Liking Is for Doing: The Effects of Goal Pursuit on Automatic Evaluation

Melissa J. Ferguson
Cornell University

John A. Bargh
Yale University

Findings from 3 experiments suggest that participants who were actively engaged in goal pursuit, compared with those who were not pursuing the goal, automatically evaluated goal-relevant objects as relatively more positive than goal-irrelevant objects. In Experiment 3, participants' automatic evaluations also predicted their behavioral intentions toward goal-relevant objects. These results suggest the functional nature of automatic evaluation and are in harmony with the classic conceptualization of thinking and feeling as being in the service of "doing" (e.g., S. T. Fiske, 1992; W. James, 1890; K. Lewin, 1926) as well as with more recent work on the cognitive mechanics of goal pursuit (e.g., G. B. Moskowitz, 2002; J. Y. Shah & A.W. Kruglanski, 2002).

Research has established that evaluative information about objects is among the first types of knowledge activated on perception of those objects. Such activation occurs within a fraction of a second after perceiving an object and requires neither the intention to evaluate the object nor even the conscious perception of the object (e.g., Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, 2001; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Greenwald, Klinger, & Liu, 1989; Greenwald, McGhee, & Schwarz, 1998). The automatic activation of evaluative information has been characterized as functional because it enables people to quickly and effortlessly appraise their current environment for signs of potential threat and benefit and then act accordingly (e.g., Fazio, 1989; Roskos-Ewoldsen & Fazio, 1992). In this way, automatic evaluation allows an immediate assessment of the desirability or undesirability of objects, which can then facilitate the general goals of attaining rewards and avoiding danger.

Most objects, however, are seldom either desirable or undesirable to the same degree across time and situations. Instead, as the motivational priorities of a perceiver change, the goal relevance of objects (i.e., whether they should be approached or avoided) naturally changes along with them (e.g., Brendl & Higgins, 1996; Lazarus, 1991; Lewin, 1926; Markman & Brendl, 2000; Rosenberg, 1956; Shah & Higgins, 2001). Certain objects in one's environment may therefore be highly desirable while a focal goal is being pursued and become notably less desirable once the goal is reached. For example, a glass of cold water may be desirable when one's throat is parched and dry but become inconsequential after thirst has been quenched (see also Loewenstein, 1996).

In the current article, we propose that the automatic evaluation of objects is sensitive to the shifting goal relevance of the corresponding objects. If such evaluations are meant to enable the perceiver to prepare for goal-consistent action, they should ideally be responsive to the perceiver's current motivational concerns. In particular, we argue that when an object is useful to a current goal, the evaluative information that is automatically activated should be relatively more positive compared with when the goal is not in place or has already been reached. This increased positivity can result from greater accessibility of positive object information or greater inhibition of negative object information (or both) compared with when the goal is not in place. Either outcome would render the object more *approach friendly* and thus potentially facilitate goal-consistent behavior.

Such goal-dependent fluctuation would indicate that the automatic evaluation of objects is situated in the motivational context in which the perceiver encounters those objects. In this way, the current perspective is in harmony with the long-standing pragmatic conceptualization of thinking and feeling as in the service of actual behavior (Allport, 1937; Asch, 1940; Bruner, 1957; Fiske, 1992; Glenberg, 1997; Heider, 1958; James, 1890; Kunda, 1987; Lewin, 1935; M. B. Smith, Bruner, & White, 1956), as well as various theories on situated cognition (e.g., Schwarz, 2002; E. R. Smith & Semin, in press). Just as contextualist and action-based theories of cognition have asserted that goal states and intentions can serve as filters on object perception in general (e.g., Glenberg, 1997), we argue in the current article that goal states may also actively filter what kinds of evaluative information in particular are automati-

Melissa J. Ferguson, Department of Psychology, Cornell University; John A. Bargh, Department of Psychology, Yale University.

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Correspondence concerning this article should be addressed to Melissa J. Ferguson, Department of Psychology, Cornell University, 211 Uris Hall, Ithaca, NY 14853. E-mail: mjf44@cornell.edu

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cally activated regarding an object, which may influence the perceiver's actions toward the object.

In what follows, we consider the ways in which goal states might influence the type of evaluative information automatically activated on the perception of objects. We then turn to three specific hypotheses concerning the circumstances under which people's online implicit evaluations of objects are sensitive to what they are trying to do vis-à-vis those objects. In this way, we seek to assess whether automatic liking is ultimately in the service of actual "doing" (e.g., Fiske, 1992; James, 1890; Lewin, 1935).

How Goal States Might Influence Automatic Evaluation

Research over the past several years on the cognitive mechanics of goals has suggested that a perceiver's focal goal pursuit influences the accessibility of goal-relevant knowledge (e.g., Aarts & Dijksterhuis, 2000; Aarts, Dijksterhuis, & De Vries, 2001; Moskowitz, 2002; Fishbach, Friedman, & Kruglanski, 2003; Goschke & Kuhl, 1993; Shah, Friedman, & Kruglanski, 2002). Goal states can facilitate knowledge that is consistent with the goal (Aarts et al., 2001; Moskowitz, 2002), and inhibit knowledge that might thwart the goal (e.g., Shah, Friedman, & Kruglanski, 2002). This recent work suggests, just as Bruner (1957) and others have argued, that goal states can make perceivers more perceptually ready to identify goal-relevant information and less ready to identify potentially goal-disabling information compared with when the goal is not in place (see also Gollwitzer, 1999).

From the present perspective, the effects of goal pursuit on the accessibility of goal-related object information might further depend on the evaluative nature of that information. That is, it may be that goal states do not automatically make all knowledge about goal-relevant objects more accessible but rather differentially influence the positive versus negative object information. In particular, active goal pursuit might render positive object information, such as benefits from approaching the object, more accessible or make negative object information, such as past losses associated with approaching the object, less accessible, or both. Either outcome would make useful objects more approach friendly and thereby foster approach behaviors toward those objects, either because the rewards of attainment become especially salient in the former case or because possible obstacles become inhibited in the latter case. If goal states do influence automatic evaluations in such an online fashion, automatic evaluative processes may function as a low-level mechanism of successful goal pursuit.

When Goal Pursuit Might Influence Automatic Evaluation

Under what circumstances will goal states increase the approach friendliness of objects through automatic evaluative processes? We identify three hypotheses concerning this question. The first hypothesis is that the automatic evaluation of objects should be more approach friendly (more positive or less negative, or both) when the objects are relevant to the perceiver's current (i.e., active and incomplete) rather than recent (i.e., inactive and completed) goal pursuit. This hypothesis directly addresses the possibility that automatic evaluations can be prospective in that they reflect goals that are being pursued rather than goals that have just been completed or were never active.

The second hypothesis is that the perceiver's goal pursuit should influence the automatic evaluation of only those objects that can facilitate the goal. In other words, we do not expect that a perceiver trying to accomplish a goal will indiscriminately automatically evaluate all or most objects as predominantly positive, suggesting perhaps a general appetitive state. Instead, the relative positivity of a perceiver's automatic evaluation toward objects should increase as the goal relevance of the corresponding objects increases. If automatic evaluations are meant to orient attention (see Roskos-Ewoldsen & Fazio, 1992) and ultimately guide behavior toward objects according to a current goal, then they should reflect the objects' degree of usefulness for that goal.

The first and second hypotheses are consistent with early work by Lewin (1935), in which he stated that

> the valence of an object usually derives from the fact that the object is a means to the satisfaction of a need, or has indirectly something to do with the satisfaction of a need . . . the kind (sign) and strength of the valence of an object or event thus depends directly on the *momentary condition of the needs of the individual concerned* [italics added]. (pp. 78–81)

This statement demonstrates how Lewin considered both the perceiver's current goal pursuit and the utility of the respective objects to be important determinants of the valence of those objects, just as we are arguing in the present work.

The third hypothesis is that the effect of current goal pursuit on automatic evaluation will be moderated by the importance of that goal to the perceiver. This prediction is based on our assumption that changes in automatic evaluation are fundamentally tied to what the person is trying to do at the moment—that is, his or her motivational priorities. Someone who is only nominally pursuing a goal likely possesses competing goals that might dilute the motivational and thus evaluative significance of objects tied to only one goal (see Shah & Kruglanski, 2002, 2003). Therefore, we expect that objects that are relevant to a high-priority goal should be relatively more positively evaluated than objects linked with less important (but still currently pursued) goals.

Overview of the Experiments

In all three experiments, we measured automatic evaluation by using a sequential evaluative priming paradigm (see, e.g., Fazio et al., 1986). In the standard paradigm, primes that represent objects (e.g., *sunshine*, *poison*) are paired with positive and negative adjectives (e.g., *wonderful*, *awful*). Within a given trial, the presentation of a prime is followed by the presentation of an adjective, to which participants are typically asked to render an evaluative decision (i.e., "Is this a good or bad word?"). The primary dependent measure is the speed with which participants respond to the adjectives as a function of the type of preceding prime. Research on evaluative priming has established that responses to target adjectives are facilitated when the preceding primes and the targets share the same valence versus when they do not (e.g., Fazio, 2001; Musch & Klauer, 2003).

This priming paradigm allows one to gauge participants' automatic evaluation of a particular object (or set of objects) by assessing whether the object facilitates responding to positive versus negative adjectives, relative to a comparison object or a comparison group of participants (e.g., Fazio, Jackson, Dunton, & Williams, 1995; Wittenbrink, Judd, & Park, 2001). If a given object facilitates positive adjectives over negative adjectives to a greater degree in a condition in which a goal has been induced

versus a control condition, for example, then one can infer that the object was relatively more positively evaluated in the goal condition. Such an assessment is inherently relative and can be based on faster responses to positive adjectives in the goal versus control condition, slower responses to negative adjectives in the goal versus control condition, or both. Whereas the former case would suggest that positive object information is relatively more accessible in the goal condition, the latter case would suggest that negative object information is relatively more inhibited in the goal condition. Either outcome would ostensibly make the object more likely to be approached.

This measure is considered implicit because participants are not asked to evaluate the (primed) objects themselves and also have consistently reported that they are unaware that their evaluations of the objects were being assessed (e.g., Bargh et al., 1992; Fazio et al., 1986; Greenwald & Banaji, 1995). The implicit nature of the measure allows an assessment of how goal states automatically influence the accessibility of evaluative information about objects, suggesting perhaps the low-level (i.e., not prompted by the perceiver's conscious intentions or strategic processing) operation of an evaluative self-regulatory mechanism.

Results from a recent experiment that used an evaluative priming paradigm provide preliminary evidence of the effects of currently active goal knowledge on the automatic evaluation of objects (Ferguson & Bargh, 2004). We examined whether the perception of a word that represented a typical goal for college students (e.g., *achieve*, *celebrate*) would influence how a subsequently presented activity (e.g., *study*, *party*) was automatically evaluated. We expected that activities (e.g., *study*) would be relatively more positively evaluated when they were relevant (i.e., useful) for the preceding goal (when the goal was *achieve*) versus when they were irrelevant to the preceding goal (when the preceding goal was *celebrate*). To test this prediction, each trial in the priming paradigm consisted of the sequential presentation of a goal word, an activity, and a positive or negative adjective. The critical dependent variable was the pattern of response times (RTs) to positive versus negative adjectives as a function of whether the preceding activity was relevant versus irrelevant to the goal word.

