The Time for Doing Is Not the Time for Change: Effects of General Action and Inaction Goals on Attitude Retrieval and Attitude Change

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Implicit in many informal and formal principles of psychological change is the understudied assumption that change requires either an active approach or an inactive approach. This issue was systematically investigated by comparing the effects of general action goals and general inaction goals on attitude change. As prior attitudes facilitate preparation for an upcoming persuasive message, general action goals were hypothesized to facilitate conscious retrieval of prior attitudes and therefore hinder attitude change to a greater extent than general inaction goals. Experiment 1 demonstrated that action primes (e.g., "go," "energy") yielded faster attitude report than inaction primes (e.g., "rest," "still") among participants who were forewarned of an upcoming persuasive message. Experiment 2 showed that the faster attitude report identified in Experiment 1 was localized on attitudes toward a message topic participants were prepared to receive. Experiments 3, 4, and 5 showed that, compared with inaction primes, action primes produced less attitude change and less argument scrutiny in response to a counterattitudinal message on a previously forewarned topic. Experiment 6 confirmed that the effects of the primes on attitude change were due to differential attitude retrieval. That is, when attitude expression was induced immediately after the primes, action and inaction goals produced similar amounts of attitude change. In contrast, when no attitude expression was induced after the prime, action goals produced less attitude change than inaction goals. Finally, Experiment 7 validated the assumption that these goal effects can be reduced or reversed when the goals have already been satisfied by an intervening task.

Keywords: action goals, attitude, change, persuasion

> It is not the time for active doing.
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> —The Khien Hexagram, *I Ching*

Many social, philosophical, religious, and medical systems have proposed principles that supposedly bring about psychological change as well as methods to achieve such change. The proposed methods include diverse practices such as exercise (Leith, 1949/ 1994), self-knowledge (*Know thyself*, Oracle of Apollo at Delphi, 6th century B.C.), work (Walsh, 1937/1989), ascetic suppression of passions (Bhagat, 1976; Bulka, 1987; Rousseau, 1978), monastic isolation from the secular world (Vircillo Franklin, Havener, & Francis, 1982), bed rest (Jacobson, 1948/1988), and meditation

(Wynne, 1974/2007). Interestingly, underlying these traditions is a continuum that goes from goals to achieve an active end state (high cognitive or motor output; e.g., exercise and work) to goals to achieve an inactive end state (low cognitive or motor output; e.g., relaxation and bed rest). Attempts at decreasing attraction to drugs, for example, include exercise programs aimed at *increasing* activity levels (Murray, 1986), but also progressive relaxation aimed at *decreasing* activity levels (Parker & Gilbert, 1978). These practices are often combined with the reception of persuasive interventions to change behavior, implying that people's openness to change depends in part on these activity goals. We propose that general action and inaction goals can lead to cognitive preparation to receiving a persuasive communication. This cognitive preparation in turn influences openness to the recommendations contained in the communication.

The present research concerned the influence of general action and inaction goals on the speed to retrieve prior attitudes as well as sensitivity to a message advocacy. *General action* can be defined as motor and/or cognitive output and *general inaction* as the lack of action (Albarracín et al., 2008; Albarracín, Helper, & Tannenbaum, in press; Albarracín, Wang, & Leeper, 2009; Gendolla & Silvestrini, 2010; Noguchi, Handley, & Albarracín, 2010). On a continuum, the action end comprises intense and/or frequent motor and cognitive processes, whereas the inaction end comprises neither motor nor cognitive output (e.g., non-REM sleep). The action end includes important, well-planned, effortful behaviors such as acquiring knowledge, but also seemingly trivial behaviors such as doodling and effortless behaviors such as eating when food is

present (Albarracín et al., 2008, 2009; Laran, 2009). Important for our analysis, both general action and inaction can be set as goals that direct behavior toward activity or inactivity endstates achieved by either currently available or chronically available behavioral means (Albarracín et al., 2008). Lab studies have demonstrated that priming *general goals for action* (by presenting words related to action, such as *active* and *go*) leads to more active behavior than priming *general goals for inaction* (by presenting words related to inaction, such as *rest* and *stop*). Throughout a number of studies, general action goals have led to increases in such behaviors as drawing, eating, exercising, learning, and making decisions but decreases in resting behavior. Conversely, general inaction goals have lead to corresponding decreases in all of these behaviors but increases in rest.

In the present research, experimental participants primed with general action goals (e.g., with words such as *go* and *active*) or general inaction goals (e.g., with words such as *rest* and *stop*) either reported prior attitudes toward a topic (e.g., abortion) while they expected to receive a message later or actually received a message about a topic (e.g., gun control). Recalling prior attitudes toward an issue is a likely response when people learn that they will receive a message on the issue. Importantly, there is considerable variability in the speed with which these attitudes are reported, and this activity may be at times deliberate and goal directed (e.g., Cohen & Reed, 2006; Fazio, 1989; Priester, Nayakankuppam, Fleming, & Godek, 2004; Schwarz & Bohner, 2001). For example, having a high need for evaluation results in faster attitude reporting, presumably due to faster attitude retrieval (Jarvis & Petty, 1996). Also, more extreme and more important attitudes are retrieved more quickly than less extreme and less important attitudes, suggesting that relevance and consequent attention play a role in response speed (Fabrigar, MacDonald, & Wegener, 2005).

On the basis of Albarracín et al. (2008), we reasoned that general action goals should facilitate cognitive activity that prepares individuals for the action of processing a message on a given topic, thereby accounting for variability in attitude retrieval speed. Specifically, attitudes should be retrieved and reported more rapidly following action than control or inaction primes but more slowly following inaction than control or action primes. Furthermore, when people prepare to receive a specific message, action goals are likely to accelerate the retrieval of a prior relevant attitude without necessarily speeding up all activities or attitudes unrelated to the task at hand. For example, action goals may facilitate reporting prior abortion attitudes when people expect to receive a message about abortion, perhaps due to an explicit forewarning (Albarracín et al., 2008; Albarracín, Wallace, & Glasman, 2004; Ferguson & Bargh, 2004). However, if people have been forewarned about a different message topic, the general action goal should already be channeled into the goal to prepare for the alternate message and should not spillover onto the speed of reporting abortion attitudes. That is, general action goals should exert effects on a task goal that becomes salient as a means for satisfaction, and once this occurs, they should not speed activity in an indiscriminate way. Therefore, forewarning of an upcoming message should serve to direct the effects of the action goals to forewarning-relevant attitudes but not to other attitudes.

If attitude retrieval facilitates preparation for processing an upcoming message, action and inaction goals may have implica-

tions not only for conscious attitude retrieval at that time, but, ultimately, attitude change when the message is received (for other attitudinal effects of goals, see Ferguson & Bargh, 2004; McCulloch, Ferguson, Kawada, & Bargh, 2008). Importantly, past research has demonstrated that faster attitude retrieval prevents attitude change (e.g., Cohen & Reed, 2006; Fazio, 1989; Priester et al., 2004; Schwarz & Bohner, 2001). Along these lines, a meta-analysis of the attitude–behavior relation showed that repeated expression of attitudes facilitates attitude stability by exerting mediating effects on attitude latencies (Glasman & Albarracín, 2006). Given that prior attitude retrieval generally blocks the influence of compelling counter information (Ajzen & Fishbein, 2005; Albarracín et al., 2004; Fazio, Ledbetter, & Towles-Schwen, 2000; Johnson, Lin, Symons, Campbell, & Ekstein, 1995; Kumkale & Albarracín, 2004; Kumkale, Albarracín, & Seignourel, 2010), action goals—relative to inaction and control goals—may increase the speed with which relevant attitudes are retrieved and decrease attention to the message and thus attitude change. Correspondingly, relative to action and control goals, inaction goals may decrease the retrieval speed and increase attention to the message and thus change.[1]

Understanding the effects of general action and inaction goals on attitude retrieval and change is important for various conceptual and practical reasons. Theoretically, the relations between attitudes and goals are only beginning to be understood (Ferguson, 2008; Ferguson & Bargh, 2004), and past work on goals and persuasion (Johnson & Eagly, 1989; Johnson, Maio, & Smith-McLallen, 2005) has not addressed the issues at hand. Moreover, although change is often assumed to require effortful interventions (cognitive therapy; Beck, 1976), we propose that general action goals may actually jeopardize change. If such a possibility were confirmed, then there would be implications for how change is attempted. For example, Freud (1958a, 1958b; but see Killingmo, 1997) required clients to abstain from making significant life decisions while undergoing analysis (i.e., a fairly general inaction goal), presumably to reduce detrimental practical effects of illusory perceptions or defense mechanisms arising from the analytic process.

