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NONCONSCIOUS MOTIVATIONS: THEIR ACTIVATION, OPERATION, AND CONSEQUENCES

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Self-regulation is one of the most important aspects of human existence. Deciding which goals to pursue and then engaging in goal-directed action is a fundamental process underlying many of a person's daily thoughts, feelings, and actions. The first half of the 20th century was dominated by Freudian and behavioristic models of behavior regulation, which held that behavior was determined either by biological impulses and the unconscious or by the external environment, respectively. In reaction to this, the humanistic movement, in particular Rogers's (1951) self theory, placed the conscious "self" as the most important causal agent in self-regulation. Behavior regulation was driven not by the unconscious or by the environment but rather by the self, a critical mediator between the environment and behavior.

Many current models of motivation and goal pursuit continue the tradition of maintaining continuous, conscious choice and guidance of be-

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havior—directed by the individual's chronic intents and desires—as the cornerstone and foundation of self-regulation (e.g., Bandura, 1977, 1986, 1997; Mischel, 1973). This view has intuitive appeal. We are often cognizant of deliberating among various desires and wishes and choosing which goals to actually pursue. We often consciously engage in goal-directed action and then carefully evaluate our subsequent performance. Thus, intuition tells us that the goal pursuit sequence is available to conscious awareness, and many current theories of motivation reflect and support this (Bandura, 1986; Cantor & Kihlstrom, 1987; Carver & Scheier, 1981; Deci & Ryan, 1985; Locke & Latham, 1990).

Is it possible, however, that sometimes the goal pursuit process occurs without conscious awareness? We argue that the answer to this question is a resounding "yes." There is now substantial evidence that we are in fact often not aware of our own mental processes (Nisbett & Wilson, 1977; Wilson & Brekke, 1994) or of what is guiding our daily moods, thoughts, and behavior (Bargh, 1997). For instance, the sizeable priming literature suggests that recent activation of a given category or construct can have tremendous influence on one's perceptions, judgments, moods, and behaviors (Bargh, Bond, Lombardi, & Tota, 1986; Bargh, Chen, & Burrows, 1996; Chartrand & Bargh, 2001; M. Chen & Bargh, 1999; Dijksterhuis & van Knippenberg, 1998; Dijksterhuis et al., 1999; Higgins, Rholes, & Jones, 1977). In fact, research has recently uncovered many automatic, nonconscious mental processes that affect nearly all aspects of human existence outside of the individual's awareness, intent, and control (Bargh & Chartrand, 1999). The number and range of these automatic processes is growing exponentially, and its effects seem ubiquitous. Wegner and Wheatley (1999) have gone so far as to say that the experience of free will—believing that our conscious thought causes our actions—is merely an illusion. Specifically, they argued that unconscious processes can cause one's actions and also simultaneously cause one's thoughts, creating an illusory correlation between thought and action.

Thus, researchers are building the case that people are often not aware of the true causes of their behavior. However, in discovering the various nonconscious processes that affect our daily lives, we are slowly lifting the shroud of mystery, and we can begin to explore the real origins of our actions. Because nonconscious processes have been shown to affect evaluation, mood, judgments, and behavior, it should not seem surprising that they also affect motivation and self-regulation. Nonconscious goal pursuit provides another way by which our behavior can be determined by something other than conscious reflection, deliberation, and choice.

The *auto-motive model* of self-regulation proposes that the entire goal pursuit sequence can occur outside of conscious awareness (Bargh, 1990). There is now substantial evidence that individuals frequently pursue goals that they are not aware of having. Situations can automatically activate

goals frequently associated with them in the past, and these goals can then operate to guide information processing and behavior without conscious intervention at any point in the sequence. Furthermore, this nonconscious goal pursuit has consequences for mood and future behavior. It is to this model that we now turn.

THE AUTO-MOTIVE MODEL OF NONCONSCIOUS GOAL PURSUIT

The auto-motive model proposes that self-regulation can be triggered automatically by the environment (Bargh, 1990). The model holds that although many of the goals an individual pursues are the result of conscious deliberation and choice, conscious choice is not necessary for goal activation and operation. In addition to the deliberate mode of activation, goals and intentions also can be started in motion by environmental stimuli. First, the model assumes that intentions and goals are represented in memory in the same way that social attitudes, constructs, stereotypes, and schemas are represented. Second, because constructs and stereotypes are capable of being automatically activated by relevant environmental stimuli, goal representations should have this capability as well. With repeated and consistent choice (i.e., activation) of a particular goal in a certain social situation over time, the representation of that goal may become directly and automatically linked in memory to the representation of that situation. The goal will eventually come to be nonconsciously activated within that situation, independently of the individual's conscious purposes at that time.

Thus, situational features in the environment can automatically trigger goals chronically associated with those features. Moreover, once activated, the goals operate to guide subsequent cognition and behavior in the same way that consciously held goals do, all without the individual's awareness of the goals' guiding role. Thus, how a goal representation becomes activated—whether consciously or nonconsciously—has no effect on whether it operates and produces its effects.

Take the case of our friend Joe, for example. When he was growing up, he competed with his siblings for his parents' good graces. Joe came up with a strategy that worked pretty well: He tried to stir up trouble between his brothers and sisters so that they would get in trouble and he would look innocent and well-behaved by comparison. Joe would instigate fights, tattle on them, tell one the bad things the other one said about him or her, and so forth. Eventually Joe no longer had to consciously choose to compete for his parents' liking—the home environment and presence of his family automatically activated that goal in him because the representation of the goal was linked in memory to the representation of the

home environment. On automatic activation of the goal, Joe engaged in the same negative behaviors he used to strategically choose to reach the goal—instigating fights, tattling, and so on—all without his awareness of why he was doing these things. Now as an adult, whenever Joe goes home to visit, the goal is still activated in him, and he finds himself stirring up trouble with his family members after all these years. Once the goal is activated, it guides his behavior just as it used to, even though he's not aware of having the goal at all.