In line with our prediction, the results demonstrated that participants automatically evaluated the activities as relatively more positive when they were preceded by goal words for which they were relevant strategies versus goal words for which they were not relevant strategies. For instance, participants were significantly faster to respond to positive versus negative adjectives only when the preceding activity *study* was itself preceded by the word *achieve* and not when *study* was preceded by the word *celebrate*.[1]

Although these findings clearly demonstrate the contextual dependence of automatic evaluations (e.g., Bassili & Brown, in press; Ferguson & Bargh, 2003; Mitchell, Nosek, & Banaji, 2003) and are suggestive of the effect of goal states on automatic evaluation, we did not manipulate goal pursuits in this experiment and instead used as a proxy existing associations in memory between different types of knowledge (goals, behaviors). Therefore, we sought to more directly test the current hypotheses concerning the effects of active goal pursuit on automatic evaluation in the present series of three experiments. Specifically, we manipulated participants' goal pursuit and examined its effect on the automatic evaluation of objects as a function of whether or not participants had completed or still possessed the assigned goal (Experiments 1–3), the goal relevance of the objects (Experiments 2 and 3), and the importance of the goal (Experiment 3).

Experiment 1

In the first experiment, we assessed whether participants' current, versus recent, goal pursuit would lead to relatively more positive automatic evaluations of useful objects. Accordingly, we induced a specific goal state in some participants (and not others) and then measured their automatic evaluations of useful objects either before or after they had completed their goal.

This experiment therefore tested the prospective nature of automatic evaluations in terms of whether they would be relatively more positive in response to useful objects while the corresponding goal was yet to be completed versus after it was attained. Such a finding would be in accord with early research by Nuttin and Greenwald (1968; see especially chapters 5 and 6) that showed that reward experiences only increased learning of certain stimulus–response pairs if participants expected to encounter those stimuli again during the experiment versus when they did not. When participants did not expect to generate responses to those stimuli again, there was no beneficial effect of reward on learning. This early work suggests that participants are sensitive to the prospective utility of responses—responses that can fulfill future goals seem to make more indelible impressions on participants' memory than do responses that will not be useful later (see also Marsh, Hicks, & Bryan, 1999; Roediger, 1996). In this spirit, we predicted that participants would evaluate those objects that were still useful to them at the time of the implicit measure as relatively more positive versus objects that were no longer useful.

In addition, we also tested whether the goal manipulations would influence participants' explicit evaluations of the objects. Research has suggested that explicit evaluations can be influenced by the current utility of the respective objects (e.g., Brendl, 2001; Brendl & Higgins, 1996; DeBono, 1987; Herek, 1987; Markman & Brendl, 2000; Tesser & Martin, 1996) as well as numerous other contextual influences (e.g., N. H. Anderson, 1974; Schwarz & Bohner, 2001; Tesser, 1978). By collecting explicit evaluation ratings, we could assess the degree to which automatically activated and strategically generated evaluations were similarly influenced by the goal manipulation.

Overview

All participants played a novel word-creation game in which they had to make as many words as possible in 5 min. They were induced to either care about their performance (achievement goal) or not (control condition). Participants completed the implicit evaluation measure either while they were still playing the game (unfinished condition) versus after they had completed the game (finished condition).

All of the objects included in the implicit measure were useful

[1] Details concerning this experiment are available on request from Melissa J. Ferguson.

to game performance. We included both objects that are traditionally associated with performance (e.g., *achieve*, *win*) as well as arbitrarily selected objects that were rendered useful only through the instructions of the game. By instructing participants in the achievement condition that they would be awarded points for creating nouns that start with the letter *C*, we expected that participants would consider the objects *nouns* and *C* as signifying useful means for the goal of performing well in the game (see also Moors & De Houwer, 2001; Moors, De Houwer, & Eelen, 2004).

Method

Participants. Participants were 84 undergraduates (53 women, 31 men) at New York University who participated in the experiment in exchange for course credit.[2] Given the language-based nature of the task, the data from 11 participants who learned the English language after the age of 9 were excluded from the analyses. (The pattern of results was identical when their data were included.)

Materials. Objects were selected according to their relevance to the game (see below) and included the nine words *nouns*, *c*, *words*, *points*, *compete*, *achieve*, *win*, *creative*, and *game.* The target words were clearly valenced adjectives (e.g., *excellent*, *disgusting*) that have been used in previous studies (e.g., Bargh et al., 1992; Fazio et al., 1986). There were 32 adjectives, and these were rotated through the trials (see below). Fifteen letter tiles were used and included the letters *a*, *b*, *c*, *d*, *e*, *e*, *i*, *l*, *m*, *n*, *o*, *o*, *r*, *s*, and *w*.

Design. Adjective valence (positive, negative) and block (first, second) were within-participant variables. The achievement factor (goal, no goal) and the goal-status factor (finished, unfinished) were the two between-participants variables.

In the priming task on the computer, each object was presented eight times, four times with a positive adjective and four times with a negative adjective. The trials were divided into two blocks of 36 trials each. The design cells were evenly distributed across the two blocks. The trials were randomly presented to each participant within each block.

Procedure. Participants were randomly assigned to the between-participants conditions and were seated at individual computers. At the side of each computer on the desk were the 15 letter tiles, arranged in a random fashion.

Participants in the achievement goal condition were instructed that they would play a game in which they would make as many words as possible out of 15 letter tiles. They were told that the game required verbal skills and creativity and would indicate their academic achievement potential and that their performance would be compared with that of other students at their university. They were informed that they would receive a point for every word they made, 5 points for every noun, and 7 points for every noun that started with the letter *C*, and were told to write the words down on the provided sheet of paper. In contrast, participants in the no-goal condition were told that the experimenter was interested in how people experienced the task because it was being modified for use in future studies. They were told that they did not need to write anything down, remember anything, or show the experimenter any of the words.

Participants in the unfinished condition were told that they would play two rounds of the game. They were told that the first round would last for 5 min and that they would then participate in a brief computer task to clear their mind before starting the second round. Participants in the finished condition, in contrast, were told that they would play the game for 5 min and would then be finished with it and would go on to an unrelated computer task.

The computer task (i.e., the implicit evaluation measure) was described as a series of evaluative judgments, and participants were told that they would see a pair of words on each trial and that they should concentrate on evaluating the second word that appeared as quickly and as accurately as possible. Each trial consisted of an object presented in the center of the screen for 150 ms, followed by a blank screen for 150 ms, followed by the target adjective. The target remained on the screen until the participant classified it as good or bad by pressing one of the correspondingly labeled keys. The intertrial interval was 2,000 ms. Participants completed four practice trials.

Following the computer task, participants were asked for their explicit evaluations of the object stimuli on a scale of 1 (*very negative*) to 10 (*very positive*). After they had completed the explicit measure, all those who were in the unfinished condition were told that they were actually finished with the experiment and thus would not be playing a second round of the game. All participants were then given a funnel debriefing questionnaire (Bargh & Chartrand, 2000) in which they were first asked to speculate about the general purpose of the study and then whether they noticed any relation among the words presented in the computer task and the word game. They were then fully debriefed and thanked for their participation.

Results

None of the participants mentioned anything about the word task influencing their evaluations toward the words in the computer task, and no one guessed that the prime words might affect the speed of responses to the adjectives.

Automatic evaluations. Analyses were conducted on correct responses only. There was a 4% error rate across the 73 participants. RTs that were 3 standard deviations above an individual's average RT were dropped, as were RTs that were below 250 ms. Analyses were performed on log-transformed data, but nontransformed RTs are presented in Table 1 and Figure 1.

We entered the average RTs toward the adjectives (averaged across the nine objects) into a repeated-measures analysis of variance (ANOVA) with adjective valence (positive, negative) and block (first, second) as the within-participant variables and achievement condition (goal, no goal) and goal-status condition (finished, unfinished) as the between-participants variables. The predicted interaction between adjective valence, achievement condition, and goal-status condition was significant, $F(1, 69) = 6.18$, $p = .015$, and was not further qualified by block. Specifically, as can be seen in Figure 1, only those who were in the goal condition and who thought they would be playing the game again after the computer task (i.e., unfinished condition) automatically evaluated the objects in an approach-friendly manner by responding significantly faster to positive adjectives ($M = 657$) compared with negative adjectives ($M = 738$), $F(1, 16) = 11.84$, $p = .003$. In contrast, and as expected, those in the other three conditions did not respond significantly faster to the positive adjectives versus the negative adjectives, and in fact, those in the unfinished–no goal condition responded more slowly to positive ($M = 642$) versus negative ($M = 623$) adjectives, although the difference was nonsignificant, $F(1, 18) = 4.05$, $p = .06$. In the other two conditions, the main effect of adjective valence was nonsignificant (both Fs < 1; see Table 1).

We then performed a series of contrasts to determine whether those in the unfinished–goal condition responded to the negative adjectives more slowly than those in the other three conditions (unfinished–no goal, finished–no goal, finished–goal). Those in the unfinished–goal condition responded to negative adjectives ($M = 738$) significantly more slowly than those in the unfinished–no goal condition ($M = 623$), $t(69) = 1.68$, $p < .05$,

[2] The gender of the participant did not have any effect on the results reported in Experiments 1–3, and thus this factor is not discussed further.

Table 1
Response Times in Milliseconds as a Function of Achievement Condition, Goal-Status Condition, and Target Adjective

Goal-status condition	Target adjective: Positive	Target adjective: Negative
Achievement goal		
Unfinished		
M	657	738
SD	197	308
Finished		
M	623	625
SD	113	84
No goal		
Unfinished		
M	642	623
SD	120	141
Finished		
M	612	608
SD	84	75

one-tailed; significantly more slowly than those in the finished–no goal condition ($M = 608$), $t(69) = 1.73$, $p < .05$, one-tailed; and more slowly than those in the finished–goal condition ($M = 625$), although the difference was nonsignificant, $t(69) = 1.46$, $p = .075$, one-tailed. There were no overall differences in participants' responses to positive adjectives as a function of achievement condition and goal-status condition (all ps $> .2$).

Explicit evaluations. We then analyzed the explicitly measured evaluations toward the same objects (*nouns*, *words*, *points*, *compete*, *achieve*, *win*, *creative*, and *game*), except for the letter *C*, which was inadvertently not included in the explicit measure. We entered the average ratings across all eight objects into a univariate ANOVA with achievement condition and goal-status condition as the between-participants variables. No significant main effects or interactions emerged (all Fs < 1).

Explicit and automatic evaluations. We also examined the relationship between the automatic evaluations and the explicitly measured evaluations. An index for the relative positivity of the automatic evaluations was created by subtracting the average RTs to the positive adjectives from the RTs to the negative adjectives, averaged across all eight objects (excluding *C*). (Thus, longer RTs indicate relatively more positive automatic evaluations.) We then correlated these difference scores with the explicit ratings. There was no overall relationship between the automatic evaluations and the explicitly reported evaluations toward the objects ($r = .01$, *ns*).