Forewarning and Effects of Satisfying General Action and Inaction Goals

General action and inaction goals should influence preparation for an upcoming message to the extent that participants are

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[1] One important consideration about our hypothesis is that, in thwarting change, general action goals may decrease attention to the external information. This prediction clearly sets our hypotheses apart from expectations about the effects of personal relevance. Personal relevance is the degree to which one cares about a specific attitude object. Relevance may emerge from the need to respond to the object as well as when individuals value the issue or outcome independent of the need to act (see Johnson & Eagly, 1989). Relative to low-personal-relevance manipulations, high-personal-relevance manipulations yield higher attention to the message as shown by higher discrimination between strong and weak arguments (Petty & Cacioppo, 1986). In contrast, relative to a general inaction goal, a general action goal is predicted to yield higher prior-attitude retrieval but lower attention to the message as shown by lower discrimination between strong and weak arguments.

forewarned of the message presentation. As the goals are overly general, individuals primed with action or inaction goals are likely to adopt a task that is the focus of attention. Thus, if general action goals are in place and a forewarning manipulation establishes how those goals will be satisfied, people forewarned of the topic of an upcoming communication may retrieve attitudes about that topic as opposed to attitudes about all possible topics. As general action and inaction goals can be satisfied by a wide variety of means, selecting specific means is the hallmark of general goals (see Albarracín et al., 2008). Up to now, the only evidence of such mechanisms involves the finding that participants primed with action goals select tasks that promise longer work times even when this opportunity is preceded by a short rest period. Likewise, participants primed with inaction goals select tasks that promise longer rest even when this opportunity is preceded by a short word period. All of this suggests that, in the domain of processing communications, a forewarning manipulation around the time the goal is instilled (e.g., before or after) should facilitate preparation for the forewarned task but may have no effect on unforewarned tasks. In the absence of such effects of forewarning, one might conclude that the effects of the primes are not goal mediated.

In addition to our predictions about selective preparation based on forewarning, goals have implications for the role of satisfaction. In a prior demonstration of the effects of action and inaction goals, action- and inaction-goal primes were crossed with either active or inactive tasks before dependent measures were recorded (Albarracín et al., 2008). Specifically, participants were first primed with action, control, or inaction words and then engaged in a brief randomly assigned task that was either active (problem solving) or inactive (resting). After this task, participants read a text and wrote down their thoughts about it. We found that inaction primes followed by active tasks yielded fewer thoughts (i.e., less cognitive activity) than inaction primes followed by inactive tasks. This mean difference implied that satisfying an inaction goal decreased its effect, resulting in higher levels of activity. A similar decrease in the effect of the primes was present for the satisfaction of action goals. Action primes followed by inactive tasks yielded more thoughts than action primes followed by active tasks. Again, then, the expected decrease in the influence of the action goal following satisfaction was verified, as was a rebound effect consistent with prior findings about goal satisfaction (Förster, Liberman, & Higgins, 2005; Marsh, Hicks, & Bink, 1998; Zeigarnik, 1967).

If general action and inaction goals influence attitude retrieval and change, the satisfaction of these goals should also affect change. On the basis of past research, the effects of general goals on attitude retrieval and change should be stronger before the goal is satisfied than after the goal is satisfied (Albarracín et al., 2008; Atkinson & Birch, 1970; Ferguson & Bargh, 2004; Förster et al., 2005; Kawada, Oettingen, Gollwitzer, & Bargh, 2004; Laran, 2010; Lewin, 1935; Marsh et al., 1998; McCulloch, Aarts, Fujita, & Bargh, 2008; Zeigarnik, 1967). In particular, action goals should yield lesser change than inaction goals provided that no prior activity has satisfied these goals. Following a satisfaction opportunity, however, these effects may decrease and may even reverse.

The Present Research

The primary aim of the present research was to demonstrate that, in preparation for processing a persuasive message, primed action goals accelerate attitude retrieval and reduce change to a greater extent than primed inaction goals. In Experiment 1, participants who expected a message about gun control were primed with action (e.g., *go*), control (e.g., *pear*), or inaction (e.g., *rest*) words and then reported their attitudes toward gun control. In Experiment 2, participants primed with action or inaction were forewarned that they would receive a message about either gun control or euthanasia and then reported their attitudes toward gun control. In these experiments, we hypothesized that attitudes would be reported more rapidly in action- than in inaction-goal conditions and that control conditions would fall in the middle. We also expected the predicted difference between action and inaction conditions only for attitudes relevant to the forewarned topic of gun control. In Experiment 3, forewarned participants initially opposing vegetarianism received a strong provegetarianism message after being primed with action or inaction; in Experiment 4, participants received a strong message about either a forewarned or unforewarned topic. We predicted that action conditions would show less influence in response to strong arguments than inaction conditions (Experiment 3) and that the lesser influence of a strong message would be localized on attitudes about a previously forewarned topic (Experiment 4). In Experiment 5, participants primed with action or inaction goals received a forewarned message composed of strong or weak arguments. We predicted that participants primed with action goals would attend less to the message, and therefore be no more persuaded by strong than weak arguments. However, individuals primed with inaction would demonstrate an argument quality effect on attitudes. In Experiment 6, we examined the idea that the effects of action and inaction goals on attitude change are mediated by attitude retrieval. In this experiment, word primes of action or inaction were followed by a strong message about a forewarned topic that countered participants' favorable attitudes toward vegetarianism. Before priming, however, half the participants were given an opportunity to express their attitudes, which should increase retrieval of prior attitudes (for a relevant meta-analysis, see Glasman & Albarracín, 2006). If the predicted smaller change in action prime (vs. inaction prime) conditions is due to faster prior-attitude retrieval, the attitude expression manipulation should reduce or eliminate this pattern by facilitating attitude retrieval and therefore decreasing change regardless of action-prime condition (Spencer, Zanna, & Fong, 2005).

Finally, Experiment 7 was designed to examine whether the satisfaction of action and inaction goals also moderates attitude change. In Experiment 7, participants primed with action, control, or inaction words took part in an active or inactive task before being forewarned and then receiving a strong message that countered their attitudes. The task could be either doodling/folding a sheet of paper (an active task) versus resting (an inactive task) for 2 min. Following this task, participants read the message and reported their attitudes toward vegetarianism. Unsatisfied inaction goals should produce greater attitude change than unsatisfied action goals, but these effects should attenuate or even reverse when the premessage task has the potential to satisfy the primed goals.

Experiment 1: Effects of General Goals on Attitude Latency Among Forewarned Participants

Experiment 1 consisted of simply presenting the action, control, and inaction primes and examining their effects on attitude latency among participants forewarned of the subsequent presentation of a message on gun control. Participants were first asked to complete an ostensible verbal ability task that included action words (e.g., *go*), control words (e.g., *moon*), or inaction words (e.g., *still*). Following this manipulation, participants reported their attitudes toward gun control using a computer that recorded response times.

Method

Participants and design. Forty students from an introductory psychology class participated in this experiment in exchange for credit. There were three experimental conditions consisting of action primes, control primes, and inaction primes.