AUTOMATIC ACTIVATION AND OPERATION OF GOALS

Information-Processing Goals

Recent research suggests that regardless of whether a goal is chosen through deliberate and conscious means or whether it is activated outside of awareness, intent, and control by the environment, an individual will pursue the goal in the same way. In one series of studies, Chartrand and Bargh (1996) demonstrated that information-processing goals can be activated nonconsciously and guide subsequent cognition. A first experiment was based on the findings of a classic social–cognitive study in the person memory literature by Hamilton, Katz, and Leirer (1980). In the original study, participants read a series of 16 behaviors with instructions either (a) to form an impression of the actor who had engaged in the various behaviors or (b) to memorize the behavioral information presented. The behaviors represented four trait categories: social/interpersonal (e.g., "had a party for some friends last week"), athletic (e.g., "went skiing in Colorado for the weekend"), intelligent ("caught the error in the mechanic's calculations"), and religious ("read the Bible in his hotel room"). Participants were given a surprise free-recall test at the end of the stimulus presentation. Participants who had been given an explicit impression formation goal recalled more behaviors and had more organization of the material in memory according to trait category (e.g., sociable, intelligent) than those told to memorize the information.

We replicated this study (Chartrand & Bargh, 1996; Experiment 1) but instead of giving participants explicit goal instructions, we activated the same information-processing goals through a supraliminal priming technique. In this "scrambled sentence task," words related either to an impression formation goal (e.g., evaluate, personality, impression, opinion) or to a memorization goal (e.g., remember, memory, retain, absorb) were embedded in the scrambled sentences. This "primed" participants with one of the two goals, without their knowledge that any goal had been activated (see also Bargh & Chartrand, 2000; Srull & Wyer, 1979). The results closely replicated those of Hamilton and colleagues (1980), suggesting that

consciously choosing a goal at some point is not necessary for that goal to become active and guide subsequent cognition.

Importantly, participants were asked at the end of the experiment what they were thinking about when they read the behavioral predicates. Specifically, did they have any goal in mind, or were they trying to do anything in particular when reading the predicates? None of the participants mentioned that they were trying to memorize the information or to form an impression of the target. Because there was no subject assigned to the predicates in the sentences, it was not clear who—if anyone—engaged in these behaviors. Most indicated that they were simply paying attention (as they were instructed to do) and trying to understand the predicates.

The second study (Chartrand & Bargh, 1996; Experiment 2) was a replication of Hastie and Kumar (1979), in which participants were given an explicit goal to form an impression of a target person. In the replication, however, an impression goal was subliminally primed for half of the participants (the other half receiving neutral priming stimuli) through the parafoveal and masked brief presentations of goal-related words (e.g., impression, opinion, personality). As in the original study, those whose impression formation goal had been activated (subliminally in the replication, via explicit instructions in the original) showed evidence of online impression formation of a target person. Those without the impression goal activated presumably did not form an impression until they were asked for it by the experimenter and therefore did not show evidence of online impression formation. Again, participants did not mention having a goal to form an impression (or any similar goal) when asked at the end of the study. They pursued the goal without realizing they had it. Thus, the results of these experiments support the idea that individuals do not have to be aware or cognizant of having a goal for it to affect their information processing.

Intrinsic and Extrinsic Motivation

The goals to memorize or form an impression are concrete, specific goals. However, recent evidence by Séguin and Pelletier (2001) suggests that relatively abstract motivational orientations can operate automatically as well. The abstract motivations they focused on were intrinsic and extrinsic motivations. Previous research by Deci and Ryan (1985, 1990) has demonstrated that when activities are engaged in to satisfy intrinsic or "self-determined" motives, these activities are enjoyed for their own sake, and the individual is absorbed in the task and feels a sense of "flow." In contrast, when activities are engaged in to satisfy extrinsic or "instrumental" motives, they are not done for their own sake but rather for external

reasons, including the expectation of reward or punishment. As a result, they are not enjoyed as much.

Séguin and Pelletier (2001) first primed participants (using a scrambled sentence task) with words related to either intrinsic motivation (e.g., challenge, mastering); extrinsic motivation (e.g., forced, expected); or neither (control condition). Participants next worked on several crossword puzzles in what was ostensibly a second, unrelated experiment. Results revealed that, relative to the control condition, participants who worked on the crossword puzzles with a nonconsciously operating intrinsic motivation enjoyed the task more, reported that they worked on it through their own free will, and found significantly more words on the puzzle. Those primed with an extrinsic motivation, however, enjoyed the task less, found it less interesting, found fewer words, and reported to a lesser extent that they worked on the task because of their own free will. Thus, the nonconscious intrinsic and extrinsic motives produced the same outcomes that conscious intrinsic and extrinsic motives produced.

Behavioral Goals

Can behavioral goals also become automatically activated to guide subsequent behavior? The automatic activation of goals should not be limited to information-processing motives but should include goals related to desired behavioral outcomes as well. For instance, one individual might have a self-presentational goal automatically activated whenever he is at a party, or a young girl might have an achievement goal automatically activated by the school environment. A series of studies by Bargh, Gollwitzer, Lee-Chai, Barndollar, and Trötschel (in press) have examined the nonconscious pursuit of behavioral goals. In a first study, these researchers administered a word search task in which achievement-related words were embedded for half the participants. This was intended to prime an achievement goal in the prime-condition participants. Next, participants were given five similar word search puzzles and instructed to find as many words as possible. Participants previously primed with achievement-related stimuli found significantly more words on the word search puzzles than did nonprimed participants.

In sum, then, the effects of nonconsciously operating information-processing and behavioral goals mirror those of consciously operating goals. Whether a goal becomes active via an act of will (i.e., conscious and deliberate choice), explicit instructions from an experimenter, or automatic activation through priming, the same outcomes are obtained. These results support two tenets of the auto-motive model: first, that goal structures can be automatically and nonconsciously activated, and second, that nonconscious goals, once activated, produce the same effects as conscious goals.