Discussion

The results provide strong evidence for the first hypothesis that current, and not recently completed, goal pursuit renders useful objects relatively more approach friendly. Only those participants in the unfinished–goal condition responded significantly faster to positive versus negative adjectives following the nine goal-relevant objects; the rest of the participants did not. In this case, the objects were rendered more approach friendly in the unfinished–goal condition because of negative information about them being inhibited relative to the other conditions. Such an inhibition of negative information would ostensibly make the useful objects more likely to be (conceptually) approached compared with the other conditions.

It is noteworthy that even though those in the finished–goal condition had just pursued the goal minutes before the implicit evaluation measure, they evaluated the objects in seemingly neutral terms (i.e., no facilitation for positive vs. negative adjectives). These results suggest that the relatively more positive evaluations exhibited by those in the unfinished–goal condition were not solely the result of conditioning in which positivity was attached to the objects as a function of using them to accomplish a goal. If this had been the mechanism, then those in the finished–goal condition should also have exhibited relatively positive automatic evaluations. Instead, the evaluations must have been a function of the currently active state of the goal, which served to influence the valence of the goal-relevant objects, but only while the goal was in place and being pursued. This finding is consistent both with the early work by Nuttin and Greenwald (1968) and with the intuitions of Lewin (1935), as described earlier. If participants in the finished-goal condition had expected to encounter the objects in the same achievement context again, we might have expected their evaluations to be relatively more positive than in the current experiment, where the novel game (with its associated scoring system) was unlikely to be experienced again.

The results also suggest that participants exhibited relatively more positive evaluations (compared with the other conditions) of objects that had been rendered useful only minutes before in a novel task (*words*, *c*, *nouns*). This suggests that current goal pursuit can influence automatic evaluations toward objects that have presumably never been linked previously with the goal. We examined whether the strength or direction of the effect might have differed for those objects that had probably never been linked with the achievement goal (*words*, *c*, *nouns*) versus those objects that might have previously been linked with an achievement goal (*achieve*, *compete*, *game*, *points*, *creative*, *win*), but we did not find any such evidence. The pattern of data was similar across all nine objects, and the main interaction between achievement condition, goal-status condition, and adjective valence was not qualified by the familiarity of the objects in terms of an achievement goal (old, new; $F < 1$). This pattern of results, then, suggests that automatic responses can be sensitive to newly learned information, which is contrary to the notion that responses must be repeatedly enacted over time in order to operate automatically (Bargh, 1984, 1990; Fazio, 1986; Shiffrin & Dumais, 1981; E. R. Smith & Lerner, 1986; but see Bargh, 2001) but is consistent with recent evidence that automatic evaluation can reflect recently learned associations between objects and valence information (Castelli, Zogmaister, Smith, & Arcuri, 2004; De Houwer, Hermans, & Eelen, 1998; Moors et al., 2004; see also Niedenthal, Halberstadt, & Innes-Ker, 1999).

Finally, participants' current goal pursuit only influenced their automatic evaluations and not their explicitly rendered evaluations. Although previous research has suggested that current goal states can influence explicit attitudes toward useful objects (e.g., Brendl & Higgins, 1996; Markman & Brendl, 2000), numerous factors might have contributed to the explicit ratings of the objects, such as norms concerning evaluative expressions, social desirability, and demand-laden reactance (e.g., Gaes, Kalle, & Tedeschi, 1978;

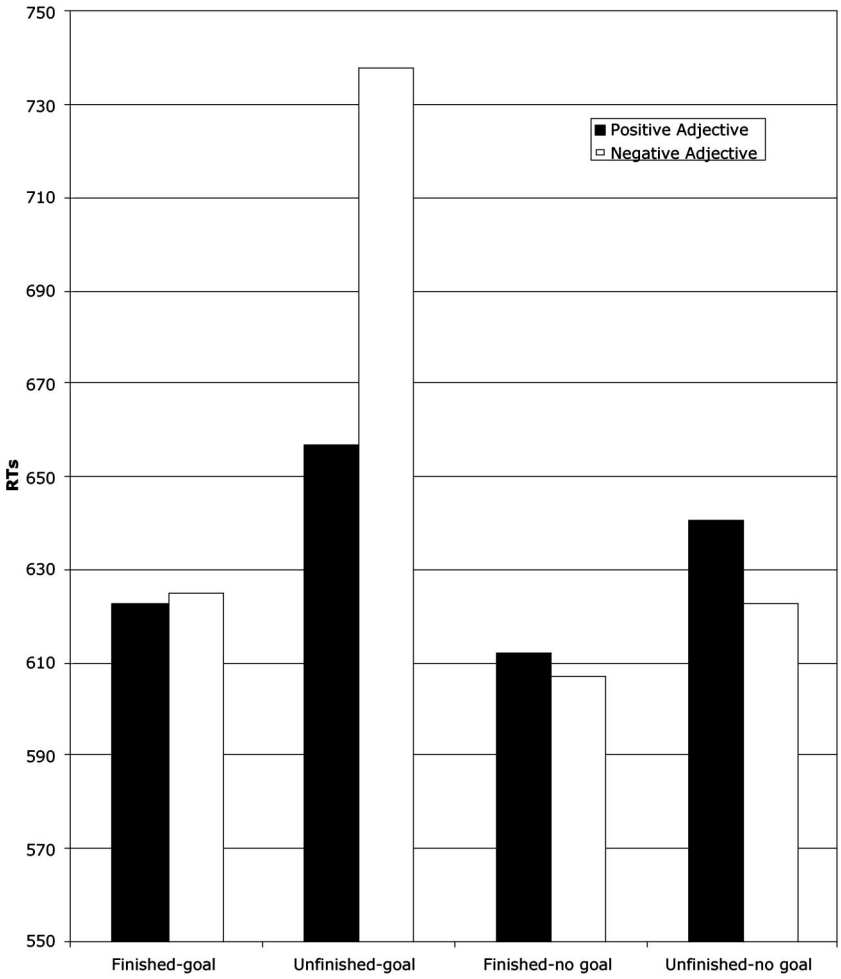

Figure 1. Mean response times (RTs) to adjectives as a function of adjective valence, achievement condition, and goal-status condition.

Ostrom, 1973; Sigall & Page, 1971). These findings provide initial evidence that automatic evaluations might be uniquely sensitive to and reflective of the perceiver's current goal state under some circumstances. Moreover, the absence of goal effects on explicitly expressed evaluations is further evidence that the obtained effects of current goals on implicit or automatic evaluations were not due to experimental demand or some other conscious strategy on the part of participants.

Experiment 2

Experiment 1 provides strong support that one's current, but not recent, goal pursuit automatically renders useful objects relatively more approach friendly. In Experiment 2, we again manipulated participants' actual goal pursuit and sought to replicate the findings from the first experiment within a different goal domain. We manipulated how thirsty participants were and then measured how they automatically evaluated objects that were related or unrelated to quenching thirst. There is some evidence both that automatic evaluations might be sensitive to one's physical needs (Sherman, Rose, Koch, Presson, & Chassin, 2003, Study 2), and that an active physical goal can render goal-relevant knowledge accessible (Aarts et al., 2001). In particular, Sherman et al. (2003, Study 2) found evidence that heavy smokers who had recently smoked showed more negative automatic attitudes toward smoking-related stimuli than heavy smokers who had not just smoked. Furthermore, Aarts et al. (2001) found that thirst-related words (e.g., *water*, *juice*) were more accessible for those who were thirsty compared with those who were not. Given these findings, we examined in Experiment 2 whether automatic evaluation would be sensitive to participants' current thirst levels.

Additionally, in Experiment 2 we included objects that varied as to how relevant they were to achieving the goal. This allowed us to directly test the second hypothesis concerning the importance of the relevance of the objects. In order to empirically establish the relevance of various objects, we asked a separate group of 9 participants to imagine that they were thirsty and rate the degree to which each of a series of objects could effectively quench their thirst (on an 11-point scale with 1 = *not at all effective* and 11 = *extremely effective*). On the basis of these data, we identified two highly relevant objects for quenching thirst (*water* and *juice*; M = 10.33), three weakly relevant objects for quenching thirst (*coffee*, *beer*, and *soda*; M = 4.10), and three indirectly relevant objects for

quenching thirst (*cup*, *bottle*, and *glass*; $M = 2.22$). Finally, we included as irrelevant objects several words that were unrelated to the goal of quenching one's thirst (e.g., *trees*, *talking*, *phone*, *pencil*). These groupings of object relevance allowed us to assess whether current goal pursuit influences automatic evaluation toward only those objects that can best facilitate the goal.

Method

Participants. Participants were 42 undergraduates (30 women, 12 men) at Cornell University who participated in the experiment in exchange for course credit.

Materials. Highly goal-relevant objects included the words *water*, *juice*, and *drinking*. Weakly goal-relevant objects included the words *coffee*, *beer*, and *soda*. Indirectly relevant objects included the words *glass*, *bottle*, and *cup*. Goal-irrelevant objects included the words *chair*, *trees*, *talking*, *phone*, *pencil*, *running*, and *product*. The 32 target adjectives were the same as those used in the previous experiment and were rotated through the trials.

Design. Adjective valence (positive, negative) and object relevance (highly goal relevant, weakly goal relevant, indirectly goal relevant, goal irrelevant) were within-participant variables. The thirst condition (thirsty, nonthirsty) was the between-participants variable. In the priming paradigm on the computer, each object was presented four times, twice with a positive adjective and twice with a negative adjective, for a total of 64 trials. The trials were randomly presented to each participant.

Procedure. Participants were instructed to refrain from drinking any beverage for 3 hr before arriving at the lab (see Strahan, Spencer, & Zanna, 2002). After they arrived at the lab, they were randomly assigned to either the thirsty or nonthirsty condition and were then seated at a large table in the center of the lab room. They were told that they would be participating in a marketing study that examined people's reactions to and opinions about different food and beverage products. Those assigned to the nonthirsty condition were given one bottle of Dasani water, one bottle of Poland Spring water, and one bottle of lemon-lime Gatorade sports drink and were asked to drink as much as possible from each bottle.

Those in the thirsty condition were instead asked to sample Bachman's Hard Sourdough pretzels and Snyder's Sourdough pretzels, two products that have a high sodium content per serving (420 mg and 240 mg per serving, respectively) and were expected to exacerbate participants' thirst. All participants were asked to answer questions about the product after each sampling (including how much they liked the product and whether they would recommend it to a friend). After this tasting phase of the experiment, they were asked to report their mood (how happy, tired, sad, excited, and surprised) and their thirst and hunger using an 11-point Likert scale.

Participants were then asked to move to an individual computer in the same room and were told that they would be completing a judgment task on the computer (in reality, the implicit evaluation measure). The timing constraints of the paradigm and number of practice trials were identical to those of the paradigm used in Experiment 1. After the priming paradigm, participants filled out funnel debriefing questions and then were fully debriefed about the study and thanked for their participation.