Procedure. All experiments were administered by a personal computer running experimental software. Participants came to the lab and were first told that they would complete several tasks within their experimental session. We indicated that there would be measures of verbal ability and attitudes, and depending on time availability, participants were told that they would later read a message on the topic of gun control to evaluate. Participants were not told of the direction of the message or given any other details. No message was presented at any point in the study, however. Instead, the forewarning of the message topic was designed to link the primed goals to preparation for the message, thus facilitating an influence of the goal on the conscious retrieval of prior attitudes about gun control. After this explanation, the first of these tasks ostensibly measured verbal ability and was designed to prime participants with an action goal, an inaction goal, or neither goal. After the priming, participants reported their attitudes toward gun control, completed some questions regarding suspicion about the experimental procedures and hypotheses, and were dismissed. Participants were debriefed at the end of the study. A summary of key procedures in all the experiments reported in the present article appears in Table 1.

Goal primes. As the ostensible measure of verbal ability, participants in action, control, and inaction prime conditions were asked to complete 20 words, eight of which were related to our target concept. Participants were told that their performance on verbal tasks might be related to their behavior in verbally presented studies such as ours, which made controlling for verbal ability necessary. Participants in the control condition received eight words that could be completed as *candle*, *vocation*, *few*, *doctor*, *market*, *castle*, *between*, and *narrow*. Participants in the action condition received eight stems ("m_tiv_t_on," "doin_," "be_avi_r," "_ctiv_," "_ngag_" "ac_ion," "m_ke," and "g_") that could be completed as *motivation*, *doing*, *behavior*, *active*, *engage*, *action*, *make*, and *go*.

Participants in the inaction condition received eight stems ("_till," "p_use," "int_rrup_," "c_lm," "fr_eze," "_n_ble," "sto_," and "pa_alyze_") that could be completed as *still*, *pause*, *interrupt*, *calm*, *freeze*, *unable*, *stop*, and *paralyzed*. The experimental words had high associations with *action* and *rest* in the (empirically derived) Computerized Edinburgh Associative Thesaurus (Kiss, Armstrong, Milroy, & Piper, 1973). These words have no influ-

ence on mood and activate the expected action and inaction concepts and goals (Albarracín et al., 2008). In addition, there was correct completion for 96% of the control words, 100% of the action, and 100% of the inaction words.

Attitude latency measure. Following this task, participants rated the statement "My attitude about gun control is" as either 1 (*negative*) or 9 (*positive*). Note that a dichotomous scale was selected to avoid confounds between response times and variable positions, which are common when using an interval scale. The computer recorded the time participants took to respond to the dichotomous attitude question. Response times were log-transformed for analyses and then back-transformed for descriptive purposes. Furthermore, at the end of the experiment, several questions probing for suspicion and experimental demand were included. Specifically, participants were asked (a) "What was the purpose of the experiment?" (b) "Do you think any tasks were related?" (c) "Do you think any earlier task affected your responses?" and (d) "Did you notice anything about the experiment that seemed strange?" Responses were coded for suspicion and awareness of the hypothesis. As no participant was aware of the hypothesis in any of the experiments, these measures are not discussed further.

Results

A preliminary analysis indicated that participants were overwhelmingly positive toward gun control (86% participants in favor) and did not differ across goal conditions, $\chi^2(2, N = 40) = 1.65$, *ns*. More important, we found the expected significant main effect of the primes on the log-transformed time taken to report attitudes toward gun control, $F(2, 39) = 8.54$, $p < .001$ (Cohen's $g = 0.65$). The mean back-transformed times were 2.54 s ($SD = 1.31$ s) in action conditions, 3.71 s ($SD = 1.52$ s) in control conditions, and 5.21 s ($SD = 1.75$ s) in inaction conditions. Planned contrasts indicated that action primes produced faster attitude reports than control primes, $t(39) = 2.03$, $p = .03$, and inaction primes, $t(39) = 4.62$, $p < .001$. Moreover, the time difference between the control and inaction prime conditions was also statistically significant, $t(39) = 2.11$, $p = .04$.

Discussion

In summary, Experiment 1 implied that action primes facilitate retrieval of prior attitudes on a topic when participants would reasonably prepare for the reception of a message on that topic. Furthermore, this study provided evidence that the action and inaction conditions differed from a control baseline in addition to differing from each other. Thus far, however, our findings cannot rule out the possibility that the primes accelerated all motor responses rather than conscious retrieval of prior attitudes specifically in preparation for the message. We expected that fast retrieval of prior attitudes about a topic would be adaptive for participants who expect to later read a persuasive message on that topic. To the point that the primes encourage conscious retrieval of memories that facilitate upcoming actions, the effects of the primes should be localized on responses about attitudes toward an action-relevant object, as opposed to all responses. Hence, Experiment 2 included a manipulation of forewarning of the upcoming message. Half the participants were told that they would view a message on

Table 1
Experimental Procedures: Experiments 1–7

Experiment number	Forewarning	Priming procedure and conditions	Topic	Initial attitude and method of preselection of participants	Postmessage attitude measure	Experimental manipulation other than priming
1	All participants forewarned at the beginning of the study.	Word completion, action, control, and inaction primes	Gun control	Pro-gun control. No preselection, but most participants favored gun control.	1 (*negative*) or 9 (*positive*)	None
2	Half the participants forewarned about gun control and half about euthanasia.	Word completion and phrase memorization, action, and inaction primes	Gun control	Pro-gun control. No preselection, but most participants favored gun control.	1 (*negative*) or 9 (*positive*)	Forewarning
3	All participants forewarned at the beginning of the study.	Word completion, action, and inaction primes	Vegetarianism	Antivegetarianism. Prescreening session using the same scale as in the study.	1 (*foolish*) to 9 (*wise*); 1 (*harmful*) to 9 (*beneficial*)	None
4	All participants forewarned about gun control, but half get the euthanasia message.	Word completion and phrase memorization, action, and inaction primes	Gun control and euthanasia	Anti-gun control and antieuthanasia. Prescreening session using dichotomous scale.	Agreed with the position advocated in the message, and the position of the message was a good idea. Ratings on scales from 1 (*not at all*) to 9; (*extremely*)	Forewarning
5	All participants forewarned at the beginning of the study.	Word completion, action and inaction primes	Vegetarianism	Provegetarianism. Prescreening session using dichotomous scale.	1 (*foolish*) to 9 (*wise*); 1 (*harmful*) to 9 (*beneficial*); 1 (bad) to 9 (*good*);	Argument strength
6	All participants forewarned at the beginning of the study.	Word completion, action and inaction primes	Vegetarianism	Provegetarianism. Prescreening session using dichotomous scale.	1 (*foolish*) to 9 (*wise*); 1 (*harmful*) to 9 (*beneficial*)	Attitude rehearsal
7	All participants forewarned after the priming and satisfaction task.	Word completion, action, control, and inaction primes	Vegetarianism	Provegetarianism. Prescreening session using dichotomous scale.	1 (*foolish*) to 9 (*wise*); 1 (*harmful*) to 9 (*beneficial*)	Goal satisfaction

gun control and the other half on euthanasia, after which all participants were primed with action or inaction and then reported their attitudes toward gun control. If goals are linked to conscious attitude retrieval in preparation for the upcoming message, only participants who were forewarned about gun control should show the effect of the action prime on the time taken to respond to attitude questions. When participants were forewarned about euthanasia, the goal manipulation should not necessarily influence retrieval of unrelated attitudes toward gun control. On the one hand, action primes may induce a generalized speeding of responses, but even in this case the effects on relevant attitudes should be greater. On the other hand, if the goal was effectively linked to preparation for the message about euthanasia, there should be no effects on unrelated attitudes about gun control.

Experiment 2: Effects of General Goals on Attitude Latency as a Function of Forewarning

Experiment 2 consisted of forewarning participants that they would receive a message about either gun control or a control topic (euthanasia), and subsequently presenting the action and inaction primes prior to measuring attitudes. We expected action primes to decrease attitude latency, but only to the extent that participants could link their general action goal to preparing for the message they expected to receive. We examined the time participants took to report attitudes toward gun control, which should have been affected by the primes when participants expected to receive the control messages.