EVIDENCE THAT PRIMING MANIPULATIONS ACTIVATE MOTIVATIONAL STATES

Although the exposure to goal-related words in the Chartrand and Bargh (1996), Séguin and Pelletier (2001), and Bargh et al. (in press; Experiment 1) studies was intended to activate a goal state, it is possible that this simply induced goal-primed participants to construe the experimental situation that followed differently from the control participants. For instance, participants in the Bargh et al. study may have been more likely to construe it as an achievement situation if they were primed with achievement-related words, which in turn may have led them to form a conscious goal and strategy to achieve. To eliminate these alternative explanations, Bargh et al. (in press) set out to demonstrate that the "priming activates" motivational states, not just tendencies to perceive situations in a certain way. Theories of self-regulation posit that motivational states of goal pursuit have unique properties (e.g., Atkinson & Birch, 1970; Bandura, 1986; Gollwitzer, 1990; Lewin, 1951). Motivational states increase in strength over time, and individuals persist at goals in the face of obstacles and resume goal-directed action following an interruption. In a series of studies, Bargh et al. (in press) demonstrated the presence of each of these three qualities in the primed goal states.

Increase in Goal Strength Over Time

One signature of a motivational state is that activated goals increase in strength over time (until the goal is attained; Atkinson & Birch, 1970). On the other hand, perceptual priming effects (i.e., the effects of priming on subsequent judgments made of a target person) decay or decrease in strength over time (e.g., Higgins, Bargh, & Lombardi, 1985). This motivational quality is particularly useful in demonstrating a dissociation between motivation and perceptual priming effects. Because time (i.e., post-priming delay) would have different effects on goal and perceptual priming (increasing and decreasing the effects, respectively), one can conduct a clear test of dissociation between the two processes (Dunn & Kirsner, 1988).

Bargh et al. (in press; Experiment 2) conducted such a test. In an initial word search task, half the participants were primed with achievement-related words and half were not. Next, participants were given an achievement goal behavioral task or a perceptual-judgment task, either immediately or after a 5-minute delay. Thus, the study used a 2 (achievement prime words vs. neutral words) × 2 (goal-related vs. judgmental task) × 2 (delay vs. no delay) design. Participants in the goal-related behavioral task condition were given Scrabble letter tiles and asked to find as many words as they could (using only the letters they were given). Those in the

no-delay condition did the Scrabble task immediately following the priming procedure, and those in the delay condition were given a filler task (for which they drew their own family tree) for 5 minutes before being given the Scrabble task. Participants in the perceptual judgment task conditions read about a person who behaved in an ambiguously achieving way (e.g., studying hard right before a test) and were asked to give their rating of how achievement-oriented the target person was. As in the behavior conditions, this task was given either immediately after the priming procedure or after a 5-minute delay. It was expected that for those given the perceptual task, the achievement-related words would have a stronger impact on subsequent judgments of a target in the no-delay condition than in the delay condition (because perceptual priming effects decay rather than increase over time). For those given the behavioral Scrabble task, however, the achievement goal primes were expected to have a stronger effect on achievement behavior when there was a delay than when there was no delay (because of the increase in motivational tendencies over time).

Results revealed that the priming manipulations yielded a dissociation over time between the behavioral and perceptual tasks. For the perceptual task, when there was no delay, a significant priming effect was observed such that achievement-primed participants rated the target as being more achieving than did nonprimed participants. But with a 5-minute delay, this effect disappeared. The behavioral task yielded quite different results. With no delay, there was a significant priming effect such that achievement-primed participants outperformed the control participants on the Scrabble word construction task. Moreover, this effect was magnified, not diminished, after the 5-minute delay. This suggests that a motivational state was indeed induced by the priming, independently of any perceptual priming effect. Participants were again questioned during a postexperimental funneled debriefing and did not report consciously taking on any goal.

Persistence in the Face of Obstacles

Another study further examined the motivational qualities of the achievement-primed state (Bargh et al., in press; Experiment 3) by testing whether those primed with an achievement goal would persist on a task in the face of obstacles (Gollwitzer & Moskowitz, 1996; Lewin, 1926; Ovsiankina, 1928). An achievement goal was primed in half the participants via the same word search task used in Experiments 1 and 2. In the next, supposedly unrelated task, participants were given 3 minutes to find as many words in a set of Scrabble letter tiles as they could. The experimenter left the room after delivering these instructions and went next door where a monitor was hooked up to a hidden video camera in the experimental room. This allowed the experimenter to monitor the participants'

behavior unbeknown to them. Three minutes later, the experimenter told the participants through an intercom to stop working on the Scrabble task. She was able to then record who in fact stopped working on the task and who "cheated" and continued to work after the instructions to stop. Significantly more participants in the achievement priming conditions continued to work after the stop signal than those in the control condition. Importantly, participants did not report having a conscious goal to achieve during the study. This suggests that for achievement-primed participants, an achievement goal was nonconsciously activated, which led them to persist at the achievement task in spite of an obstacle (instruction to stop).

Resumption of Goal-Directed Action After Interruption

Bargh et al. (in press; Experiment 4) also tested whether achievement-primed participants would be more likely to resume an interrupted task so as to reach the goal of completing it. Participants were again primed with an achievement goal or not in a first, "unrelated" task. They were then told that for the next experiment, they would work on two tasks: (a) finding words from a series of Scrabble tiles and (b) rating a series of cartoons on how funny they were. While participants were working on the first task, there was a staged power failure. When electric power was restored, the experimenter announced that because time had been lost, there was no longer enough time to finish both tasks. The participants were then given the choice of which one to work on, and because pretesting had shown that the second task was clearly more enjoyable, it provided a good test of how motivated they were to achieve and resume the interrupted task. Almost twice as many in the achievement-primed condition than those in the control condition chose to return to the interrupted verbal task. Again, participants showed no conscious awareness of having an achievement goal.

