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Catching nonconscious goals in the act of decision making

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ABSTRACT

Research has consistently found that goals triggered by environmental cues can influence decision making processes outside of conscious awareness. This lack of awareness led naturally to the presumption that decision makers could not report the activation level of nonconsciously primed goals. This paper shows that goal activation levels can be reported, so long as the report is made during the decision process on a continuous goal activation scale. These results indicate that default lack of awareness is less a limitation of the cognitive system and more a function of the method used to recover goals during a decision process.

Introduction

In 1890, William James wrote, "the stream of our thought is like a river. On the whole, easy simple flowing predominates in it, the drift of things is with the pull of gravity, and effortless attention is the rule" (p. 451). We suggest that a natural extension of this analogy is to equate fully conscious thought with the surface features of the river, nonconscious thought with the deeper water, and the process of making a decision as crossing the river in a boat. Then cognitions can be objects in the river, like rocks, fish, and floating logs, many of which influence how the river is crossed. Now imagine that, having completed your decision process (and reached the other side of the river), you are asked to remember what you saw during the crossing. While you may recall many of the objects that you saw on the river's surface (a floating log) or that broke the surface during your passage (a partially submerged rock), it is less likely that you would be able to recall objects below the surface (a school of fish) unless you had looked directly down into the river during your passage.

In this article, we suggest that automatically activated goals exist in the deeper water of nonconscious thought. As such, the fact that they generally go unobserved does not imply that people are entirely incapable of noticing them. Indeed, our contention is that, as one passes over the river of thought, if one looks down at the precise moment when goals are most likely to be visible, they may be able to be seen, recognized, and reported.

Our interest in catching goals in the midst of a decision stems from the longstanding view, which we share, that behavior in general, and decisions in particular, are directed by goals (Atkinson & Birch, 1970; Bettman, 1970; Dijksterhuis & Aarts, 2010; Gollwitzer & Bargh, 1996). The idea is simple: goals drive people to pursue desirable end states. For the most part, research on goals has emphasized the intentional, conscious pursuit of end states. Indeed, for a long time it was almost paradoxical to suggest that goal pursuit could occur outside of consciousness. However, recent research has demonstrated that goals can be automatically activated by environmental cues and then influence behaviors without any apparent intent or awareness (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001). Moreover, such nonconscious goal pursuit is widely considered to be an example of a class of mental processes not accessible to conscious awareness (Aarts, 2007; Dijksterhuis & Aarts, 2010).

While significant advances continue to be made in understanding nonconscious goal pursuit (Bargh et al., 2001; Chartrand, Huber, Shiv, & Tanner, 2008; Sela & Shiv, 2009), the methodology used to infer the underlying activation of primed goals has relied mainly on behavioral proxies. The two most common proxies are overt behaviors known to be driven by the goal in question, and reaction times to goal-related words in a lexical decision task. While such proxies are sufficient for confirming that a nonconsciously activated prime yielded a hypothesized change in behavior, they are less useful for identifying which specific goal, from a

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potentially large set of possibilities, was activated by an environmental stimulus.

For example, imagine research concerned with explaining which goals determine behavior when a person enters a crowded restaurant. One approach would be to hypothesize that a particular environmental stimulus would change the activation level of a specific goal. The researcher could then manipulate that stimulus and check for changes in that goal's activation by observing an overt goal-driven behavior or by using a lexical decision task to examine reaction times to goal-related words. However, to measure the activation of the specific goal with these behavioral proxies requires that the researcher know which goal, from a potentially large set, should be tested for a predicted change in its activation. Thus, any finding that successfully used this approach could be considered to be as much a confirmation as a discovery. Moreover, if no effect were observed, the researcher would not know whether the proposed stimulus-to-goal relationship was unsupported (a failure of theory) or whether the stimulus was not heeded sufficiently by participants to cause the goal's activation levels to change (a failure of method). In contrast, if it were possible to directly measure the goals that were active in a setting, the researcher's task would be much easier.

Despite these potential benefits to goal-based research, little progress has been made on directly measuring goals activated by environmental cues in decision contexts. We believe one reason for this lack of progress has been the literature's emerging treatment of goal consciousness (i.e., whether the pursuit of the goal is reportable) as all or nothing (e.g., Bargh et al., 2001; Custers & Aarts, 2010; Dijksterhuis, 2004; Dijksterhuis & Aarts, 2010). However, we concur with Keren and Schul's (2009) concern about the appeal of dichotomies and their consequent overuse in theoretical frameworks. They argue that psychological phenomena "can rarely be explained by a few well-defined discrete variables that have an unambiguous demarcation line" (p. 545; see also Kelso & Engstrom, 2006).