Results

Almost all participants reported that they followed instructions and refrained from drinking for at least 3 hr before the study, except for 3 participants who reported that they drank something shortly before the experiment and so were excluded from the analyses. The average amount of time that the remaining participants refrained from drinking was 278 min (approximately 4.6 hr), and this did not vary across the two conditions ($F < 1$). An additional 3 participants were excluded because of procedural and participant error. (One participant pressed the wrong keys, and the other 2 participants exhibited a high error rate of above 35%, suggesting that they were responding randomly to the priming task.) None of the participants guessed that the thirst manipulation was intended to influence their online evaluation of the words in the computer task, which would then affect the speed with which they responded to the adjectives.

Thirst manipulation check. We first ensured that participants who were in the thirsty condition were in fact significantly thirstier than participants in the nonthirsty condition after the product sampling. Those who had drunk several types of beverages reported that they were significantly less thirsty ($M = 2.5$) on an 11-point scale (1 = *not at all*, 11 = *very much*) compared with those who had just sampled salty pretzels ($M = 9.2$), $F(1, 34) = 99.78$, $p = .000$.

Enjoyment of products. We also examined how much participants enjoyed tasting the product. As expected, those who had refrained from drinking anything for over 3 hr before the experiment reported enjoying the water and juice products ($M = 7.7$, on an 11-point scale with 11 = *very much*). This differed significantly from the midpoint of the scale, $t(18) = 4.96$, $p = .000$. Those in the thirsty condition, however, reported that they only moderately enjoyed the pretzels ($M = 6.4$), and this did not differ significantly from the midpoint, $t(16) = 0.20$, *ns*. Further, those in the nonthirsty condition reported significantly more enjoyment of the products than those in the thirsty condition, $F(1, 34) = 5.91$, $p = .02$.

Mood. There were no differences between conditions in participants' ratings of their happiness, sadness, tiredness, surprise, anxiety, excitement, or anger (all ps $> .3$).

Automatic evaluations. Analyses were conducted on correct responses only. There was a 4% error rate across the 36 participants. RTs that were 3 standard deviations above an individual's average RT were dropped, as were RTs that were below 250 ms. Analyses were performed on log-transformed data, but nontransformed response times are presented in Table 2 and Figure 2.

We entered the average RTs toward the adjectives (averaged within each design cell) into a repeated-measures ANOVA with adjective valence (positive, negative) and object relevance (highly relevant, weakly relevant, indirectly relevant, irrelevant) as the within-participant variables and thirst condition (thirsty, nonthirsty) as the between-participants variable. The predicted inter-

Table 2
Response Times in Milliseconds as a Function of Thirst Condition, Object Relevance, and Target Adjective

	Thirsty condition		Nonthirsty condition	
Object relevance	Positive adjective	Negative adjective	Positive adjective	Negative adjective
Highly relevant objects				
M	526	599	587	602
SD	92	128	100	102
Weakly relevant objects				
M	557	586	574	606
SD	86	138	92	120
Indirectly relevant objects				
M	564	598	557	604
SD	96	127	86	114
Irrelevant objects				
M	560	589	567	593
SD	126	148	96	84

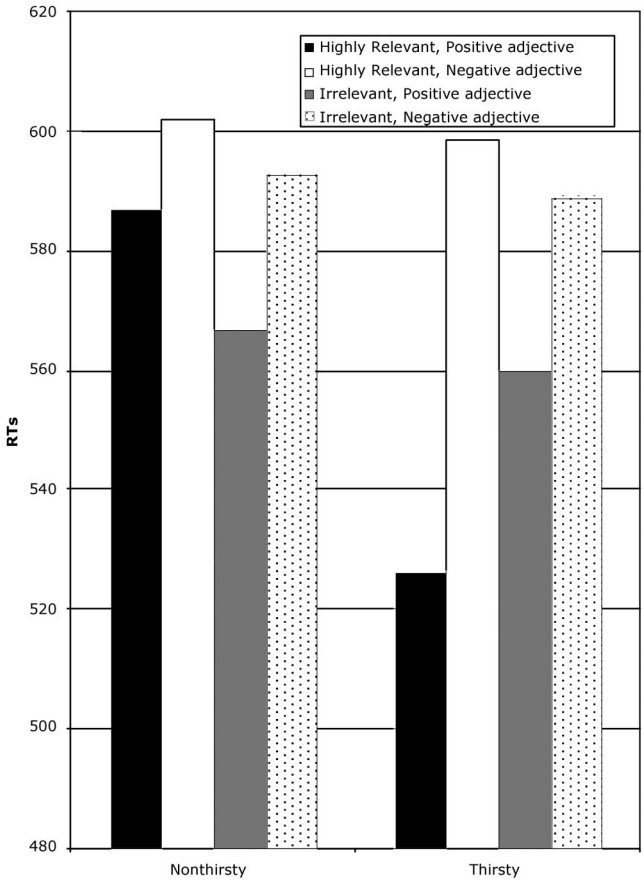

Figure 2. Mean response times (RTs) to adjectives as a function of adjective valence, object relevance (highly relevant vs. irrelevant), and thirst condition.

action between adjective valence, object relevance, and thirst condition was significant, $F(3, 32) = 3.03$, $p = .044$.

We then performed a series of repeated-measures ANOVAs to determine the nature of the three-way interaction. Because we expected that those in the thirsty condition would evaluate the highly relevant objects as relatively more positive compared with both the nonthirsty participants and the irrelevant objects, we first included just the highly relevant and irrelevant objects in an Object Relevance (highly relevant, irrelevant) × Adjective Valence × Thirst Condition analysis. As can be seen in Figure 2, a significant three-way interaction emerged from this analysis, $F(1, 34) = 4.86$, $p = .034$. We predicted that participants in the thirsty condition would respond differently than those in the nonthirsty condition to only the highly relevant objects and respond similarly to the irrelevant objects. In line with this prediction, whereas the interaction between thirst condition and adjective valence was significant for highly relevant objects, $F(1, 34) = 8.48$, $p = .006$, it was not significant for irrelevant objects ($F < 1$). A simple effects analysis further showed that participants in the thirsty condition responded significantly faster to positive adjectives that followed highly relevant objects ($M = 526$) compared with negative adjectives ($M = 599$), $F(1, 16) = 27.57$, $p = .000$, as expected. In comparison, those participants in the nonthirsty condition did not respond with differential speed to the positive versus negative adjectives that followed highly relevant objects ($F < 1$).

We also examined the basis of thirsty participants' approach-friendly evaluations to the highly relevant objects by testing whether such participants responded faster to positive adjectives that followed highly relevant objects compared with nonthirsty participants. As expected, thirsty participants did respond significantly faster to positive adjectives that followed highly relevant objects ($M = 526$) compared with nonthirsty participants ($M = 587$), $t(34) = 2.0$, $p < .05$. Participants in the thirsty and nonthirsty conditions did not respond with differential speed to negative adjectives that followed highly relevant objects ($F < 1$).

We then tested whether thirsty participants differed from nonthirsty participants in their evaluations of the weakly relevant versus irrelevant objects. We thus performed an Object Relevance (weakly relevant, irrelevant) × Thirst Condition × Adjective Valence ANOVA, and this three-way interaction was nonsignificant ($F < 1$). We next examined whether participants in the two thirst conditions differed in their automatic evaluations of the indirectly relevant versus irrelevant objects. We again performed an Object Relevance (indirectly relevant, irrelevant) × Thirst Condition × Adjective Valence ANOVA, and this three-way interaction was also nonsignificant ($F < 1$). The results from these two analyses suggest that thirsty and nonthirsty participants evaluated the weakly relevant, indirectly relevant, and irrelevant objects in similar ways, as can be seen in the pattern of data presented in Table 2.

The analyses thus far suggest that participants in the two thirst conditions differed only in their automatic evaluations of the highly relevant objects. They did not differ in their automatic evaluations of the weakly relevant, indirectly relevant, and irrelevant objects. This conclusion is further supported by the results from an Object Relevance (highly, weakly, indirectly, irrelevant) × Adjective Valence ANOVA performed separately for each of the two thirst conditions. For the nonthirsty condition, there is only a main effect of adjective valence, $F(1, 18) = 9.87$, $p = .006$, whereby participants are responding faster overall to positive ($M = 571$) versus negative ($M = 601$) adjectives regardless of the type of preceding prime object. However, for the thirst condition, the main effect of adjective valence, $F(1, 16) = 13.22$, $p = .002$, is further qualified by a significant interaction with object relevance, $F(3, 14) = 5.45$, $p < .01$, as predicted. This suggests that the type of object influenced the response speed to the subsequent adjectives only for those in the thirsty condition and not for those in the nonthirsty condition.

Discussion

The findings replicate those in Experiment 1 by suggesting that the perceiver's current (vs. recently completed) goal state influences the way in which objects are automatically evaluated, thereby providing additional support for the first hypothesis. In particular, those who were thirsty exhibited relatively more positive automatic evaluations of the highly goal-relevant objects compared with those who were not thirsty. This finding means that the automatic evaluations of these objects by thirsty participants were more approach friendly than the evaluations of those who had just quenched their thirst and reported having enjoyed doing so (according to their ratings of how much they enjoyed tasting the beverages). Again, this suggests that automatic evaluations reflect the degree to which objects could satisfy the perceiver's current goal rather than the degree to which objects have just successfully satisfied a goal.

In Experiment 1, the basis of participants' approach-friendly evaluations of goal-relevant objects was their slower RTs to negative adjectives compared with those not engaged in goal pursuit. In the current experiment, however, the greater positivity of thirsty participants' evaluations of highly relevant objects was based on their faster responses to positive adjectives that followed the objects compared with nonthirsty participants. This suggests that these participants' approach-friendly evaluations emerged from positive information about the relevant objects being more accessible compared with nonthirsty participants. Together with the findings from Experiment 1, this result suggests that approach-friendly evaluations can be based on either more accessible positive object information or more inhibited negative object information, relative to when the goal is not in place.

The results also indicate that participants currently engaged in goal pursuit do not exhibit positive automatic evaluations toward any object they encounter (as might be expected if the cause of the effect were a general approach mind-set), but rather that the influence of current goal pursuits on automatic evaluations is limited to objects that are highly relevant to the goal. Although thirsty participants automatically evaluated the objects *water*, *juice*, and *drinking* as significantly more positive than did nonthirsty participants, the two groups of participants did not differ in their automatic evaluation of weakly relevant, indirectly relevant, and irrelevant objects. These findings therefore support the second hypothesis that automatic evaluations are sensitive to the degree to which an object can facilitate a currently active goal.

Experiment 3

In Experiment 3, we again directly manipulated participants' goal pursuit and assessed how they automatically evaluated objects that were goal relevant versus irrelevant. We also manipulated how much participants cared about the goal and thus tested the third hypothesis of the current proposal. A critical point is that we also asked participants in this experiment to indicate their behavioral intentions concerning activity toward goal-relevant objects. If goal-dependent automatic evaluations of useful objects are truly approach friendly, they should correspond to goal-related behavioral intentions.

Because we sought to connect the current work on automatic evaluations to the recent literature on the effect of goals on knowledge accessibility, we considered recent work by Moskowitz (2002), in which goal pursuit was manipulated according to self-completion theory (Wicklund & Gollwitzer, 1982). Moskowitz (2002) induced participants into a state of completeness or incompleteness in an important, self-relevant domain (athleticism) and then examined the accessibility of domain-relevant knowledge. Because research (e.g., Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999; Spencer, Fein, Wolfe, Fong, & Dunn, 1998; Wicklund & Gollwitzer, 1982) has suggested that people whose identity is undermined in an important domain consequently strive to reclaim success in that domain (rather than disengage from it), Moskowitz (2002) expected and found that athletic-related knowledge was relatively more accessible for threatened (vs. nonthreatened) participants.