NEUROPHYSIOLOGICAL EVIDENCE FOR THE ACTIVATION OF GOAL STATES

The studies discussed so far suggest that automatically activated goals produce the same effects as consciously chosen goals. However, one of the basic premises of the auto-motive model is that not only should conscious and nonconscious goals produce the same effects, but they should also produce these effects in the same way. Testing this premise, Gardner, Bargh, Shellman, and Bessenoff (2001) used event-related brain potentials to compare the neurophysiological correlates of conscious and nonconscious goal pursuit. Participants engaged in four tasks, each of which involved the participants responding in some way to 75 auditorily presented nouns. Two

of the tasks involved evaluation: (a) an explicit evaluation task for which participants were instructed to evaluate the nouns using the keys on a response box and (b) a primed evaluation task for which participants were first primed with an evaluation goal (using a scrambled sentence task) and then simply told to listen (but not respond) to the nouns. The remaining two tasks involved imagery: (a) an explicit imagery task for which participants were told to mentally visualize the object that each word described and then to judge whether that object was large or smaller than a file cabinet and (b) a primed imagery task for which a scrambled-sentence task primed an imagery goal in participants before they listened to the nouns. The order of evaluation and imagery tasks was counterbalanced across participants, but the implicit task was always given before the explicit task in the same domain.

Previous research has shown that when people explicitly evaluate a stimulus, there is a significant increase in activation of the basal right hemisphere around 500–600 ms after stimulus presentation (see Cacioppo, Crites, & Gardner, 1996). This "right shift" or "lateralization" of activation is unique to the evaluative response and does not occur with other processing goals, including imagery goals. Thus, Gardner et al. (2001) expected to find this right shift during the evaluation tasks (both primed and explicit) but not for the imagery tasks. This is precisely what they found; participants pursuing a nonconscious evaluation goal displayed the exact same lateralization that they displayed during conscious evaluation. Thus, even on a neurophysiological level, the same process unfolds during goal pursuit, regardless of whether that goal was consciously pursued or automatically activated by the environment.

STRUCTURE OF AUTOMATIC GOALS

In most studies of nonconscious goal pursuit, a goal is activated through a priming procedure, and once the goal is operating nonconsciously, individuals pursue that goal as if they had consciously chosen to pursue it. But how exactly does this work? On activation of the goal, what process then leads the person to actually pursue the goal? This question speaks to the structure of automatic goals. It has been assumed that the goal, once activated, automatically leads the individual to engage in various goal-directed plans and behaviors, which results in the person nonconsciously pursuing the goal (Bargh et al., in press; Chartrand & Bargh, 1996). The idea that goals become automatically associated in memory with the behavioral responses used to carry out those goals was tested recently by Aarts and Dijksterhuis (2000). These researchers hypothesized that habits are not behaviors linked directly to the environment (as classic stimulus–response [S–R] psychology posits) but rather are plans of action

automatically linked to their higher order goal. When the goal is activated, the strategy or habitual plan for attaining that goal will be activated automatically as well, obviating the need for conscious planning and selection of behaviors in any given situation.

In one study, participants included university students who either habitually used their bicycle as a mode of transportation or who usually relied on a different way of travel. These habitual and nonhabitual bicycle users were either primed or not primed with the goal to travel. Specifically, those in the travel priming condition were exposed to sentences related to traveling to some location (e.g., attending a lecture, going shopping). Participants were then exposed to various location words (e.g., university) on a computer screen, each followed by a mode of transport (e.g., bicycle). Their task was to indicate as quickly and accurately as they could whether the mode of transportation would constitute a realistic means of traveling to the previously presented location. The dependent variable was response latencies on the location–bicycle links. It was predicted that habitual bike users, on being primed with the travel goal, would have increased accessibility to the associated plan of action (using a bicycle). Thus, they would respond faster to the word *bicycle* than would nonhabitual bike users, but only after being activated with the goal to travel. When the goal to travel was not activated, habitual and nonhabitual bike users were not expected to differ in their response latencies. This was precisely what the researchers found, supporting the notion that, for those who have formed a habit, there are automatic links between goals and behavioral responses often used to achieve that goal. This in turn suggests that habitual behaviors are not linked to relevant environmental events per se but rather to the mental representations of the higher order goals they serve.

AUTOMATIC ASSOCIATION BETWEEN SITUATIONS AND GOALS

In the studies discussed thus far (e.g., Bargh et al., in press; Chartrand & Bargh, 1996; Séguin & Pelletier, 2001), goals become activated through the presentation of goal synonyms during a priming task. These synonyms are presumed to activate the representation of the goal in memory, which is assumed to then activate the corresponding motivation. Thus, these studies show that goals can be directly activated through external means—bypassing conscious, deliberate choice of the goal. The goal can become automatically activated and then guide subsequent cognition and behavior. However, the auto-motive model posits a two-step process: (a) Goals become linked to situations in which they were consciously chosen in the past, and (b) the features of these situations can then directly activate the goal. Priming manipulations that directly activate the goal itself serve as a

proxy for what happens in naturalistic situations when the situation automatically activates the goal. Thus, studies using this priming technique bypass the important first stage of the model: the environment activating the goal. This is an important step to show, because if the situation cannot activate the goal, then priming studies are artificially creating something that would never happen in the "real world."

Automatic Activation of Goals That Lead to Implicit Stereotyping (or Lack Thereof)

Several studies provide evidence for this first link—that between situations and goals. Spencer, Fein, Wolfe, Fong, and Dunn (1998) tested whether self-image threat makes individuals more likely to activate stereotypes when perceiving members of an ethnic minority group. These researchers hypothesized that the situation of receiving negative self-feedback would threaten the self-image, which would automatically activate a goal to restore the threatened ego:

> Based on the reasoning underlying the auto-motive model, we argue that to the extent that the motivation to restore one's threatened self-image frequently and consistently leads to the use of stereotypes on exposure to members of particular stereotyped groups, the link between self-image threat and activation of available stereotypes may become automatic. (p. 1140)

Thus, once the goal to restore the self-image is automatically activated, the goal operates to completion as if it had been consciously chosen: The individual engages in ego-restoring processes. One such ego-enhancing process may be the denigration and stereotyping of others.

To test their hypotheses, Spencer et al. (1998) replicated a well-known previous study by Gilbert and Hixon (1991). In the original study, participants were exposed to the presence of either an Asian American or a European American experimenter on a videotape. They were also either given a cognitively draining task (remembering an eight-digit number) or not. The dependent measure was completions on a word fragment task ([e.g., _hy] for which completions could either be consistent with an Asian-American stereotype [e.g., "shy"] or not [e.g., "why"]). Gilbert and Hixon (1991) found that for those not under cognitive load, the presence of an Asian American experimenter on the videotape increased the subsequent number of word-stem completions consistent with the Asian American stereotype. Importantly, this implicit stereotype effect was eliminated in the cognitive load conditions: the drain on attentional resources "knocked out" the automatic activation of the stereotype.