Compatible with this continuous view of most psychological phenomena, the essence of our claim is that while individuals may not recognize how a goal was activated, they may, under proper conditions, be able to access their experience of that goal's activation. We note that this is consistent with Schooler, Mrazek, Baird, and Winkielman's (2013) tripartite classification of conscious awareness, so long as we assume that a middle ground exists in which awareness of a goal is characterized by the subjective experience of the goal's activation without default meta-awareness of its activation.

We contend that meta-awareness of the goal, and thus the ability to report it, can be achieved by contemplating the goal's activation at the right time and in the right way. First, we measure goal activation during the choice process when the goals of interest are still being pursued and should be most active and, therefore, accessible (Atkinson & Birch, 1970). This differs from past attempts to assess goal activation, which have generally occurred after the goal-related behavior has been completed. Unfortunately, the period after goal achievement is when extant theories predict the activation level of the goal will have declined and that it may even be inhibited (Förster, Liberman, & Friedman, 2007; Marsh, Hicks, & Bink, 1998). As such, post-task measurement expects decision makers to try to recall the activation level of a target goal after it has been fulfilled, and thus after its activation level has significantly declined. We contend that unless these individuals were looking for the goals during that process, their activation levels were not perceived and encoded, so they will not generally be recalled. Returning to our opening analogy, if individuals did not look down into the river during their passage, then when they reach the other side they will have missed their opportunity to observe what lay below the river's surface.

The second element of our approach that differs from prior research is measurement of goal activation on a continuum. This contrasts with the more common binary response scales in which individuals report a target goal as either active or inactive. The latter is insensitive to the level of goal activation. Instead, a continuum is needed not only in principle, but in practice to assess such specific phenomena as task-driven changes in activation from a non-zero chronic baseline as well as changes in activation during a choice process.

The remainder of the paper is structured as follows. The next section reviews the literature on nonconscious goals and consciousness, including prior attempts to explore the accessibility of primed goals. We then present the results of four experiments in which individuals are asked to report their pursuit of goals invoked by both subliminal and supraliminal primes. We conclude by discussing the implications of the results for current theories of nonconscious goal pursuit and the methodological opportunities for researchers.

Theoretical development

Goal activation can occur via a number of different routes, most obviously when an individual consciously decides to pursue a specific goal (Carver & Scheier, 1998; Deci & Ryan, 1985). However, research has demonstrated that goals can be nonconsciously activated by peripheral cues in the environment and then pursued without conscious awareness (Chartrand & Bargh, 1996). To the extent that a particular goal representation is repeatedly activated in the context of a specific environmental cue, that goal may eventually become automatically activated whenever the cue is encountered (Bargh et al., 2001). Put differently, reinforcement of the cue-goal link over time can cause the goal's activation to recede from conscious awareness. This yields the possibility that the goal will influence behavior without the person who is pursuing the goal being aware of (a) what cue triggered the goal, (b) that the goal itself was active, and (c) what influence the goal had on behavior.

Deconstructing goal pursuit

The three elements of awareness just identified (what triggered the goal, the goal's activation level, and its behavioral consequences) are reflected in Chartrand's (2005) depiction of the goal pursuit process (see Fig. 1). An individual may or may not be aware of each of these three elements. Awareness of an environmental cue (A) depends both on the complexity of the environment and on the frequency of exposure to the cue. Subliminal cues are, by definition, encountered without conscious awareness. Individuals are aware of supraliminal cues, but not necessarily aware that the cue activates a specific goal. Awareness of the goal's activation (B) is the central question of this article, to which we turn below. Finally, individuals are usually aware of their goal-driven behavior (C), though there are exceptions (like unwittingly staring at a fellow diner's dessert).

Prior research on awareness of goal activation

A lack of awareness of the causal link between the cue (A) and the behavioral outcome (C) provides prima facie evidence that the influence of the stimulus (A) was manifested nonconsciously. Thus, it is with considerable justification that, despite some exceptions noted below, efforts to explore participant awareness of the goal pursuit process have emphasized the lack of awareness of the stimulus-to-behavior link (A-to-C). This lack of awareness is typically verified by a funnel debrief completed after the goal-related behavior has occurred (e.g., Bargh & Chartrand, 2000; Bargh et al., 2001).