In Experiment 3, we manipulated goal pursuit in the same manner but instead examined the accessibility of positive versus negative information concerning goal-relevant and irrelevant objects. Additionally, although the domain was highly relevant for all participants, they nevertheless varied in the degree to which they cared about their identity in that domain. We expected that participants who greatly cared about athleticism as self-defining and who experienced incompleteness would automatically evaluate athletic-related objects as relatively more positive than athletic-unrelated objects and also compared with participants in the other conditions.

Method

Participants. Participants were 62 undergraduates (40 women, 22 men) at Cornell University who participated in the experiment in exchange for course credit.

Materials. Objects were selected according to their relevance to athleticism as determined in previous research (see Moskowitz, 2002) and included the words *athletic*, *physical*, *agile*, and *strong*. We also included objects that were unrelated to athleticism, including words such as *table*, *pencil*, *trees*, *listen*, and *cooperate* as well as objects that were unrelated to the dimension of athleticism but were related to the important domain of intelligence: *smart*, *scholarly*, *studious*, and *educated* (Moskowitz, 2002).[3] The 32 adjectives were the same as those used in the previous two experiments and were rotated through the trials.

Design. Adjective valence (positive, negative) and object relevance (athlete relevant, athlete irrelevant) were within-participant variables, and identity importance (varsity athletes, intramural athletes) and completeness (success, failure, control) were between-participants variables. In the priming paradigm on the computer, each object was presented twice, once with a positive adjective and once with a negative adjective. The trials were randomly presented to each participant. There was a total of 36 trials, of which 8 contained athlete-related words, 8 contained athlete-unrelated but intelligence-related words, and 20 contained athlete-irrelevant and intelligence-irrelevant words.

Procedure. The experiment was described as a study concerning the athletic experiences of students, and only students who regularly played sports were invited to participate. This included varsity athletes as well as those who played on an intramural or other informal team. On arriving at the lab, participants reported whether they were varsity or intramural athletes and then answered various questions such as how important athletics were to them and how often they played.

Although we anticipated that athletics would be an important, self-relevant domain for all participants, we expected that the identity of being an athlete would be more important for varsity athletes than for intramural athletes, and the data support this assumption. Regarding how frequently they play sports (on a 6-point scale, with 1 = *every day* and 6 = *once a month or less frequently*), varsity athletes reported that they played sports significantly more frequently ($M = 1.38$) than intramural athletes ($M = 3.12$), $F(1, 56) = 32.81$, $p < .001$. Varsity athletes also reported that it was important to them to play sports regularly (on an 11-point scale, with 1 = *not important* and 11 = *very important*) to a significantly greater degree ($M = 9.53$) than intramural athletes ($M = 8.27$), $F(1, 56) = 7.48$, $p = .008$. Furthermore, varsity athletes also identified as an athlete on an 11-point scale (1 = *not at all*, 11 = *very much*) to a significantly greater degree ($M = 9.66$) than intramural athletes ($M = 7.46$), $F(1, 56) = 19.18$, $p = .000$, and also reported a significantly greater amount of skill ($M = 8.91$) on an 11-point scale (1 = *little*, 11 = *a lot*) than intramural athletes ($M = 7.62$), $F(1, 56) = 15.06$, $p = .000$.

[3] Although Moskowitz (2002) did not find any effect of current goal pursuit on increased accessibility of knowledge related to intelligence, we nevertheless tested whether participants who cared about athleticism and who felt incomplete might exhibit greater implicit positivity toward this different identity-relevant domain. However, there were no significant or marginally significant effects of these particular words, and thus we do not discuss them further.

First, these data suggest that all participants were well above the midpoint on scales tapping the importance of athleticism, therefore suggesting that athleticism was an important domain for all participants. Second, however, these data also confirm that the identity of being an athlete was more important to the varsity athletes than the intramural athletes. This allowed us to test our hypothesis that goal pursuit influences the automatic evaluation of useful objects, especially when the goal is a high priority (of high personal importance) for the perceiver.

After participants completed these ratings, they were randomly assigned to the success, failure, or control condition. Those in the success condition were asked to describe in detail two recent experiences of succeeding in the athletic domain, whereas those in the failure condition were asked to describe in detail two recent experiences of failing in the athletic domain (see Moskowitz, 2002). Those in the control condition were asked to list in detail their academic course schedule.

Participants then began the computer task, which was described to them as a judgment task. The priming task followed the same timing constraints as in the previous two experiments. Following the priming task, participants were asked various questions, including (a) how important it was to them to stay in peak physical shape, (b) how frequently over the next week they thought they would train, (c) how willing they would be to skip a party in order to be ready for an early morning sports event, and (d) what percentage of their time over the next week they anticipated devoting to (separately) training, studying, and socializing. All participants then completed funnel debriefing questions concerning their hypotheses about the study and then were debriefed and thanked for their participation.

Results

No one mentioned that the writing task (either in the success or failure condition) was supposed to influence their motivation to be athletic or would translate into different patterns of responding on the computer task as a function of the prime words. Data from 4 participants were excluded from the analyses because of procedural or participant error (the labels "GOOD" and "BAD" were placed on incorrect keys for 1 participant, and 3 participants had error rates over 40%, suggesting they were responding randomly).

Automatic evaluations. Analyses were conducted on correct responses only. There was a 3% error rate across the 58 participants. RTs that were 3 standard deviations above an individual's average RT were dropped, as were RTs that were below 250 ms. Analyses were performed on log-transformed data, but nontransformed response times are presented in Table 3 and Figure 3.

We entered the average RTs toward the adjectives (averaged within each design cell) into a repeated-measures ANOVA with adjective valence (positive, negative) and object relevance (athlete relevant, athlete irrelevant) as the within-participant variables and completeness condition (success, failure, control) and identity importance (varsity athlete, intramural athlete) as the between-participants variables. The predicted four-way interaction was significant, $F(2, 51) = 3.85$, $p = .028$.

To compare how participants responded to the different manipulations of completeness according to the importance of their identity, we analyzed participants' RTs in each completeness condition as a function of identity importance, object relevance, and adjective valence. In the success condition, the three-way interaction was not significant ($F < 1$). Instead, there was only a main effect of adjective valence, such that these participants, regardless of identity importance and object relevance, responded faster to positive ($M = 557$) versus negative ($M = 609$) adjectives, $F(1, 16) = 7.12$, $p = .017$. This suggests that all participants in the success condition exhibited relatively positive automatic evaluations of both the athletic-relevant and athletic-irrelevant objects.

Table 3
Response Times in Milliseconds as a Function of Identity Importance, Completeness Condition, Object Relevance, and Target Adjective

Condition	Target adjective: Positive	Target adjective: Negative
Success condition		
Varsity athletes		
Athletic-relevant objects		
M	501	579
SD	115	124
Athletic-irrelevant objects		
M	550	629
SD	98	81
Intramural athletes		
Athletic-relevant objects		
M	594	623
SD	132	175
Athletic-irrelevant objects		
M	584	604
SD	100	73
Failure condition		
Varsity athletes		
Athletic-relevant objects		
M	511	718
SD	72	226
Athletic-irrelevant objects		
M	592	606
SD	100	104
Intramural athletes		
Athletic-relevant objects		
M	532	576
SD	92	120
Athletic-irrelevant objects		
M	555	593
SD	50	87
Control condition		
Varsity athletes		
Athletic-relevant objects		
M	492	563
SD	85	167
Athletic-irrelevant objects		
M	518	554
SD	125	84
Intramural athletes		
Athletic-relevant objects		
M	678	847
SD	421	461
Athletic-irrelevant objects		
M	818	861
SD	343	388

In contrast, in the failure condition, the three-way interaction between identity importance, object relevance, and adjective valence was significant, $F(1, 18) = 6.02$, $p = .025$. As predicted, the two-way interaction between object relevance and adjective valence was significant only for varsity athletes, $F(1, 10) = 12.72$, $p = .005$, and not for intramural athletes ($F < 1$). As can be seen in Figure 3, whereas varsity athletes responded significantly faster to positive ($M = 511$) versus negative ($M = 718$) adjectives that followed athlete-relevant objects, $F(1, 10) = 22.28$, $p = .001$, they

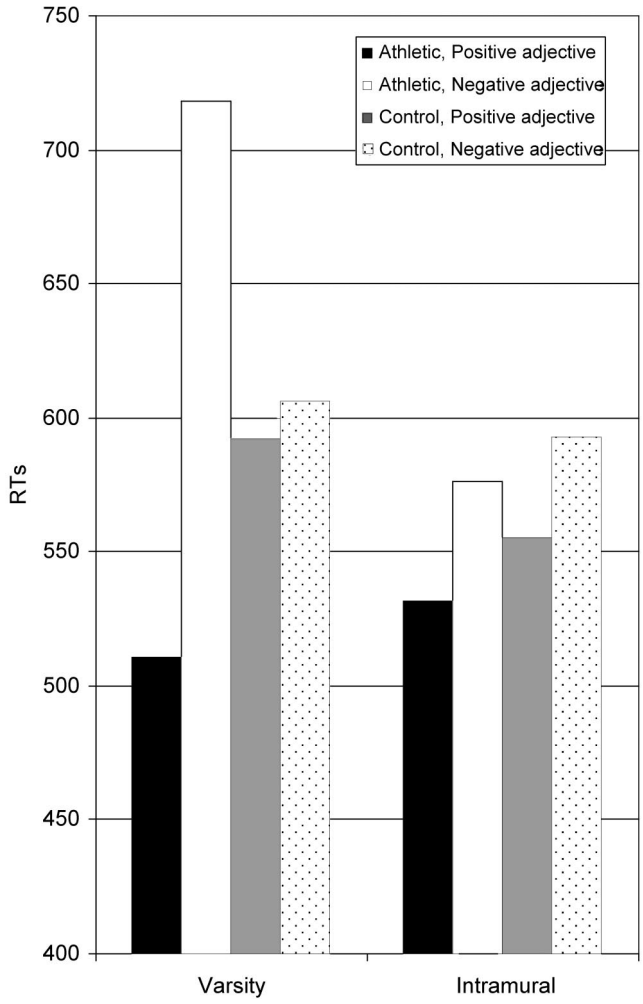

Figure 3. Mean response times (RTs) to adjectives as a function of identity importance, adjective valence, and object relevance for the failure completeness condition.

did not respond with significantly different speed to the positive ($M = 592$) versus negative ($M = 606$) adjectives that followed the athlete-irrelevant objects ($p > .33$). In addition, varsity athletes responded significantly faster to positive adjectives that followed athlete-relevant objects ($M = 511$) versus athlete-irrelevant objects ($M = 592$), $F(1, 10) = 10.15$, $p = .010$, and also responded significantly slower to negative adjectives that followed athlete-relevant objects ($M = 718$) versus athlete-irrelevant objects ($M = 606$), $F(1, 10) = 6.88$, $p = .025$.