In several experiments, Spencer et al. (1998) gave some participants a blow to their self-esteem (i.e., negative feedback on their performance

on an "ability" test) and then replicated Gilbert and Hixon's (1991) study; they found that those under self-image threat demonstrated the implicit stereotyping effect, even under cognitive load (the conditions found to eliminate the effect in the original study). These studies support the automotive model: The activation of the goal to restore self-esteem automatically leads to specific behaviors that have been frequently used to satisfy the goal in the past. To the extent that stereotyping serves the function of restoring a threatened ego (e.g., Brewer & Brown, 1998; Wood, 1989), stereotyping will be one behavior that is automatically activated by ego threat, even when cognitive resources are elsewhere. Because automatic processes are often efficient and do not depend on attentional resources (Shiffrin & Schneider, 1977), it makes sense that stereotyping could occur without these resources, if the goal had been activated.

Importantly, these studies also demonstrate that a situation can directly activate a goal. Spencer et al. (1998) did not prime participants with a goal to restore self-esteem; instead, they created the environment assumed to activate that goal. This is an ecologically valid demonstration that goals can indeed be automatically activated by the environment and then guide subsequent behavior. It should be noted, however, that it is possible that some individuals may have consciously been aware of the goal in this case (wanting to restore the ego). However, it is highly doubtful that participants would have been aware of denigrating and stereotyping targets in service of this goal. Even if they knew they wanted to put others down (which seems rather unlikely), the measure of stereotyping was too implicit and subtle to use deliberately. Thus, the prejudicial behavior was clearly nonconsciously driven by the ego restoration goal.

In another test of automatic stereotyping, Moskowitz, Wasel, Gollwitzer, and Schaal (1999) demonstrated that chronic, long-term egalitarian goals (e.g., wanting to treat others fairly) are activated automatically by a situational feature: the presence of an ethnic minority group member. Participants first completed a task that assessed whether egalitarianism and fairness to others was an important aspect of each participant's value system. Next, participants took part in an ostensibly unrelated second task in which stimuli related to gender stereotypes were presented under conditions in which it would be impossible to control the stereotype activation with effortful, strategic processes (Blair & Banaji, 1996). Participants identified by the first task as having a chronic egalitarian goal showed no signs of stereotype activation in this experiment, whereas those without such a goal did. These results suggest that those with an egalitarian goal are able to prevent the automatic activation or use of the stereotype when being presented with stereotype-consistent cues. Thus, the environmental presence of minority-group-related stimuli automatically activates the associated goal to be fair in chronic egalitarians; the situation activates the goal.

The goal then guides subsequent judgments as it always does, by inhibiting the application of the stereotype to group members.

Goals Activated by Situational Power

Another demonstration that situations can automatically activate associated goals was conducted by Bargh, Raymond, Pryor, and Strack (1995). These researchers were interested in interpersonal power. If individuals tend to pursue certain goals whenever they have power in a given situation, then it follows that those goals might become automatically linked to the power situation, such that being in power will automatically activate those goals. Previous research has established that male sexual harassers associate power and sex (e.g., Lisak & Roth, 1988; Pryor & Stoller, 1994). Thus, for these men, power should activate a sex goal. This was tested in two experiments. In the first, a sequential priming task (Neely, 1977, 1991) was used to show that an automatic association existed between the concepts of power and sex for men with a high likelihood to sexually harass but not for those with a low likelihood. Participants were exposed to subliminally presented prime words, which were each followed by a target word that they were supposed to pronounce as quickly as possible. If the prime words were power related, then this should facilitate the pronunciation of sex-related target words, but only for those high in sexual harassment tendencies. This is exactly what was found.

In a second experiment, Bargh et al. (1995) examined the behavioral consequences of this automatic association between power and sex. Male participants who had earlier been identified as having a high or low tendency to sexually harass participated in the experiment with another "participant" (actually a female confederate). Half of the participants were primed with the concept of power through a word fragment completion test, and the other half were not. The participant and confederate then worked individually on a "visual illusion" task. Next, they were brought into separate rooms and told that the experiment was actually testing impression formation and the kind of impressions that are formed with minimal interaction. The participant then rated the confederate on various scales. Critical items included how attractive he found her and whether he would like to get to know her better. For those with high likelihood to sexually harass (but not for those with low likelihood), participants primed with the power-related words thought that the confederate was more attractive and had a greater desire to get to know her better, compared to participants who were not power primed.

It should be noted that because the dependent measures in these particular studies were not motivational in nature but rather behavioral, it could be argued that there is simply a strong association between power and sex for sexual harassers, such that power primes sex, without any me-

diation by a goal state per se. Although this alternative explanation may be viable for these studies, it would not hold for any of the other demonstrations of nonconscious goal pursuit (Bargh et al., in press; Chartrand & Bargh, 1996; Gardner et al., 2001; Séguin & Pelletier, 2001; Spencer et al., 1998). In addition, another series of studies examining the goals automatically activated by situational power used dependent measures more directly linked to goal states.

These studies examined the notion that relationship orientation can moderate the effects of social power (S. Chen, Lee-Chai, & Bargh, 2001). It was hypothesized that people with a communal relationship orientation (Clark & Mills, 1979) associate power with social-responsibility goals and have such goals activated automatically when in power. Those with an exchange relationship orientation were assumed to chronically associate self-interest goals with power situations and so were predicted to have this type of goal automatically activated by situations of power.