Method

Design and participants. Participants were 26 introductory psychology students enrolled in this study. These participants were randomly assigned to one of the four cells of a Prime (action vs. inaction) × Forewarning (gun control vs. control topic) between-subjects factorial.

Procedure. In the beginning, participants were told that they would be receiving a message about gun control (or euthanasia) after first completing measures of their verbal ability. Participants were not told of the direction of the message or given any other details. Next, participants were first asked to complete action words (e.g., *go*) or inaction words (e.g., *still*). To validate our assumptions using a slightly different procedure, participants were then asked to memorize commercial slogans that also primed action or inaction concepts (Laran, 2009). They then reported their attitudes toward gun control using a computer that recorded response times. Comparing the time to report attitudes toward gun control by people expecting a gun control message or a euthanasia message served to analyze the effects of action goals in combination with forewarning. Participants were debriefed at the end of the experiment. See Table 1 for a summary of key procedures in all experiments.

Forewarning manipulation. At the beginning of the study, participants were told that the study comprised several tasks, one of which was reading a message about gun control (or, in control conditions, euthanasia). No further information about the message was provided, thus participants knew neither the direction nor any characteristic of the communication. These instructions were followed by an introduction to the first priming task. To maintain the cover story for participants who received an unexpected message, participants were debriefed about the purposes of the deception.

Goal primes. The priming task first included the word completion task used in Experiment 1. Following this manipulation, an additional procedure was introduced, modified from one recently developed by Laran (2009). Participants were told that they would be shown 10 phrases for them to recall. Each phrase was presented three times and consisted of advertising slogans referring to either action or inaction (e.g., *Just do it* and *Hurry on down to Hardee's* vs. *Relax. It's Holiday Inn* and *Slow down to get around*). Specifically, participants who completed action words in the first task received action phrases to memorize, whereas participants who completed inaction words in the first task received inaction phrases to memorize. To maintain the cover story, following the presentation of the priming phrases, participants were prompted to write the slogans they recalled.

Attitude latency measure. The same dichotomous measure of attitudes toward gun control used in Experiment 1 was included in this experiment. As before, response times were recorded in seconds and log-transformed for analyses.

Results

Eighty-nine percent of the participants favored gun control, and these attitudes were unaffected by our manipulations (see also Experiment 1). We analyzed the time used to report attitudes as a function of prime and forewarning condition using analysis of variance. Log-transformed scores were used and then back-transformed for display purposes. We found the predicted two-way interaction between prime and forewarning condition, $F(1, 22) = 5.10$, $p = .03$. There were no significant main effects of either prime, $F(1, 22) = 2.70$, *ns*, or forewarning condition, $F(1, 22) = 0.14$, *ns*. Participants who were forewarned about gun control reported their attitudes toward gun control more rapidly when action was primed than when inaction was primed ($M = 1.96$ s, $SD = 0.56$ s vs. $M = 3.99$ s, $SD = 0.56$ s), $t(22) = 2.66$, $p = .02$. In contrast, participants who were forewarned about the control topic of euthanasia showed similar response speed regardless of condition ($M = 2.77$ s, $SD = 0.52$ s vs. $M = 2.46$ s, $SD = 0.52$ s), $t(22) = 0.21$, *ns*.

Discussion

In summary, Experiment 2 confirmed that action goals linked to preparations for the processing of an upcoming persuasive communication facilitated prior attitude retrieval relative to inaction goals. That is, for participants who expected to later receive a message about gun control, action goals elicited cognitive work in preparation for the message, resulting in faster conscious retrieval of relevant prior attitudes. Among participants who expected to later receive a message about euthanasia, action goals presumably elicited other cognitive work in preparation for that message, meaning that attitudes toward gun control were not retrieved.

Interestingly, if participants had not been forewarned about any upcoming persuasive message, the action goal should not link to specific preparatory activity for processing a message. In this case, action goals could be guided by upcoming task instructions and either speed or slow the report of any response depending on how the reporting task was framed. If the task were framed as requiring

speed, then action versus inaction goals should energize responding and result in faster reports of any attitude (see, e.g., Albarracin et al., 2008). Yet, if the task were framed as requiring accuracy, the action goals may energize cognitive activity to facilitate correctness and therefore reduce the speed with which individuals report attitudes (e.g., Experiment 3 of Laran, 2009). Thus far, our findings simply supported our first hypothesis that action goals decrease the time for attitude retrieval following a forewarning, whereas inaction goals increase this time. The following experiments were designed to examine whether action goals can decrease attitude change among participants who expect to receive a persuasive message on a particular topic.

Experiment 3: Effects of General Goals on Attitude Change Among Forewarned Participants

In Experiment 3, participants prescreened as disliking vegetarian dietary practices were primed with action or inaction words and then received a strong message favoring vegetarianism, a topic for which they were forewarned. Their attitudes were measured at the beginning of the semester, and then again after receiving the message. These two attitude measures served to examine the effects of action and inaction primes on attitude change among forewarned participants.

Method

Design and participants. Participants were 32 introductory psychology students who reported opposing vegetarianism (*M* of 5.5 or less on a 1–9 scale) during a prescreening session at the beginning of the semester. These participants were randomly assigned to an action-prime condition or an inaction-prime condition.

Procedure. The procedures to prime action and inaction words were identical to the ones used in Experiment 1. This experiment, however, included a strong message designed to change initial attitudes as well as measures of attitude change. At the beginning of the study, participants were forewarned that they would receive a message about vegetarianism and then underwent priming procedures, received the message, and reported their attitudes toward vegetarianism as well as the perceived strength of the message. Participants were not told of the direction of the message or given any other details. See Table 1 for a summary of key procedures in all experiments.

Goal primes. The priming task first included the word completion task used in Experiment 1. The primes were either action or inaction words.

Message. After the priming, a strong 500-word informational passage was presented to the study participants. This passage advocated vegetarianism and provided compelling scientific evidence that the meat industry violates animal rights and poses a danger to people and the environment. The message was selected to be strong based on pretestings using the proportion of favorable thoughts as the criterion. Also, in the present study, participants judged the message's strength (*M* = 6.03) to be significantly above the midpoint of our 1–9 scale, $t(31) = 4.09$, $p < .001$. This result replicated in all upcoming experiments in which strong arguments were used, and therefore this message quality measure is not discussed further.

Attitude measure. Attitude change was estimated with two items included at the beginning of the semester and end of the experimental session. Specifically, participants rated whether vegetarianism is *foolish* versus *wise* and *harmful* versus *beneficial* on 1 (*foolish/harmful*) to 9 (*wise/beneficial*) scales. Postmessage, these two attitude items correlated .51 ($p < .05$). Change scores were calculated by subtracting prescreening attitudes from postmessage attitudes. Thus, greater scores indicate greater change in the direction of the message.

Results

Initial attitudes toward vegetarianism did not differ as a function of goal condition (grand *M* = 4.09, *SD* = 0.93), $t(30) = 0.19$. We then analyzed change scores as a function of prime and revealed the predicted difference between the inaction and action prime conditions, $t(30) = 2.18$, $p = .04$ ($g = 0.54$). As expected, there was less attitude change in the direction of the message following action than inaction primes (*M* = 0.31, *SD* = 1.18 vs. *M* = 1.34, *SD* = 1.48), respectively.

Discussion

The results from Experiment 3 complemented the finding that action goals produce faster attitude report than inaction goals among participants who are forewarned of the topic of the upcoming message (Experiments 1 and 2). Consistent with the identified facilitating effects of action (vs. inaction) primes on attitude retrieval, forewarned participants' attitudes changed less following action (vs. inaction) primes. Despite the contribution of this experiment, there are several limitations in the conclusions we can reach. First, as all participants in this study were forewarned about the upcoming message topic, we could presume but not verify that the effects were due to cognitive activity occurring in preparation for the message. Thus, similar to Experiment 2, Experiment 4 included a manipulation of forewarning of the upcoming message. Specifically, we selected participants who supported gun control and euthanasia and then forewarned them about an upcoming euthanasia message. The message we presented afterwards, however, was either about euthanasia or gun control. This design allowed us to determine whether participants' attitudes toward the topic opposed the message more when they were primed with action and had been forewarned about this upcoming topic.