In the control condition, the three-way interaction between identity importance, object relevance, and adjective valence was nonsignificant, $F(1, 17) = 3.30$, $p = .09$. There was, however, a significant interaction between object relevance and adjective valence, $F(1, 17) = 4.87$, $p = .041$. Those in the control condition, regardless of identity importance, responded significantly faster to positive ($M = 585$) versus negative ($M = 705$) adjectives that followed athlete-relevant objects, $F(1, 20) = 8.71$, $p = .008$, and also responded significantly faster to positive ($M = 668$) versus negative ($M = 708$) adjectives that followed athlete-irrelevant objects, $F(1, 20) = 6.16$, $p = .02$.[4]

Relative positivity of automatic evaluations. We also examined whether the degree of relative positivity of varsity athletes' evaluations of athleticism differed across completeness condition (success, failure, control). To do this, we created a difference score by subtracting their RTs to positive adjectives following athlete words from their RTs to negative adjectives following athlete words (thus, larger numbers indicate more relative positivity). We then computed a series of contrasts to examine whether varsity athletes in the failure condition exhibited relatively more positive evaluations (as indicated by their difference scores) than those in the success and control conditions. As predicted, varsity athletes in the failure condition did exhibit relatively more positive automatic evaluations ($M = 207$) than those in the success condition ($M = 78$), $t(29) = 2.0$, $p < .05$, one-tailed, and those in the control condition ($M = 71$), $t(29) = 2.06$, $p < .025$, one-tailed. In support of our motivational hypothesis, varsity athletes who had just been thinking about failure experiences in athletics exhibited relatively more positive automatic evaluations of athleticism than varsity athletes who had been thinking about successful athletic experiences and varsity athletes who had not been thinking about athletics.

We also tested whether the relative positivity of intramural athletes' evaluations of athleticism significantly differed across completeness condition. As predicted, intramural athletes did not exhibit relatively more positive evaluations of athleticism in the failure ($M = 43$) versus success ($M = 29$) conditions ($p = .13$) or in the failure versus control ($M = 170$) condition, $t(23) = -1.72$, $p = .10$ (the marginally significant trend here is that participants exhibited relatively more positive evaluations of athleticism in the control vs. failure condition).

Behavioral intentions. We next examined whether there were any differences in participants' behavioral intentions as a function of the completeness and identity importance conditions. Participants' ratings for how important it was to them to stay in top shape (11-point scale, with 11 = *very important*), how often they would train over the next week (1 = *every day*, 6 = *not at all*), how likely they were to skip a party in order to prepare for an important athletic event the next morning (11-point scale, with 11 = *highly likely*), and what percentage of their time they anticipated devoting to training, studying, and socializing over the upcoming week were entered into separate univariate ANOVAs with completeness and identity importance as the between-participants variables.

Main effects of identity importance on all these measures were significant. Varsity athletes were more concerned with staying in top shape ($M = 9.97$) than intramural athletes ($M = 8.12$), $F(1, 56) = 15.36$, $p = .000$; intended to train more frequently ($M = 1.34$) than intramural athletes ($M = 2.54$), $F(1, 56) = 16.94$, $p = .000$; were more likely to skip a party ($M = 9.89$) than intramural athletes ($M = 8.46$), $F(1, 56) = 6.91$, $p = .011$; and anticipated spending a bigger percentage of their time over the next week on training ($M = 35.23$) than intramural athletes ($M = 17.19$), $F(1,$

[4] As can be seen in the pattern of RT data presented in Table 3, there was a significant interaction between completeness condition and identity importance on all RTs, such that intramural athletes in the control condition responded significantly more slowly overall ($M = 801$) than all other conditions, $F(2, 51) = 4.24$, $p = .02$. That several participants in the intramural control condition exhibited high variance in their RTs and responded more slowly overall to the adjectives was an unexpected effect.

56) = 19.79, $p = .000$, a smaller percentage of their time on studying ($M = 36.34$) than intramural athletes ($M = 52.73$), $F(1, 56) = 13.81$, $p = .000$, and a smaller percentage of their time on socializing ($M = 11.78$) than intramural athletes ($M = 18.89$), $F(1, 56) = 4.97$, $p = .03$. (Also, there was no difference between varsity and intramural athletes in the total percentage of time they estimated they would spend on these three types of activities.) These results are in line with the expected difference between these two types of athletes in terms of the personal importance of the athlete identity.

Automatic evaluations and behavioral intentions. To examine the relation between participants' automatic evaluations of athleticism and their goal-relevant behavioral intentions, we computed correlations between the positivity of their evaluations and their goal-relevant behavioral intentions within each of the six design cells formed by the completeness and identity importance factors. To reflect the relative positivity of participants' automatic evaluations of athlete words, we computed difference scores as described above. We report below the correlations that emerged.

Within the success condition, for intramural athletes there was a significant positive correlation between the positivity of their evaluations of athlete words and the percentage of time they planned to devote to training for athletics over the upcoming week, $r(8) = .73$, $p = .04$. (The more positive their evaluations, the more time they anticipated spending on training.) For varsity athletes in the success condition, no significant correlations emerged.

The picture was reversed in the failure condition. For intramural athletes there were no significant correlations between the positivity of their evaluations and their intentions, but for varsity athletes, there was a significant positive correlation between the positivity of their automatic evaluations of athleticism and their estimate of the time they planned on devoting to training in the coming week, $r(11) = .62$, $p = .04$. For these varsity participants, there was also a positive but nonsignificant correlation between the positivity of their evaluations and the importance of staying in peak physical shape, $r(11) = .55$, $p = .08$. For those in the control condition, no significant correlations emerged for either varsity or intramural athletes.

Discussion

The data from this third experiment support the three hypotheses of our proposal that current goal pursuits can determine the automatic evaluation of objects. Regarding the first hypothesis, research based on self-completion theory suggests that people should be the most motivated to reestablish their identity in an important domain after being threatened, versus affirmed, in that domain (e.g., Moskowitz, 2002; Spencer et al., 1998; Wicklund & Gollwitzer, 1982). Essentially, whereas those who have just received affirmation of their competence along some goal dimension should not be especially motivated to pursue that goal, those who have just received negative feedback should be particularly motivated to pursue the goal. We therefore expected that those participants in the failure condition would be the most motivated to pursue (i.e., reestablish) the goal of athletic competence and thus exhibit the most positive automatic evaluations compared with those in both the success and control conditions.

Our second hypothesis for this experiment was that the positive evaluations of those in the failure condition should be limited to only those objects that are able to facilitate the goal and not to goal-irrelevant objects, and our third hypothesis was that this predicted pattern of results should emerge for only those who are the most committed and invested in the domain of athleticism and not for those who are less invested. The findings support all three hypotheses in that varsity participants (and not intramural participants) exhibited the most approach-friendly automatic evaluations of athleticism (and not control words) after thinking about failure experiences in athletics compared with the success and control conditions.

The significant correlations between the positivity of participants' automatic evaluations and their behavioral intentions were based on relatively small numbers of participants and therefore should be interpreted cautiously. They do, however, represent preliminary support for the notion of automatic evaluation as a potential mechanism for effective goal pursuit. In line with previous research that suggests that positive automatic evaluations can facilitate approach behaviors (e.g., Chen & Bargh, 1999), the pattern of correlational data tentatively suggests that the positivity of participants' automatic evaluations of athleticism was predictive of their goal-relevant behavioral intentions.

General Discussion

The findings from three experiments together support our proposal that perceivers who are actively engaged in a focal goal pursuit automatically evaluate useful objects in a more approach-friendly manner compared with those not engaged in goal pursuit. We sought to provide evidence for this proposal by testing three hypotheses. The first hypothesis was that a perceiver's currently active, versus recently completed, goal pursuit most influences her or his automatic evaluations of objects, and this prediction was supported by the results of all three experiments. The second hypothesis was that a perceiver's current goal should render objects as relatively more positive to the extent those objects are facilitative of the goal, and this prediction was supported by the results of Experiments 2 and 3. The third hypothesis was that the influence of goal pursuit on the evaluation of goal-relevant objects should be moderated by the importance of that goal to the individual; this prediction was supported by the pattern of results from Experiment 3.

These findings suggest that automatic evaluations are fundamentally tied to expected or desired future interactions with the objects—that is, they reflect the fact that particular objects should be approached over others if one is to meet a currently held goal. As such, the present findings are in harmony with a functional view of automatic evaluations (Roskos-Ewoldsen & Fazio, 1992) but extend that view from an evaluation's effect on selective attention to the corresponding object in the environment to the current goal's effect on the content of the automatic evaluation itself. This functional view is also consistent with pragmatic perspectives of thinking and feeling (e.g., Bruner, 1957; Fiske, 1992; James, 1890; Lewin, 1935) and theories on situated cognition (e.g., Schwarz, 2002; E. R. Smith & Semin, in press).

The findings from these experiments also join the rapidly accumulating evidence that automatic evaluation is dependent on a host of contextual factors (e.g., Bassili & Brown, in press; Dasgupta & Greenwald, 2001; Mitchell et al., 2003; Wittenbrink et al., 2001). Much of this recent work has suggested that automatic evaluations and attitudes reflect the most recently activated exemplars or object memories. For example, Dasgupta and Greenwald (2001)

demonstrated that automatic attitudes toward African Americans were significantly less negative when participants had recently seen admired African American exemplars (e.g., Tiger Woods) and disliked White exemplars (e.g., Jeffrey Dahmer) compared with those who had seen disliked African American and admired White exemplars. The current results expand on these findings by suggesting that the perceiver's current motivational concerns can determine the way in which objects in the environment are implicitly evaluated. We turn now to several issues related to the present findings.

The Basis of Approach-Friendly Automatic Evaluations

Our main objective in the current set of experiments was to demonstrate that objects are automatically evaluated in a more approach-friendly manner during active goal pursuit. However, the findings suggest that objects can become more approach friendly through multiple routes. Goal-relevant objects might be more positively evaluated because positive object information is more accessible, negative object information is less accessible, or both, relative to comparison objects. The present experiments provided evidence for both of these possibilities. In Experiment 2, positive information about *water*, *juice*, and *drinking* was more accessible for those who were thirsty compared with those who had just quenched their thirst. In Experiment 3, positive information about athleticism was more accessible for varsity athletes who were particularly motivated to reclaim their athleticism compared with information about goal-irrelevant objects. The greater accessibility of positive object information during goal pursuit in general could result from memories about rewards and benefits concerning the objects becoming more salient, which would ostensibly foster approach behaviors toward those objects.

Experiments 1 and 3 provided evidence that useful objects can also be made approach friendly through the inhibition of negative object information, relative to those not engaged in goal pursuit and to goal-irrelevant objects. In Experiment 1, negative information about useful objects for game performance was relatively more inhibited for those who were still playing the game and who cared about performing well compared with other participants. In Experiment 3, negative information about athleticism was relatively more inhibited for varsity athletes who were especially motivated to reestablish their athleticism compared with information about goal-irrelevant objects and also compared with other participants. When negative information about useful objects is inhibited, the perceiver might be more likely to approach the objects because memories about losses associated with the objects are less salient.