In one study testing this hypothesis (S. Chen et al., 2001; Experiment 3), participants were led to a professor's office (because the lab rooms were ostensibly full) and were randomly assigned to be seated in either the professor's chair or the guest chair. This served as the power priming manipulation; those seated in the professor's chair were primed with situational power, and those in the guest chair with lack of power. The experimenter left the room briefly to get the second participant and returned saying that the second participant left a message saying that "they" (remaining non-gender-specific) would be arriving a few minutes late. The experimenter went on to explain that the study involved completing a set of 10 tasks, and each participant had to do 5 of these tasks. The experimenter gave the participant a description of the various exercises and how long each one took to complete. The participant was asked to choose 5 exercises to complete, after which he or she would be free to leave, with the understanding that the other participant would have to complete the remaining 5 when he or she arrived. The main dependent measure was the number of minutes required to complete the five tasks chosen by the participant. As predicted, among those seated in the professor's chair (but not among those in the guest chair), communals chose more minutes for themselves, compared to exchangers. This suggests that those with an exchange relationship orientation have self-interest goals automatically activated when primed with power, and those with a communal orientation have social-responsibility goals automatically activated when primed with power.

In all the studies demonstrating a link between the situation and the goal, there was no direct activation of the goal, as there was in the Bargh et al. (in press) and Chartrand and Bargh (1996) studies. The situation was primed, which in turn activated the goal, which then operated as if it had been consciously chosen. Moreover, the S. Chen et al.

(2001) studies demonstrated situational activation of goals without the priming cues being directly or semantically related to the primed construct. Instead, naturally occurring cues in the environment were used to prime power, thereby simulating one way in which power is often primed in the real world. Collectively, the studies demonstrating a link between situation and goal provide strong evidence that the environment activates goals that have been frequently and consistently chosen in that same environment in the past.

CONSEQUENCES OF AUTOMATIC GOAL PURSUIT

Regardless of whether a goal is consciously or nonconsciously determined, individuals either succeed or fail to achieve it. Research on consciously held goals has demonstrated that attaining such deliberately chosen goals improves one's mood and subsequent goal-relevant performance. Failing to reach such goals worsens one's mood and subsequent performance (Bandura, 1990, 1997; Beckmann & Heckhausen, 1988; Carver & Scheier, 1981; Gollwitzer, 1987, 1990; Gollwitzer & Wicklund, 1985; Heckhausen, 1987, 1991; Litt, 1988; Locke, Frederick, Lee, & Bobko, 1984; Nuttin & Greenwald, 1968; Weary, 1980; Weinberg, Gould, & Jackson, 1979). Do success and failure at nonconscious goal pursuit yield consequences similar to those of conscious goal pursuit?

One might argue that once a goal is activated—whether by the environment or through conscious choice—the goal is pursued in the same way (Chartrand & Bargh, 1996), and therefore the same consequences should arise from succeeding or failing at it. In fact, one could argue that mood might be especially vulnerable to influence by nonconscious processes because it frequently fluctuates during the course of a day, and people often are not aware of the source of their current mood at any given moment (Keltner, Locke, & Audrain, 1993; Schwarz & Clore, 1983, 1988, 1996; Schwarz, Servay, & Kumpf, 1985). Future goal-directed performance might also be easily affected because behavior has already been shown to be susceptible to influence from a variety of nonconscious processes (for reviews, see Bargh, 1997; Bargh & Chartrand, 1999).

Consequences for Mood

Chartrand (2001) conducted three experiments to explore the consequences of nonconscious goal pursuit. In a first study examining the consequences for mood, an achievement goal was primed in half the participants via a scrambled-sentence task. Participants were then given a "fun filler task" in the form of anagram puzzles, which were either very easy or very difficult to complete in what they were told was the "average" amount

of time. This manipulated whether participants "succeeded" or "failed," without the experimenter giving participants explicit positive and negative feedback. Finally, participants were asked to report their current mood. Results revealed that for participants primed with an achievement goal, those given the easy anagram task reported being in a better mood than those given the difficult version. For participants in the no-goal condition, however, there was no reliable difference in mood between those given the easy anagram version and those given the difficult version. Importantly, postexperimental questionnaires revealed that participants did not have a conscious achievement goal during the study. The anagram task had been purposefully downplayed, and most participants thought it was a fun task included to fill up time.

A second experiment (Chartrand, 2001; Experiment 2) extended this by attempting to replicate the effects using a different priming technique (subliminal) and different type of goal (impression formation). Specifically, participants performed a parafoveal vigilance task in which words related to an impression formation goal (or neutral words) were presented to them subliminally. Next, the experimenter played an audiotape for participants, which was a recording of a male voice describing a target person. This put participants in a situation in which they could potentially form an impression of the target person if they had the goal to do so (as only the impression goal-primed participants were predicted to have). The success–failure manipulation consisted of the target person description. He was described as either performing various clumsy acts or as engaging in some clumsy acts and some agile, graceful acts. Thus, the target was either consistent or inconsistent in his behaviors, making it either easy or difficult for the participants to form a coherent impression of the target.

In addition, Experiment 2 pitted nonconscious and conscious goal pursuit against each other by including an additional control condition in which participants were given the explicit instructions to form an impression of the target person. This allowed an assessment of the relative strength or magnitude of the consequences of nonconscious goal activation, compared to those of conscious goal operation. Results revealed that among participants either explicitly given an impression formation goal or primed with such a goal, those given the consistent target description (who succeeded) were in a better mood than those given the inconsistent description (who failed). However, the consistent versus inconsistent target manipulation did not have an effect on the mood of participants who did not have a goal (conscious or nonconscious) to form an impression. Funneled debriefing questionnaires revealed that participants in the explicit-goal condition had a conscious goal to form an impression of the target, but no participants in the primed-goal or no-goal conditions reported having any similar conscious goal.

Consequences for Self-Enhancement and Stereotyping

Tesser, Martin, and Cornell (1996) argued that the common denominator among various self-enhancement mechanisms—the trigger that sets them into motion—is mood of unknown origin. Specifically, if a person is in a bad mood and does not know why, he or she will be more likely to engage in self-enhancement (using whichever mechanism is most readily available). Thus, greater self-enhancement should ensue when individuals fail at nonconscious goals (negative mystery mood) than when they succeed at nonconscious goals (positive mystery mood) or process any outcome of a conscious goal (understood moods).