Other limitations concerned the possibility that action goals might have simply increased attention to the message. Greater attention to the message should normally increase the effect of a strong message such as the one we used here, but it was still important to verify our assumptions using an argument strength manipulation. In Experiment 5, our prime manipulations were crossed with an argument-strength manipulation to determine whether action goals decreased attention to the message. Moreover, Experiment 6 included participants favoring vegetarianism and assessed the influence of having people rehearse their prior attitudes in interaction with our primes. If retrieval of prior attitudes is involved in the effects of the action primes, the rehearsal manipulation should eliminate the effects of our primes. Like Experiment 3, forewarning of the upcoming message was constant in Experiments 5 and 6, such that all participants were aware of the topic of the message they would be receiving in the session.

Experiment 4: Effects of General Goals on Attitude Change as a Function of Forewarning

The effects of forewarning have received considerable attention in social psychology but have never been analyzed in the context of action and inaction goals. Forewarning can produce an anticipatory shift such that individuals report moderate initial (i.e., premessage) attitudes (average $d = 0.37$; Wood & Quinn, 2003). By definition, the direction of the anticipatory shift is toward the midpoint of the scale and fosters agreement with an upcoming message no matter its direction. Presumably, when an upcoming message is described as persuasive, or when one is uncertain about the upcoming message, individuals report moderate attitudes in anticipation of being persuaded by the message, or in an effort to appear open-minded and ultimately correct in their attitudes. In particular, anticipatory moderation occurs for attitudes regarding low-involvement issues that do not threaten the self. For extremely involving issues, forewarning actually produces entrenchment in the initial attitudes and even a boomerang effect away from the upcoming counterattitudinal message. The two patterns of results (anticipatory shift vs. resistance) are explained with reference to two motives. When issues are highly involving, people want to defend those identity-relevant attitudes, but when the issues are not as highly involving, people want to appear moderate and flexible (e.g., Hollander, 1974; $d = 0.32$).

Imagine that participants are forewarned of an upcoming message about a mildly involving social policy such as euthanasia. In line with the anticipatory shift hypothesis, forewarned participants should initially adopt a moderate attitude about euthanasia, whereas unforewarned participants should not. Next, participants are primed with action or inaction. After receiving an action prime, participants should now consciously retrieve their original prior attitude, as was observed in Experiments 1–2. Therefore, their postmessage attitudes should reflect their original attitudes, which, following the prime, partially overrode the moderate attitude generated following the forewarning of the message. Inaction-prime participants should retrieve their prior, extreme, attitude to a lesser extent (e.g., Experiments 1–2), leaving the moderate attitude initially triggered by the forewarning relatively active. Therefore, their postmessage attitudes should be significantly impacted by consideration of the message, starting from a moderate position due to the forewarning, leading to overall more agreement with the message. Overall, then, anticipatory shift should result in more message-consistent attitudes in forewarning than no-forewarning situations, although this effect should be weaker in action-primed conditions given that the moderate attitude is partially overridden by the retrieved, more extreme initial attitude.

Method

Design and participants.   Participants were 36 introductory psychology students who reported favoring gun control and euthanasia during a prescreening session at the beginning of the semester. These participants were randomly assigned to the four cells of a 2 (prime: action vs. inaction) × 2 (forewarning: warned about received topic vs. warned about control topic) factorial design. In addition, the topics were piloted to determine their level of involvement in this population.

Procedure.   Participants with known approval of gun control and euthanasia based on dichotomous prescreening questions ad-

ministered earlier in the semester were recruited into the experiment. On arrival, they were told that they would receive a message about euthanasia and would respond to some questions about the issue. Participants were then primed using the same word completion and slogan memorization procedures described in Experiment 2. Although half the participants received a message and answered questions about the promised topic of euthanasia, the other half received a message and answered questions about gun control. Participants were not told of the direction of the message or given any other details. See Table 1 for a summary of key procedures in all experiments.

Goal primes.   The priming task first included the word completion task, followed by the phrase memorization task. Participants were given either action or inaction primes. See Experiment 2 for details.

Messages.   Strong anti-gun control and antieuthanasia messages were selected. The messages contained pretested strong arguments and were approximately 400 words long. The anti-gun control message stated that banning guns is both unfair and ineffective as the majority of guns sold in the United States are not used to commit crimes. The text reminded the reader that the high prevalence of fire arm accidents is a fallacy and provided numerous supporting statistics. The antieuthanasia message reasoned that extreme measures like euthanasia should be avoided because of the possibility of errors in judgment. For example, the message stated that the terminally ill are often depressed and therefore unlikely to analyze their situation objectively. This message also elaborated on the moral imperative not to kill.

As the main effect of forewarning depends on the level of involvement of the issues at hand, independent data on the level of involvement of the two topics used in this experiment were collected. Using the average of two scales from 1 to 10 (how interesting and how personally relevant), a sample of 208 participants from the same population had involvement means of 6.13 and 6.42 for euthanasia and gun control, slightly above the midpoint of the scale. In the absence of high-involvement levels, one should expect an anticipatory shift in initial premessage attitudes rather than resistance in response to the forewarning manipulation. Therefore, the main effect of forewarning should reflect more agreement with the message in forewarned than unforewarned conditions.

Attitudes toward the advocacy.   Despite the forewarning of an upcoming euthanasia message, participants could receive a message about either gun control or euthanasia. It was therefore necessary to select an attitude measure that applied regardless of the topic. Therefore, participants were asked to report whether they agreed with the position advocated in the message and whether they thought the position of the message was a good idea. In both cases, participants used scales from 1 (*not at all*) to 9 (*extremely*). These two items correlated .60 ($p < .001$) and were averaged as a measure of attitude toward the advocacy.

Results

We analyzed participants' attitudes toward the message advocacy as a function of prime and forewarning. As expected, there was a significant Prime × Forewarning interaction, $F(1, 32) = 4.45$, $p = .04$. Participants who were forewarned about the (euthanasia) message they actually received agreed with the message less when primed with action than when primed with

inaction ($M = 5.03$, $SD = 1.65$ vs. $M = 6.54$, $SD = 1.95$), $t(1, 32) = 2.32$, $p = .03$. In contrast, the primes had no effect for participants who received a message about the nonforewarned topic of gun control ($M = 3.91$, $SD = 1.15$ vs. $M = 3.24$, $SD = 2.07$), $t(1, 32) = 0.78$, ns. Of note, there was also a main effect of the forewarning manipulation, $F(1, 32) = 17.58$, $p < .001$. As is generally found when participants are forewarned of a mildly involving topic, we observed more compliance for forewarned than unforewarned participants ($Ms = 5.78$ vs. 3.58). The prime alone had no significant main effect on attitudes toward the advocacy ($F < 1$).

Discussion

The results from Experiment 4 were consistent with our expectations and the results of Experiment 2. Briefly, participants were less influenced by a message in action-prime conditions only when they could have initiated cognitive work in preparation for the message. This pattern of findings is thus consistent with the facilitated attitude retrieval observed among action-primed participants who were forewarned of the topic of an upcoming message (Experiment 2). In addition, this experiment showed that the primed goals had no effect when participants were previously forewarned of a message topic different from the one they received.

This experiment also showed the expected main effect of forewarning for less involving topics. Wood and Quinn's (2003) meta-analysis revealed that for less involving issues, some experiments have actually demonstrated more message-consistent attitudes with forewarning (Hollander, 1974). Thus, the forewarning manipulation alone led participants to initially construct moderate attitudes, but the subsequent action goal increased their motivation to *consciously* retrieve their original attitude and thus decreased attention to the message. In a nutshell, the forewarning produced an anticipatory shift in attitudes, but action goals motivated participants to retrieve their prior attitudes and thus reduce the anticipatory shift.