One direction for future research might be an examination of the determinants and consequences of these two routes to approach friendliness. For example, the nature of the obstacles surrounding particular goal pursuits might influence the basis of the corresponding approach-friendly evaluations. Whereas some goals such as quenching thirst may be relatively easy to achieve without having to surmount any major obstacles (i.e., simply find and consume a drink of water), the attainment of other goals, such as becoming a skilled athlete, may further depend on certain sacrifices (e.g., missing out on social activities, the pain of getting up early in the morning to train) being minimized. This sort of difference could mean that whereas the relatively easy goal of quenching thirst is most facilitated by the increased salience of positive aspects about water and juice, the more difficult goal of becoming an athlete might be best facilitated by the increased inhibition of the negative aspects involved with serious training, for instance.

One area of research that seems pertinent for an investigation into the different routes to approach-friendly automatic evaluations is the extent to which people adopt promotion- or prevention-focused styles of regulation (Higgins, 1997, 1998). For those with promotion styles of self-regulation, goal attainment may be generally facilitated by an increased salience of positive aspects of useful objects (the presence of positive outcomes associated with using those objects to reach the goal). Those with a more prevention-focused style, however, may be most likely to "approach" the goal when they are able to avoid the negative aspects involved in the pursuit—thus, when negative object information is inhibited. Research in this area could potentially demonstrate how self-regulatory focus influences the precise way in which automatic evaluation serves as a low-level mechanism of goal pursuit.

Extension of the Current Findings to Different Goals and Objects

Although we focused in the present experiments on approach goals, goal states might also influence the automatic evaluation of those objects that disrupt a focal goal pursuit. In particular, disruptive objects might be evaluated as more repellant, compared with when the goal is not active, because of more inhibited positive object information, more accessible negative object information, or both. Future research might examine the relation between effective goal pursuit and the automatic evaluation of useful versus disruptive objects, perhaps as a function of self-regulatory focus or types of goals.

Another potential direction for future research is to examine how the effects of goal pursuit on automatic evaluation extend to interpersonal relationships. Although we focused in the present experiments on automatic evaluations of inanimate objects (e.g., juice) and abstract ideals (e.g., achievement), the evaluations of coworkers, romantic partners, friends, and strangers might also be similarly influenced by what people are trying to do at the moment (see Fishbach, Shah, & Kruglanksi, in press). Given the range of effects of automatic evaluations on judgments and behaviors toward others (e.g., Fazio et al., 1995; Ferguson, Bargh, & Nayak, in press; McConnell & Leibold, 2001), the way in which automatic evaluations fluctuate according to current goals might have a range of consequences for how people treat and act toward others.

Mechanisms Through Which Goal States Might Influence Automatic Evaluation

Recent research showing that goal states influence the accessibility of goal-relevant knowledge has assumed that goals are instantiated in memory as associative networks, possibly with facilitative links to means that can help foster goal attainment and inhibitory links to obstacles or competing goals that might interfere with the goal (e.g., Fishbach et al., 2003; Kruglanski, 1996; Kruglanski et al., 2002; Shah, Friedman, & Kruglanski, 2002; Shah & Kruglanski, 2002, 2003; Shah, Kruglanski, & Friedman, 2002). From the current perspective, we believe that the important role of evaluation should be added to this cognitive and mechanistic framework of goal pursuit. Given that objects are assumed to be associated in memory with numerous, perhaps differently valenced, memories (Barsalou, 1992; Bower, 1981; Fishbein &

Ajzen, 1975; Fiske & Pavelchak, 1986; Schank & Abelson, 1977; E. R. Smith & Zarate, 1992), the current findings suggest that a goal may possess facilitative and inhibitory links to positive and negative object information, respectively.

It is important to note that the current findings cannot be explained by the mere accessibility of recently activated exemplars (see Castelli et al., 2004). In Experiments 1 and 2, especially, those actively engaged in goal pursuit automatically evaluated useful objects as relatively more positive than those who minutes earlier had been actively engaged in the same goal pursuit. This suggests that the automatic evaluation of objects can be driven instead by current and prospective expectations and desires regarding the objects and not solely past experience, even when that past experience has been satisfying (e.g., those in Experiment 2 who had just drunk water and effectively quenched their thirst).

The inhibitory and facilitative effects of currently active (vs. recently completed) goal states on automatic evaluation might be ultimately best explained by connectionist models (e.g., J. A. Anderson & Rosenfeld, 1988; McClelland, Rumelhart, & the PDP Research Group, 1986). Such models assume that object perception is fully dependent on contextual information, including recently activated object information as well as current goal activity (see Dorman & Gaudiano, 1995; Read & Miller, 1998; E. R. Smith, 1996, 1998). In this way, connectionist models naturally allow for the effects of goal pursuit on automatic evaluation, such as those in the present experiments. Recent research concerning the contextual dependence of automatic evaluations has also proposed a connectionist perspective as a potentially useful explanatory framework for such effects (e.g., Bassili & Brown, in press; Ferguson & Bargh, 2003; Mitchell et al., 2003), and further research toward this end seems fruitful.

The Functionality of Automatic Evaluation: Goal Switching and Goal Enhancement

As mentioned in the beginning of the article, automatic evaluation has been characterized as functional because it allows people to quickly scan their environment to detect the potential for reward versus threat and then act accordingly (see, e.g., Fazio, 1989; Ferguson & Bargh, 2002; Roskos-Ewoldsen & Fazio, 1992). Inherent in this characterization is the assumption that automatic evaluation is functional because it can prompt the perceiver to switch goals when necessary in order to avoid danger or secure rewards. In the present article, however, we characterize automatic evaluative processes as functional because they can enhance a current goal pursuit by rendering useful objects more approach friendly. This raises the interesting question of how automatic evaluation influences self-regulation in any particular environment and also suggests various levels of functionality. Automatic evaluative processes may initially help guide a perceiver's attention to objects that are related to the perceiver's chronically important goals, but once that happens, such automatic evaluative processes may then facilitate the pursuit of the focal goal by rendering useful objects more approach friendly.

Conclusion

The present research suggests that automatic evaluation is situated within the motivational context in which the perceiver encounters the objects. As such, this work establishes a new connection between automatic evaluation and the variety of ways in which goal pursuit is enabled and influenced by the accessibility and inhibition of goal-relevant knowledge (e.g., Fishbach et al., 2003; Shah & Kruglanski, 2002). One important area of future research will be the extent to which such changes in automatic evaluation actually influence goal-relevant behavior, which would further address the degree to which automatic evaluation fosters successful goal pursuit and self-regulation.

References

Aarts, H., & Dijksterhuis, A. (2000). Habits as knowledge structures: Automaticity in goal-directed behavior. *Journal of Personality and Social Psychology, 78,* 53–63.

Aarts, H., Dijksterhuis, A., & De Vries, P. (2001). On the psychology of drinking: Being thirsty and perceptually ready. *British Journal of Psychology, 92,* 631–642.

Allport, G. W. (1937). The functional autonomy of motives. *American Journal of Psychology, 50,* 141–156.

Anderson, J. A., & Rosenfeld, E. (1988). *Neurocomputing: Foundations of research*. Cambridge, MA: MIT Press.

Anderson, N. H. (1974). Retrieval of propositional information from long-term memory. *Cognitive Psychology, 6,* 451–474.

Asch, S. E. (1940). Studies in the principles of judgments and attitudes: II. Determination of judgments by group and by ego standards. *Journal of Social Psychology, 12,* 433–465.

Bargh, J. A. (1984). Automatic and conscious processing of social information. In R. S. Wyer Jr. & T. K. Srull (Eds.), *Handbook of social cognition* (Vol. 3, pp. 1–43). Hillsdale, NJ: Erlbaum.

Bargh, J. A. (1990). Auto-motives: Preconscious determinants of social interaction. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 93–130). New York: Guilford Press.

Bargh, J. A. (2001). Caution: Automatic social cognition may not be habit forming. *Polish Psychological Bulletin, 32,* 1–8.

Bargh, J. A., Chaiken, S., Govender, R., & Pratto, F. (1992). The generality of the automatic attitude activation effect. *Journal of Personality and Social Psychology, 62,* 893–912.

Bargh, J. A., & Chartrand, T. L. (2000). The mind in the middle: A practical guide to priming and automaticity research. In H. Reis & C. Judd (Eds.), *Research methods in social psychology* (pp. 253–285). New York: Cambridge University Press.

Barsalou, L. W. (1992). *Cognitive psychology: An overview for cognitive scientists.* Hillsdale, NJ: Erlbaum.

Bassili, J. N., & Brown, R. (in press). Implicit and explicit attitudes: Research, challenges and theory. In D. Albarracin, B. T. Johnson, & M. P. Zanna (Eds.), *Handbook of attitudes and attitude change.* Mahwah, NJ: Erlbaum.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36,* 129–148.

Brendl, C. M. (2001). Goals and the compatibility principle in attitudes, judgment, and choice. In G. B. Moskowitz (Ed.), *Cognitive social psychology: The Princeton Symposium on the legacy and future of social cognition* (pp. 317–332). Mahwah, NJ: Erlbaum.

Brendl, C. M., & Higgins, E. T. (1996). Principles of judging valence: What makes events positive or negative? In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 28, pp. 95–160). San Diego, CA: Academic Press.

Bruner, J. S. (1957). On perceptual readiness. *Psychological Review, 64,* 123–152.

Castelli, L., Zogmaister, C., Smith, E. R., & Arcuri, L. (2004). On the automatic evaluation of social exemplars. *Journal of Personality and Social Psychology, 86,* 373–387.

Chen, M., & Bargh, J. A. (1999). Consequences of automatic evaluation:

Immediate behavioral predispositions to approach and avoid the stimulus. *Personality and Social Psychology Bulletin, 25,* 215–224.

Dasgupta, N., & Greenwald, A. G. (2001). On the malleability of automatic attitudes: Combating automatic prejudice with images of liked and disliked individuals. *Journal of Personality and Social Psychology, 81,* 800–814.

DeBono, K. G. (1987). Investigating the social-adjustive and value-expressive functions of attitudes: Implications for persuasion processes. *Journal of Personality and Social Psychology, 52,* 279–287.

De Houwer, J., Hermans, D., & Eelen, P. (1998). Affective and identity priming with episodically associated stimuli. *Cognition and Emotion, 12,* 145–169.

Dorman, C., & Gaudiano, P. (1995). Motivation. In M. A. Arbib (Ed.), *Handbook of brain theory and neural networks* (pp. 591–594). Cambridge, MA: MIT Press.

Fazio, R. H. (1986). How do attitudes guide behavior? In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 204–243). New York: Guilford Press.

Fazio, R. H. (1989). On the power and functionality of attitudes: The role of attitude accessibility. In A. R. Pratkanis, S. J. Breckler, & A. G. Greenwald (Eds.), *Attitude structure and function* (pp. 153–180). Mahwah, NJ: Erlbaum.

Fazio, R. H. (2001). On the automatic activation of associated evaluations: An overview. *Cognition and Emotion, 14,* 1–27.

Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes. A bona fide pipeline? *Journal of Personality and Social Psychology, 69,* 1013–1027.

