Lange, 1994), but also

of the goals of those people. The activation of these representations in the course of perception also activates those goals, which may then be automatically pursued by perceivers if that goal pre-exists as a desire state they want to attain themselves. This latter finding establishes the important point that perceivers do not always automatically take on the goal associated with social groups. What matters is whether the primed construct prevails already as a goal or desired state in the perceiver's mind. Thus, as part of the commonly shared stereotype, nurses may activate the representation of helping others, and stockbrokers activate making money. However, if these behavioral states are not available as a goal or a desired state one wants to attain before the priming episode, then motivational, goal-directed behavior is not likely to ensue. In that case, stereotype priming may lead to behavioral changes, according to the perception-action link account, in a rather passive and reflexive way (Custers & Aarts, 2005; see also footnote 1). Clearly, to more fully understand and appreciate the role of social stereotypes in behavior which do not require an act of conscious will, in future research it will be important to disentangle and establish, both conceptually and empirically, whether observable behavioral effects are driven by mere knowledge about the behavior or by motivational, goal-directed processes. The present studies were conducted as a first attempt to examine this issue.

Second, our results add to the current interest in analyzing the social triggers of automatic goal pursuit. So far, it has been demonstrated that people are capable of automatically encoding and taking on the goals implied by significant others or the actions of another person (Aarts et al., 2004; Fitzsimons & Bargh, 2003; Shah, 2003). In addition, research has been shown that one's own (egalitarian) goals toward social stereotyped groups are automatically triggered by features of these groups (Moskowitz et al., 1999, 2000). The present studies contribute to this literature by showing that people also can take up the goals that are stereotypical for social groups. This substantially broadens the range of potential social stimuli that promote goal contagion by triggering one to entertain the goals of others and to try to attain them oneself.

The present findings have important implications for predicting the emergence of nonconscious goal pursuit. In essence, the-

ory on nonconscious goal pursuit proposes that goals are represented as desired states, and that automatic goal pursuit occurs as a result of frequent and consistent willful selection and performance of the same goal in the same situation (Bargh, 1990; Chartrand & Bargh, 2002). In other words, goal-directed behavior needs to be proceduralized before the social environment can automatically trigger it. However, it is rather unlikely that participants in the present studies have extensive direct contact with the primed social groups, and hence, habitually pursue the goals under investigation in the direct presence of members of these groups. Apparently, encoding the goal that is stereotypical for members of the social groups suffices to produce goal-directed behavior automatically if that goal is easily available in the perceiver. This notion concurs with the Implicit Volition Model of Moskowitz and colleagues (Moskowitz et al. 2004), which posits that any goal that is represented as a desired state can be triggered to then cause automatic goal effects. Taken together, then, the present findings suggest that automatic goal effects also materialize upon the mere perception of social groups, even though no history of repeated selection and performance of the same goal in the same social setting exists.

The paradigms used in the present experiments to measure behavior might raise the question of whether behavioral changes followed directly from the activation of the goals, and thus demonstrate goal operation effects outside of conscious awareness. It is clear that participants that were (nonconsciously) primed with the goal at issue more readily acted on the goal without awareness of the actual source causing these effects. Furthermore, Study 2 showed that participants speeded up their working on the unrelated mouse-click task to take the opportunity to engage in a goal-related task, but subjective reports suggested that they were unaware of these enhanced motivational effects. Still, it might be argued that participants became aware of the goal once they perceived the opportunity to attain it. It should be noted, though, that there is abundant research showing that goal effects on human functioning (attention and encoding, memory use, evaluation, perception, judgment and behavior) can be automatic and do not require conscious control (for an overview, see Ferguson & Bargh, 2004; Moskowitz et al., 2004). That is, priming of

goals facilitates the nonconscious processing of goal-relevant information, eases the direct perception of goal-relevant opportunities, and allows individuals to act on goals without the need to consciously make a plan of action. Together, then, these findings provide compelling evidence that goal pursuit can operate on a nonconscious level. Therefore, it is conceivable that people do not have to be aware of the activation and operation of goals that are primed by other people.

To conclude, we observed that individuals are capable of automatically grasping and pursuing the goals that are stereotypical for members of social groups. An intriguing question emanating from these findings is "Why do people automatically grasp and take on goals that are associated with members of a social group?" Although there is no research available to address this question properly, let us briefly speculate on a few considerations. First, for social animals like ourselves it is important to know the goals of others; it allows an understanding of their intentions, and to anticipate how, when, and where these others act on the basis of these intentions (Heider, 1958). Furthermore, identifying other people's goals may have important implications for one's own behavior. For instance, perceiving the goals of other people allows one to pursue and to try to attain them oneself. Knowing, for example, that someone's goal is to be cooperative and helpful, or to make money, may cause one to readily take on these same goals, provided collaboration with others or making money is a desired goal state for oneself. Others' goal thus may serve as a kind of prompter of one's own goals. However, understanding the goals stereotypical for members of social groups is not only beneficial for the successful pursuit of one's own needs, desires and goals (Aarts & Hassin, 2005). By taking on the goals of others people may become more similar in what they desire and strive for, and hence in their plans for the future. This latter issue raises the possibility that acting automatically on the goals one associates with social groups may facilitate access to group membership and foster social bonding between members of a group.

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