One remaining issue with respect to forewarning concerns what would happen when individuals are forewarned about a highly involving issue. In this case, forewarning should initially prompt the retrieval of participants' prior polarized attitudes. Furthermore, according to Wood and Quinn's (2003) meta-analysis, these individuals should be more resistant to the message if they were forewarned than if they were not. Even in this situation, our predictions would hold: Given a forewarning, the action goal should elicit greater conscious retrieval of the attitude and produce more resistance to the message (i.e., less change in the direction of the message appeal). Without forewarning, participants should show comparable amounts of resistance regardless of action or inaction goal primes. In other words, the main effect of forewarning could be different or nonexistent without altering the gist of our predictions.

Experiment 5: Effects of General Goals and Argument Strength on Attitude Change Among Forewarned Participants

Although strong messages were used in Experiments 3 and 4, it was desirable to replicate our findings with a comparison condition in which participants received a weak persuasive message. Furthermore, doing so will help to clarify whether the retrieval of prior attitudes in action-primed individuals decreases attention to the message or leads to more counterarguing of a weak message. If participants with a general action goal retrieve a prior attitude that allows them to ignore a counterattitudinal message like the one we presented (Knowles & Linn, 2004), then these participants should be correspondingly less sensitive to the quality of the persuasive message. As a result, participants primed with action should be similarly influenced by strong and weak messages, whereas participants primed with inaction should form more favorable attitudes in response to a strong message. However, if action (vs. inaction) goals lead to counterarguing, then we should observe a larger argument quality effect among action-primed individuals, and particularly a smaller effect of the weak message in action-prime conditions. Experiment 5 was poised to clarify which of these processes were instantiated by action primes. Like in Experiment 3, participants in this study were aware of the topic of the upcoming message topic but did not know the message direction or any other details about it. To maintain the cover story for participants who received an unexpected message, participants were debriefed about the purposes of the deception.

Method

Design and participants. Seventy-three introductory psychology students (38 men and 35 women) enrolled in this experiment in exchange for class credit. The design was a 2 (prime: action vs. inaction) × 2 (message strength: strong vs. weak) between-subject factorial.

Procedure and measures. The methods used in this study were identical to the ones in Experiment 3, with three exceptions relative to the messages used and the attitude measure. Participants were selected on the basis of their favorable attitude toward vegetarianism at prescreening using a dichotomous scale. Upon arrival, participants were told of the topic of the message they would receive, primed with action or inaction, presented with a message, and given attitude questions. See Table 1 for a summary of key procedures in all experiments.

Goal primes. The priming task first included the word completion task with action or inaction targets. See Experiment 1 for details.

Messages. The messages used opposed vegetarianism, and participants were randomly assigned to receive a version containing either strong or weak arguments. Both messages contained approximately 500 words and, as predicted, received predominantly favorable (strong message) versus unfavorable (weak message) comments during pretestings. One of the strong arguments was that humans are meat-eating by nature and that the supply of meat cannot be replaced until evolutionary metabolic changes take place. One of the weak arguments was that vegetarianism makes social life complicated for college students.

Attitude measures. Due to the concern of an anonymous reviewer about the use of a two-item scale with a .51 intercorrelation in Experiment 1 (equivalent to a Cronbach's alpha = .70 for three items), the attitude measure was changed to include three rating scales with anchors from 1 to 9 (*good* vs. *bad*, *beneficial* vs. *harmful*, *wise* vs. *foolish*; $\alpha = .90$). A control group of 16 participants, who received no information, was used to estimate baseline

attitudes, and simply reported their attitudes about vegetarianism. In the control group, these attitudes averaged 6.91 (SD = 1.78) and were significantly above the midpoint of the scale, $t(15)$ = 5.28, p < .001.

Results

We analyzed mean attitude change estimated in relation to the control group as a constant as a function of prime and argument strength. This analysis revealed a significant interaction, $F(1, 69)$ = 4.02, p = .05; a significant main effect of argument strength, $F(1, 69)$ = 12.51, p < .001; and no significant main effect of the prime (F < 1). The means corresponding to these analyses appear in Figure 1 and suggest that the difference between strong and weak arguments was significant in the inaction-prime conditions (p for contrast < .001) but not in action-prime conditions (p for contrast = .30). Moreover, recipients of strong arguments were more persuaded after being primed with inaction than action (p for contrast = .05; replicating our previous results), but there were no differences in persuasion when they received weak arguments (p for contrast = .40). Finally, contrasts with a zero standard indicated that of the means in Figure 1, only the strong argument conditions produced significant change (for inaction prime: p < .001; for action prime: p = .04).

Discussion

Up to this point, we have shown that action primes can accelerate the message-preparation retrieval of attitudes (above and beyond a general acceleration of responses) and decrease attitude change. Moreover, when participants receive a persuasive message, prior attitudes may be defended by simply withdrawing attention from the message and/or counterarguing the evidence. These two possibilities were investigated in Experiment 5 by presenting weak, in addition to strong, messages. The attitude-retrieval possibility should produce greater discrimination between strong and weak arguments in the inaction-prime condition, whereas the counterarguing possibility should produce greater discrimination between strong and weak arguments in the action-prime condition along with less persuasion following weak arguments in action-prime conditions. As we found greater differences

between strong and weak arguments in the inaction-prime condition, our findings suggest that action primes decrease attention to the message. Moreover, counterarguing should produce less persuasion in response to *weak* arguments in action-prime conditions, but we did not find differences between prime conditions in responses to weak arguments. Although these findings, along with the earlier experiments, supported the premise that prior attitude retrieval was implicated in the activity that took place in preparation for the message, it was important to also show that attitude retrieval played a causal role in this process.

Experiment 6: Effects of General Goals on Attitude Change as a Function of Attitude Rehearsal Among Forewarned Participants

In Experiment 6, we further examined whether the effects of the primes on change observed in Experiments 3–5 (strong argument conditions) are connected with attitude retrieval. In principle, connecting attitude retrieval and change could simply involve introducing a measure of attitude latency between the prime and the message presentation. Unfortunately, however, this methodology would force all participants to access attitudes that may otherwise be consciously retrieved only in action-prime conditions. Given this limitation, Experiment 6 included an experimental manipulation of attitude rehearsal as a way of examining the mediating process (see Spencer et al., 2005). This experiment thus complemented the critical evidence from Experiments 2 and 4.

In this experiment, participants who initially favored vegetarianism and expected to receive a message about vegetarianism were primed with action or inaction words and then received a strong message opposing vegetarianism. However, before the priming, half the participants were assigned to an attitude expression condition in which they were asked to select meat and vegetable products during a simulated shopping experience. Consistent with prior research (e.g., Fazio et al., 2000), we reasoned that having participants express their attitudes toward vegetarianism would prompt a conscious recollection of that attitude. The other half of participants were assigned to a delay-without-attitude expression condition. In the absence of attitude expression, action primes were expected to produce less attitude change than inaction primes (see Experiment 3). As the effect of action primes is presumably mediated by attitude latency, however, the attitude expression manipulation should eliminate the differences between the two prime conditions by creating high attitude retrieval independent of the primes.

Method

Design and participants. Participants were 85 introductory psychology students selected for being favorable toward vegetarianism at the beginning of the semester, who participated in the experiment in exchange for course credit. On a prescreening questionnaire, the selected participants all indicated a favorable attitude toward vegetarianism on a dichotomous choice. The experimental design was a 2 (goal: action vs. inaction) × 2 (attitude expression: yes vs. no) factorial. The prescreening data were recorded on a dichotomous scale and thus could not be used to estimate change. Instead, attitudes measured from a control group of 25 participants,
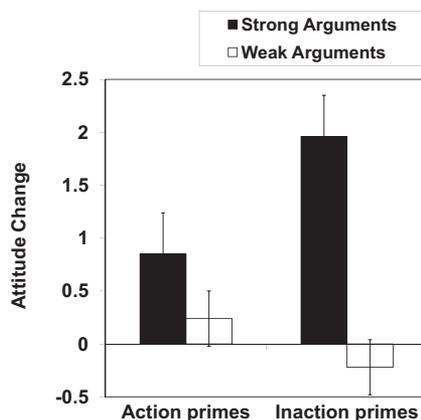

Figure 1. Effects of primes and argument strength: Experiment 5.

who also indicated favorable attitudes toward vegetarianism at the beginning of the semester, were used to estimate change scores.