Fazio, R. H., Sanbonmatsu, D. M., Powell, M. C., & Kardes, F. R. (1986). On the automatic activation of attitudes. *Journal of Personality and Social Psychology, 50,* 229–238.

Ferguson, M. J., & Bargh, J. A. (2002). Sensitivity and flexibility: Exploring the knowledge function of automatic attitudes. In L. F. Barrett & P. Salovey (Eds.), *The wisdom in feeling: Psychological processes in emotional intelligence* (pp. 383–405). New York: Guilford Press.

Ferguson, M. J., & Bargh, J. A. (2003). The constructive nature of automatic evaluation. In J. Musch & K. C. Klauer (Eds.), *The psychology of evaluation: Affective processes in cognition and emotion* (pp. 169–188). Mahwah, NJ: Erlbaum.

Ferguson, M. J., & Bargh, J. A. (2004). *On-line contextual-dependence in automatic evaluations according to activated goal knowledge.* Unpublished manuscript, Cornell University.

Ferguson, M. J., Bargh, J. A., & Nayak, D. (in press). After-affects: How automatic evaluations influence the interpretation of subsequent, unrelated stimuli. *Journal of Experimental Social Psychology.*

Fishbach, A., Friedman, R., & Kruglanski, A. W. (2003). Leading us not unto temptation: Momentary allurements elicit automatic goal activation. *Journal of Personality and Social Psychology, 84,* 296–309.

Fishbach, A., Shah, J. Y., & Kruglanski, A. W. (in press). Emotional transfer in goal systems. *Journal of Experimental Social Psychology.*

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research.* Reading, MA: Addison-Wesley.

Fiske, S. T. (1992). Thinking is for doing: Portraits of social cognition from daguerreotype to laserphoto. *Journal of Personality and Social Psychology, 63,* 877–889.

Fiske, S. T., & Pavelchak, M. A. (1986). Category-based versus piecemeal-based affective responses: Development in schema-triggered affect. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 167–203). New York: Guilford Press.

Gaes, G. G., Kalle, R. J., & Tedeschi, J. T. (1978). Impression management in the forced compliance situation. *Journal of Experimental Social Psychology, 14,* 493–510.

Glenberg, A. M. (1997). What memory is for. *Behavioral and Brain Sciences, 20,* 1–55.

Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist, 54,* 493–503.

Goschke, T., & Kuhl, J. (1993). Representation of intentions: Persisting activation in memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 19,* 1211–1226.

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review, 102,* 4–27.

Greenwald, A. G., Klinger, M. R., & Liu, T. J. (1989). Unconscious processing of dichoptically masked words. *Memory and Cognition, 17,* 35–47.

Greenwald, A. G., McGhee, D. E., & Schwarz, J. L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74,* 1464–1480.

Heider, F. (1958). *The psychology of interpersonal relations.* New York: Wiley.

Herek, G. M. (1987). Can functions be measured? A new perspective on the functional approach to attitudes. *Social Psychology Quarterly, 50,* 285–303.

Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52,* 1280–1300.

Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 30, pp. 1–46). New York: Academic Press.

James, W. (1890). *The principles of psychology* (Vol. 2). New York: Holt.

Koole, S., Smeets, K., Van Knippenberg, A., & Dijksterhuis, A. (1999). The cessation of rumination through self-affirmation. *Journal of Personality and Social Psychology, 77,* 111–125.

Kruglanski, A. W. (1996). Goals as knowledge structures. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking cognition and motivation to behavior* (pp. 599–619). New York: Guilford Press.

Kruglanski, A. W., Shah, J. Y., Fishbach, A., Friedman, R., Chun, W. & Sleeth-Keppler, D. (2002). A theory of goal systems. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 331–378). San Diego, CA: Academic Press.

Kunda, Z. (1987). Motivated inference: Self-serving generation and evaluation of causal theories. *Journal of Personality and Social Psychology, 53,* 636–647.

Lazarus, R. S. (1991). *Emotion and adaptation.* New York: Oxford University Press.

Lewin, K. (1926). Vorsatz, Wille, und Bedürfnis [Intention, will, and need]. *Psychologische Forschung, 7,* 330–385.

Lewin, K. (1935). *A dynamic theory of personality.* New York: McGraw-Hill.

Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes, 65,* 272–292.

Markman, A. B., & Brendl, C. M. (2000). The influence of goals on value and choice. *Psychology of Learning and Motivation, 39,* 97–128.

Marsh, R. L., Hicks, J. L., & Bryan, E. S. (1999). The activation of unrelated and canceled intentions. *Memory and Cognition, 27,* 320–327.

McClelland, J. L., Rumelhart, D. E., & the PDP Research Group (Eds.). (1986). *Parallel distributed processing: Vol. 2. Explorations in the microstructure of cognition.* Cambridge, MA: MIT Press.

McConnell, A. R., & Leibold, J. M. (2001). Relations among the Implicit Association Test, discriminatory behavior, and explicit measures of racial attitudes. *Journal of Experimental Social Psychology, 37,* 435–442.

Mitchell, J. P., Nosek, B. A., & Banaji, M. R. (2003). Contextual variations in implicit evaluation. *Journal of Experimental Psychology: General, 132,* 455–469.

Moors, A., & De Houwer, J. (2001). Automatic appraisal of motivational valence: Motivational affective priming and Simon effects. *Cognition and Emotion, 15,* 749–766.

Moors, A., De Houwer, J., & Eelen, P. (2004). Automatic stimulus–goal

comparisons: Support from motivational affective priming studies. *Cognition and Emotion, 18,* 29–54.

Moskowitz, G. B. (2002). Preconscious effects of temporary goals on attention. *Journal of Experimental Social Psychology, 38,* 397–404.

Musch, J., & Klauer, K.C. (2003). *The psychology of evaluation: Affective processes in cognition and emotion.* Mahwah, NJ: Erlbaum.

Niedenthal, P. M., Halberstadt, J. B., & Innes-Ker, A. H. (1999). Emotional response categorization. *Psychological Review, 106,* 337–361.

Nuttin, J., & Greenwald, A. G. (1968). *Reward and punishment in human learning.* New York: Academic Press.

Ostrom, T. M. (1973). The bogus pipeline: A new ignis fatuus? *Psychological Bulletin, 79,* 252–259.

Read, S. J., & Miller, L. C. (1998). *Connectionist models of social reasoning and social behavior.* Mahwah, NJ: Erlbaum.

Roediger, H. L. (1996). Commentary: Prospective memory and episodic memory. In M. Brandimonte & G. O. Einstein (Eds.), *Prospective memory: Theory and applications* (pp. 149–155). Mahwah, NJ: Erlbaum.

Rosenberg, M. J. (1956). Cognitive structure and attitudinal affect. *Journal of Abnormal and Social Psychology, 53,* 367–372.

Roskos-Ewoldsen, D. R., & Fazio, R. H. (1992). On the orienting value of attitudes: Attitude accessibility as a determinant of an object's attraction of visual attention. *Journal of Personality and Social Psychology, 63,* 198–211.

Schank, R. C., & Abelson, R. P. (1977). *Scripts, plans, goals, and understanding: An inquiry into human knowledge structures.* Hillsdale, NJ: Erlbaum.

Schwarz, N. (2002). Situated cognition and the wisdom of feelings: Cognitive tuning. In L. Feldman Barrett & P. Salovey (Eds.), *The wisdom in feelings* (pp. 144–166). New York: Guilford Press.

Schwarz, N., & Bohner, G. (2001). The construction of attitudes. In A. Tesser & N. Schwarz (Eds.), *Blackwell handbook of social psychology: Intraindividual processes* (Vol. 1, pp. 436–457). Oxford, England: Blackwell.

Shah, J. Y., Friedman, R., & Kruglanski, A. W. (2002). Forgetting all else: On the antecedents and consequences of goal shielding. *Journal of Personality and Social Psychology, 83,* 1261–1280.

Shah, J. Y., & Higgins, E. T. (2001). Regulatory concerns and appraisal efficiency: The general impact of promotion and prevention. *Journal of Personality and Social Psychology, 80,* 693–705.

Shah, J. Y., & Kruglanski, A. W. (2002). Priming against your will: How goal pursuit is affected by accessible alternatives. *Journal of Experimental Social Psychology, 38,* 368–382.

Shah, J. Y., & Kruglanski, A. W. (2003). When opportunity knocks: Bottom-up priming of goals by means and its effects on self-regulation. *Journal of Personality and Social Psychology, 84,* 1109–1122.

Shah, J. Y., Kruglanski, A. W., & Friedman, R. (2002). A goal systems approach to self-regulation. In M. P. Zanna, J. M. Olson, & C. Seligman (Eds.), *The Ontario Symposium on Personality and Social Psychology* (pp. 247–276). Mahwah, NJ: Erlbaum.

Sherman, S. J., Rose, J. S., Koch, K., Presson, C. C., & Chassin, L. (2003). Implicit and explicit attitudes toward cigarette smoking: The effects of context and motivation. *Journal of Social and Clinical Psychology, 22,* 13–39.

Shiffrin, R. M., & Dumais, S. T. (1981). The development of automatism. In J. R. Anderson (Ed.), *Cognitive skills and their acquisition* (pp. 111–140). Hillsdale, NJ: Erlbaum.

Sigall, H., & Page, R. (1971). Current stereotypes: A little fading, a little faking. *Journal of Personality and Social Psychology, 18,* 247–255.

Smith, E. R. (1996). What do connectionism and social psychology offer each other? *Journal of Personality and Social Psychology, 70,* 893–912.

Smith, E. R. (1998). Mental representation and memory. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 1, pp. 391–445). New York: McGraw-Hill.

Smith, E. R., & Lerner, M. (1986). Development of automatism of social judgments. *Journal of Personality and Social Psychology, 50,* 246–259.

Smith, E. R., & Semin, G. R. (in press). Socially situated cognition: Cognition in its social context. In M. P. Zanna (Ed.), *Advances in experimental social psychology*. San Diego, CA: Academic Press.

Smith, E. R., & Zarate, M. A. (1992). Exemplar-based model of social judgment. *Psychological Review, 99,* 3–21.

Smith, M. B., Bruner, J. S., & White, R. W. (1956). *Opinions and personality*. New York: Wiley.

Spencer, S. J., Fein, S., Wolfe, C. T., Fong, C., & Dunn, M. A. (1998). Automatic activation of stereotypes: The role of self-image threat. *Personality and Social Psychology Bulletin, 24,* 1139–1152.

Strahan, E. J., Spencer, S. J., & Zanna, M. P. (2002). Subliminal priming and persuasion: Striking while the iron is hot. *Journal of Experimental Social Psychology, 38,* 556–568.

Tesser, A. (1978). Self-generated attitude change. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 11, pp. 289–338). New York: Academic Press.

Tesser, A., & Martin, L. (1996). The psychology of evaluation. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 400–432). New York: Guilford Press.

Wicklund, R. A., & Gollwitzer, P. M. (1982). *Symbolic self-completion.* Hillsdale, NJ: Erlbaum.

Wittenbrink, B., Judd, C. M., & Park, B. (2001). Spontaneous prejudice in context: Variability in automatically activated attitudes. *Journal of Personality and Social Psychology, 81,* 815–827.

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