A series of studies to test the self-enhancement hypotheses have been conducted (Chartrand, Cheng, & Tesser, 2001). In a first experiment, participants were supraliminally primed with an achievement goal via a scrambled sentence task (nonconscious-goal condition), explicitly told to achieve by the experimenter (conscious-goal condition), or given no goal. They were then given a series of anagrams that were presented as a fun, filler task. The anagrams were very difficult to complete in what the participants were casually told was the average amount of completion time. To assess the extent to which participants then self-enhanced, they were given a questionnaire that measured self-serving definitions of success (Dunning, 1999; Dunning, Leuenberger, & Sherman, 1995). The questionnaire began with a description of a person who had been in a successful marriage for 25 years. Various attributes were provided about this person. Participants rated the contribution of each attribute to the positive outcome (successful marriage). Participants then completed a demographic survey that asked whether they themselves had various attributes, including the ones from the earlier task. To the extent that they create self-serving definitions of success (Dunning et al., 1995), individuals are more likely to rate the qualities that they share with the target person as being greater contributors to the successful marriage than qualities that they do not share. Results indicated that those who failed at a nonconscious goal created the most self-serving definitions of success (i.e., importance ratings for qualities they share minus the importance ratings for qualities they do not share), those who had no goal created the least self-serving definitions of success, and those who failed at a conscious goal fell in between.

It should be noted that all participants in this particular study failed at the goal, which left open the possibility that any mysterious mood—positive or negative—would trigger self-enhancement equally. However, a conceptual replication was conducted during which some individuals succeeded at a nonconscious achievement goal and some failed. Results indicated that only those who failed (and not those who succeeded) exhibited self-enhancement on the self-serving bias measure.

An additional study by Chartrand et al. (2001) examined a different

type of self-enhancement: stereotyping others. Fein, Spencer, and their colleagues (Fein & Spencer, 1997; Spencer et al., 1998) have demonstrated that stereotyping serves the same function that other self-enhancement mechanisms do: It boosts the ego and restores self-esteem during times of self-threat. Thus, it was predicted that those who fail at a nonconscious goal would stereotype more than those who fail at a conscious goal or no goal. Participants were primed (via a scrambled sentence task) with an achievement goal (nonconscious-goal condition), explicitly given an achievement goal by the experimenter (conscious-goal condition), or given no goal. Participants were all then given the difficult anagrams as a fun, filler task.

An additional variable was manipulated in this study as well; it was reasoned that if a negative mystery mood were driving the greater self-enhancement, then reducing the mysteriousness of the mood should attenuate the self-enhancement. Thus, half the participants were given a mood scale that provided an attribution for their mood: the previous anagram task. Specifically, the directions on the top of the mood scale stated "How did that anagram task make you feel? Please report your current mood state." The other half did not receive this form. Participants were then given the dependent variable: a measure of implicit stereotyping developed by von Hippel, Sekaquaptewa, and Vargas (1997). This Stereotypic Explanatory Bias (SEB) scale assumes that to the extent an individual is relying on his or her stereotypes, he or she will feel the need to "explain away" stereotype-inconsistent behaviors in an effort to understand what was unexpected. Higher SEB scores indicate greater implicit stereotyping. Results revealed that participants who failed at a nonconscious achievement goal and were not given an attribution for their mood state (i.e., it remained a negative mystery mood) engaged in more implicit stereotyping. As expected, however, when they were given an attribution for their mood state, the stereotyping effect was attenuated. They no longer needed to stereotype others, providing further evidence that it is being unaware of the cause of a bad mood that increases the need to self-enhance. The difference between attribution conditions was not significant for those who failed at a conscious goal or no goal.

Consequences for Subsequent Goal-Relevant Performance

Chartrand (2001; Experiment 3) also tested for possible behavioral consequences of success and failure at nonconscious goal pursuit by measuring performance on a subsequent task. Participants were either primed with an achievement goal or not. They next were administered either the easy or the difficult anagram task (manipulating success and failure, respectively). Finally, participants were given a portion of the verbal section of the Graduate Record Examination (GRE) to test their subsequent per-

formance at a verbal task. Participants primed with an achievement goal who had succeeded on the earlier anagram task scored significantly higher on the verbal GRE than did those who had failed. There was no such difference for those not primed with an achievement goal. Again, no participant reported having a conscious goal to achieve during the study.

People may often have goals triggered by social situations and work toward them unwittingly. For instance, at a party situation a person may have a self-presentational goal activated, or in an interview an ingratiation goal, or with siblings a competition goal, without the individual's awareness or intent that the goal is operating to guide cognition and behavior. The Chartrand (2001) studies represent an attempt to better understand the consequences of such nonconscious goal pursuit. Experiments 1 and 2 provided strong evidence that success at nonconscious goal pursuit improves one's mood, whereas failure depresses one's mood. Experiment 3 demonstrated that success and failure at nonconsciously pursued goals also affect future performance; success leads to better performance, and failure leads to worse performance.

DO NONCONSCIOUS GOALS NECESSARILY MEDIATE THE STIMULUS–RESPONSE LINK?

The auto-motive model posits that goals can become automatically activated by situational features linked to those goals in memory. Bargh et al. (in press) provided evidence that individuals displayed several qualities associated with motivational states following the achievement priming manipulations in their studies. However, these tests for motivational states were not conducted in any of the other studies discussed above. Many of these studies exposed individuals to words related to a goal state in an implicit priming manipulation and found the individuals to behave in line with those goals. Results were interpreted as providing support for nonconscious motivation and goal pursuit. But does one really need the construct of goals to explain the results of these studies, or could something simpler, such as plain conditioning mechanisms, account for the effects? That is, can classic S–R behaviorism provide a more parsimonious explanation for these studies, unmediated by nonconscious motivation? When certain behaviors and reactions occur repeatedly and consistently in certain situations, eventually these situations are sufficient to trigger the relevant behaviors. Perhaps the priming manipulations in the auto-motive studies activate not goals per se but rather behavioral sequences or habitual plans.

There are several reasons this is unlikely. First, the Aarts and Dijksterhuis (2000) studies discussed above showed that habitual plans of action were automatically activated only for individuals who were first primed with the relevant goal. For those not primed, the behavioral sequences

were not automatically activated by the environment. If it were just the environment activating a behavioral sequence, the priming of the goal beforehand would not be a necessary precondition of the effect, and yet it was. This suggests that strategies, plans of action, and behavioral sequences are an inextricable part of goal structure and hierarchy.