Procedure and measures. The message presentation and priming procedures were the same as in Experiment 3 and 5. At the beginning, participants were told of the topic of the upcoming message and the other tasks in which they would partake. Prior to the goal priming, however, half the participants were asked to select food coupons they could potentially take home with them. This manipulation should allow them to retrieve and repeatedly express attitudes related to vegetarianism. Then, a strong antivegetarian message was presented to observe effects on postmessage attitudes in the four conditions of our experiment. See Table 1 for a summary of key procedures in all experiments.

Goal primes. The priming task involved the word completion task with either action or inaction words. See Experiment 1 for details.

Attitude-expression manipulation. Participants in the attitude-expression condition learned that, in the context of studying their food preferences, they would view 10 coupons. The selected coupons all had a constant but unspecified monetary value, and included commercial vouchers for fresh broccoli, apples, corn on the cob, Yukon and red potatoes, packaged vegetables, chicken drums or thighs, T-bone steak, top-round steak, chicken breast, and trout fillets. These 10 coupons were first presented for viewing and then again with an option to either "keep" or "throw away" each coupon. Participants were asked to keep five coupons, which they might ostensibly receive at the end of the session. Participants in the no-attitude-expression condition engaged in an unrelated filler task.

Message. All participants read the strong message opposing vegetarianism used in Experiment 5. (The control group used to estimate baseline attitudes received no information and simply reported their attitudes about vegetarianism.)

Attitude measure. The postmessage attitude scales were the same as in Experiment 3. The two attitude scales correlated .67. Using a 9-point scale ranging from 1 (*not at all*) to 9 (*extremely*), participants also reported how interesting the message was. In the control group, these attitudes averaged 6.58 (*SD* = 1.13) and were used as the baseline for experimental conditions.

Results

We hypothesized that inaction goals would produce more attitude change than action goals and that these effects would be due to the differential preparatory attitude retrieval that action goals can stimulate. Therefore, the difference between the two prime conditions should disappear when attitude retrieval is facilitated via attitude expression. The manipulation of attitude expression had no effects on reported message interestingness (*F* < 1) for all main effects and interactions. We then conducted analyses on estimated change scores obtained by subtracting postmessage attitudes from the control group mean. More positive scores indicate greater change in the direction of the antivegetarianism message.

Consistent with our predictions, there was a significant interaction between the prime type and the presence versus absence of attitude expression, $F(1, 81) = 3.92$, $p < .05$, and no significant main effects (*F* < 1). The relevant means are summarized in Figure 2 and reveal the predicted greater change in the inaction/no-attitude-expression condition (*M* = 1.77, *SD* = 0.95) than in all
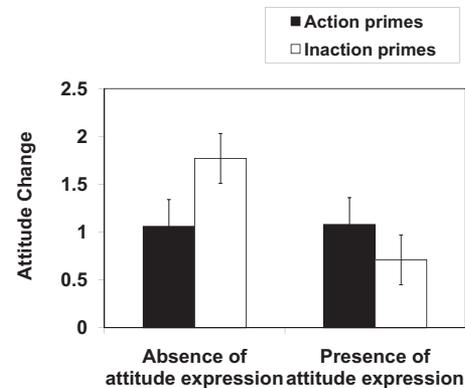

Figure 2. Effects of primes and attitude expression manipulation: Experiment 6.

other conditions, $t(81) = 3.15$, $p = .003$. There were similar amounts of change across the attitude-expression conditions (*M* = 1.08, *SD* = 1.33 vs. *M* = 0.71, *SD* = 1.57 for action and inaction primes, respectively; *p* for contrast = .39) and in the no-attitude-expression condition with action primes (*M* = 1.06, *SD* = 0.87), for differences involving these three conditions (*t*s < 1 and *p*s > .42 in all cases). In addition to analyzing these change scores, we formally compared experimental postmessage attitudes with control attitudes. These contrasts indicated significant change in all cells (*p* < .001), with the exception of the cell involving attitude expression and inaction prime (*p* = .13). Overall, these results suggest that the message generally changed attitudes, although the degree of change depended on the attitude-expression and priming manipulations.

Discussion

Experiment 6 provided strong support for the hypothesis that, compared with a general inaction goal, a general action goal can yield lesser attitude change by increasing conscious retrieval of prior attitudes in preparation for the message. Importantly, however, this difference should take place only in the absence of the attitude-expression manipulation. Consistent with this possibility, the action-prime manipulation was redundant when attitude retrieval was ensured by the coupon selection task. That is, inaction led to more change only when no attitude expression was introduced to elicit attitude retrieval. Along with the effects of action primes on attitude latencies (Experiments 1 and 2), these findings suggest that action primes yield lesser attitude change than inaction primes by exerting mediating effects on conscious prior attitude retrieval. Therefore, when attitude retrieval is forced to be high, the primes cease to exert different effects.

Experiment 7: Effects of General Goals on Attitude Change as a Function of Goal Satisfaction Opportunity Among Forewarned Participants

Experiment 7 was designed to build on our earlier findings by identifying further conditions that moderate the obtained attitude change effects. Specifically, an important property of goals is that they can be satisfied and therefore exert either no effects or effects

opposite to their effects when they are not satisfied. Therefore, if a task that follows goal priming can satisfy the goals, the effects on attitude change may disappear or even reverse (Albarracín et al., 2008; Atkinson & Birch, 1970; Ferguson & Bargh, 2004; Förster et al., 2005; Kawada et al., 2004; Lewin, 1935; Marsh et al., 1998; Zeigarnik, 1967). As demonstrated by Albarracín et al. (2008), satisfied general action goals actually lead to the same level of activity (in this case, information processing) as unsatisfied inaction goals and less activity than unsatisfied action goals (their Experiment 7). Likewise, satisfied inaction goals lead to the same activity level as unsatisfied action goals and more activity than unsatisfied inaction goals. On the basis of these findings, we predicted that the effects observed in Experiment 3 would at least decrease when manipulated goals have been satisfied by a task that precedes the message. However, given past rebound results (e.g., Albarracín et al., 2008), the satisfaction of an action goal may increase attitude change and the satisfaction of an inaction goal may decrease attitude change.

As in Experiments 3 and 5, primes were presented before the persuasive message. Departing from the earlier studies, however, between the priming and the reception of the message, we included an intervening task to examine the effects of goal satisfaction, and this task was followed by a forewarning statement about a message. By placing the forewarning after the intervening task, participants who did not satisfy their goals by the intervening task could do so by preparing for the upcoming message in a more or less active fashion. For the intervening task, half the participants were asked to take a break and relax with their eyes closed (an inactive task), whereas the other half was asked to doodle/fold a piece of paper (an active task; see Albarracín et al., 2008). Relaxing should satisfy inaction goals but not action goals, whereas doodling/folding should satisfy action goals but not inaction goals. In addition, Experiment 7 included control prime conditions, which are important to better gauge the effects of action and inaction primes and rule out a mere main effect of the intervening activity.

Note that the effects of the task in the absence of primes are unlikely to parallel the effects of action/inaction goal primes. Even though the tasks of doodling/resting for 2 min activate goals, these goals are task specific, and thus performing the task should satisfy the goal. In other words, the action of doodling for 2 min entails the specific goal of doodling and the opportunity to satisfy this goal. Moreover, doodling is much more specific than the goal to act and therefore should not become associated with message preparation, as action goals are purported to do. As a result, no effects of the task on attitude change were predicted.