Second, in S–R behaviorism, the environment directly shapes the behavior of the individual, unmediated by any mental process. However, people who were primed with the various goals in the auto-motive studies reviewed above behaved differently than people who were not. It was the pre-activation of the goal state that caused the differences in behavior, not the situation or environment participants were in after the priming. The priming manipulations caused individual differences not explainable in terms of the stimulus environment, which precludes a radical behaviorist account of the findings.

Third, conditioning refers to single reflexive behavioral responses to single environmental stimuli, or S–R links. But in the auto-motive studies discussed above, behavior was shown to interact in a complex fashion with incoming and unpredictable environmental information over time. The goal guided the processing of the information in that different things were done with the information depending on the goal that was primed, and behavior was flexible and adaptive to that information over time (Bargh, 2001). Moreover, motivational states such as greater effort, persistence, and drive to complete the goal were shown to be present after a goal used frequently in this type of research was primed (Bargh et al., in press). None of these effects can be understood in terms of the S–R psychology model, in which each discrete response is emitted in the presence of a single controlling stimulus event. These effects are produced by internal mechanisms that operate on the information over an extended time. So, clearly, they cannot be explained by reflexive behaviors emitted in the presence of a single conditioning stimulus (Bargh, 2001).

Finally, the Chartrand (2001) studies also pose a problem for radical behaviorists. Of course, behaviorists would not be interested in the consequences of success and failure at nonconscious goal pursuit for mood, as tested in Studies 1 and 2 (Chartrand, 2001). Moreover, a behaviorist would not predict a change in future behavior based on the ease or difficulty of the anagram task. The reasons for this are twofold. First, there was no explicit success or failure feedback given and no other reward or punishment. There was no conditioning at all, so future performance in Study 3 should not have been affected. Second, even if there were some internal reward or punishment caused by the ease or difficulty, it was the same for everyone in the experiment (i.e., those primed with the goal and those not primed with the goal). A behaviorist would have predicted subsequent behavior effects for everyone in the experiment, and that did not happen.

CONCLUSION

There is substantial support for the notion that goals function the same way, regardless of whether they are instigated through conscious, deliberate means or through primed, nonconscious means. A growing body of evidence indicates that self-regulation and indeed goal-directed cognition and action are not limited to the conscious domain.

People's ability to have goals automatically activated by the environment is generally adaptive and positive. Goals become automatized to better serve our chronic desires and wishes. If goals are activated even when we are not giving them our conscious attention, then we will engage in goal-directed action even when we are not making any conscious effort to do so. This will be beneficial, because we will be more likely to achieve our immediate goals, thereby satisfying our enduring motives. The recent evidence that our capacity for conscious self-regulation is severely limited (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven & Baumeister, 2000; Muraven, Tice, & Baumeister, 1998) suggests that nonconscious self-regulation is necessary for everyday functioning. Self-regulation is a limited resource, so automatic goal pursuit helps us save these self-regulatory resources for when they are really needed.

The notion of an automatic process as adaptive and in service of the individual agrees with a host of other studies in the field that have shown automatic processes to be generally adaptive. For instance, our tendency to automatically mimic the behaviors, postures, and mannerisms of other people serves a positive function: It creates empathy, liking, and understanding among people (Chartrand & Bargh, 1999). The tendency to automatically evaluate stimuli in our environment as positive or negative (Bargh, Chaiken, Govender, & Pratto, 1992; Bargh, Chaiken, Raymond, & Hymes, 1996; Fazio, Sanbonmatsu, Powell, & Kardes, 1986) is also adaptive in that it provides a "running average" of the positive and negative people, things, and events in our environment. This in turn provides us with "intuition"—our sense of whether our current environment is safe and positive or dangerous and negative. In line with this, automatic evaluation has been shown to affect our mood (Chartrand & Bargh, 2001), our social judgments and interpretations of ambiguous stimuli (Ferguson & Bargh, 2001), and our behavioral tendency to approach or avoid (M. Chen & Bargh, 1999). This growing body of evidence suggests that automatic processes should not all be seen as negative, evil forces to be avoided, confronted, or reckoned with (Freud, 1901/1965; Langer, 1978, 1997; Langer, Blank, & Chanowitz, 1978) but rather as generally functional, beneficial, positive processes. Not only do they save much-needed cognitive resources, but they also usually serve the individual's chronic needs and desires.

However, the process of automatic motivation can surely go wrong.

People might have certain goals activated in inappropriate situations. Just because an individual used to choose a certain goal in a certain situation consistently and frequently does not mean that it is still appropriate in that situation. But the environment may still trigger the goal in this individual without his or her awareness or intent. This can become dangerous, especially if the goal is frequently not attained, because even though individuals do not realize they have the goal, failing at it will put them in a worse mood and worsen their future performance (Chartrand, 2001). One can further speculate that failing at a nonconscious goal may lead to frustration. According to the frustration–aggression hypothesis (Berkowitz, 1989; Dollard, Doob, Miller, Mowrer, & Sears, 1939), frustration elicits the motive to aggress, which further suggests that individuals who have failed at a nonconscious goal may be more likely to behave aggressively.

One could also speculate that nonconscious goal pursuit might contribute to certain emotional disorders. Individuals who have a maladaptive goal chronically activated by a certain situation and who always fail at it are consistently feeling bad without knowing why. This could lead to depression or perhaps to a sense of generalized, "free-floating" anxiety because they do not know why they feel that way and cannot control it. Perhaps these emotional disorders can be better understood by examining what goals the individual might be pursuing nonconsciously.

In sum, recent work on nonconscious goal pursuit suggests that self-regulation can bypass conscious mediation altogether. Individuals can have goals automatically activated by environments in which those goals were frequently and consistently chosen in the past. Such goals then operate and interact with the environment to guide subsequent cognition and behavior, in the same way that consciously held and pursued goals do. Nonconscious goal pursuit has consequences for mood and subsequent goal-relevant performance that have only begun to be explored. This new frontier promises to increase our understanding of the way we think, feel, and behave in social situations.

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