Method

Participants and design.   Participants were 85 introductory psychology students who participated in exchange for class credit. These participants reported favoring vegetarianism on a dichotomous scale during a prescreening session. The design was a 3 (prime: action, control, vs. inaction) × 2 (task: active vs. inactive) between-subjects factorial. A separate control group of 19 participants who received no prime or persuasive message was used to estimate attitude change.

Procedure and measures.   In this experiment, participants who reported favoring vegetarianism at the beginning of the se-

mester were selected. Participants were primed with action, control, or inaction using the word completion procedure described in Experiment 1. Then, a manipulation of goal satisfaction was introduced by asking participants to engage in an active or inactive task. When the primed goal and task are congruent, goals should be satisfied prior to the presentation of an antivegetarian message. After this task, participants were told that they would receive a message about vegetarianism, then they viewed this message and finally reported their attitudes toward vegetarianism. Participants were debriefed at the end of the study. See Table 1 for a summary of key procedures in all experiments.

Priming.   Participants all engaged in the word completion procedure (see Experiment 1) that included either the action, control, or inaction primes.

Active versus inactive task.   A test of goal satisfaction was achieved by crossing the prime manipulation (action, control, vs. inaction) with a type of activity performed during an ostensible break immediately following the prime. Specifically, after the word completion task, participants were told that there would be a 2-min break with the ostensible objective of "clearing their mind" (see Albarracín et al., 2008). Participants in inactive-task conditions received instructions to rest for 2 min, closing their eyes and waiting for the computer to proceed to the next screen. In contrast, participants in active-task conditions were asked to move. Specifically, we indicated that a piece of paper had been provided at their workstations to facilitate movement and that they should fold it into an airplane or doodle. We requested that they engage in this task silently for 2 min until the computer proceeded to the next screen.

Message.   Participants read a strong message opposing vegetarianism. The message was the same used in Experiment 5.

Attitude measure.   Postmessage attitudes were measured with the same procedures used in Experiment 3. In addition, the same scales were used to measure the attitudes of a control group of 19 provegetarian participants who did not receive a message. The two attitude items correlated .73 ($p < .01$). Change scores in the direction of the message were computed by subtracting postmessage attitudes in the experimental conditions from attitudes in the control group ($M = 6.75$, $SD = 0.94$). This mean was significantly ($p < .01$) above the midpoint of the scale. Higher numbers indicate greater change in the direction of the message.

Results

We expected greater attitude change when participants have current, unsatisfied inaction goals than when participants have current, unsatisfied action goals. Furthermore, due to the rebound behavioral effects of satisfaction, satisfied action goals may lead to greater change than satisfied inaction goals. Consistent with this prediction, an omnibus significant interaction between prime and activity, $F(2, 79) = 4.03$, $p = .02$, reflected a more focused interaction between receiving an action or inaction prime versus a control prime and type of task, $F(1, 79) = 6.72$, $p = .01$. The means corresponding to this analysis appear in Figure 3. To begin, the active or inactive task had no effect in the absence of goal priming (*ns*), indicating that the tasks themselves did not trigger action or inaction goals or otherwise influence attitude reports. In conditions in which the task could not have satisfied the goal, we observed a replication of the findings from Experiments 3–6
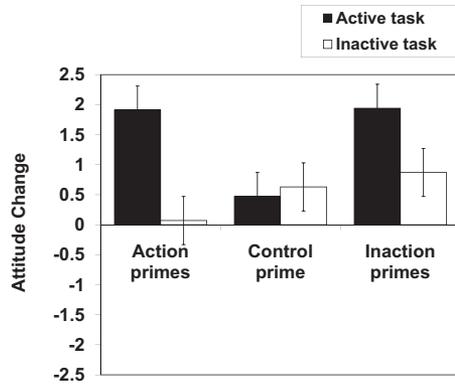
Figure 3. Effects of primes and intervening task: Experiment 7.

(strong arguments). Specifically, the amount of change in the inaction-prime/active-task condition was significantly greater than the amount of change in the control-prime/active-task condition and the action-prime/inactive-task condition ($p < .001$ for contrast in both cases). In addition, change in the action-prime/inactive-task condition was smaller than change in the control-prime/inactive-task condition ($p < .001$). In contrast, the conditions in which the task could have satisfied the goal produced different results. Change in the action-prime/active-task condition was significantly greater than change in the control-prime/active-task condition ($p < .001$), and marginally greater than change in the inaction-prime/inactive-task condition ($p < .11$). Formal contrasts comparing each condition's postmessage attitudes with control attitudes revealed significant differences ($p < .003$) only for the action-prime/active-task condition and the inaction-prime/active-task condition. Overall, these results supported the hypothesis that inaction goals promote change and that these inaction-goal states can be achieved by unsatisfied inaction-goal priming or satisfied action goals.

Discussion

Experiment 7 replicated our earlier findings but also showed that satisfying action and inaction goals reversed our earlier effects. Satisfied action goals actually produced more attitude change than unsatisfied action goals, whereas satisfied inaction goals produced less attitude change than unsatisfied inaction goals. It is noteworthy that the role of satisfaction was demonstrated by introducing an active or inactive task that had no effect in the absence of goal priming. When goals were primed, however, the active task induced change by satisfying action goals and not satisfying an inaction goal.

General Discussion

Understanding broad principles underlying psychological change is important for both theoretical and practical reasons. Theoretically, research on attitude change has concentrated on exploring microlevel mechanisms, such as the influence of attention to change-promoting information on actual change (see Johnson et al., 2005). Despite this valuable work, no prior research has addressed the influence of broad goals of action and inaction on

psychological change. Importantly, our present research highlights that these broad goals influence the magnitude of change by affecting retrieval of prior attitudes in preparation for an upcoming message. Greater prior-attitude retrieval in response to action goals in turn decreased the influence of a persuasive message countering prior attitudes.

In the present investigation, we tested four key hypotheses. First, general action versus inaction goals may facilitate prior-attitude retrieval because this retrieval is a default, behavior-facilitating cognitive behavior when people expect to receive a persuasive message. This prediction was supported by Experiments 1 and 2. Participants who expected to receive a message on a given topic were faster at reporting their attitudes toward the topic when they were primed with action than inaction. Second, we hypothesized that action goals would yield less attitude change than inaction goals when people prepare to receive a persuasive message. This hypothesis received support in Experiments 3–7, using both positive and negative initial attitudes. Third, the effects of primed action and inaction goals on attitude change should be mediated by attitude retrieval following the prime. Consistent with such mediation, Experiment 6 showed that inaction goals yielded higher attitude change than action goals, except when inaction goals were accompanied by an attitude-expression manipulation at the beginning of the study. Moreover, Experiment 2 confirmed that the effects of action primes on latency were present only when people were aware of the topic of the upcoming message.

Our last hypothesis was that the attitude-change results observed in Experiments 3–6 would be moderated by the satisfaction of action/inaction goals before participants receive the message. This prediction stems from research indicating that goals stop exerting behavioral effects after they are satisfied (i.e., achieved) and may produce rebound type of effects (e.g., Förster et al., 2005). In the domain of general action and inaction goals, satisfied action goals produce similar behavioral effects as unsatisfied inaction goals, and satisfied inaction goals produce similar effects as unsatisfied action goals (Albarracín et al., 2008). Therefore, it seemed likely that the satisfaction of action versus inaction goals prior to the presentation of a persuasive message might also result in more attitude change. Consistent with this hypothesis, Experiment 7 indicated that satisfied action goals actually led to more attitude change than satisfied inaction goals. In contrast, as observed in Experiments 3–4, without a satisfaction opportunity, action goals yielded less attitude change than inaction goals.

Beyond demonstrating novel effects of general action and inaction goals on attitude change, the present investigation also broadens researchers' understanding of the effects of these goals. In particular, previous research on action and inaction goals has consistently demonstrated that action goals induce more motor and cognitive activity, as well as more choices of motor and cognitive activity (Albarracín et al., 2008). Contrary to these past findings, the present research showed how the greater activity of retrieving prior attitudes after action (vs. inaction) primes can actually decrease attitude change (Experiments 3, 4, and 5). These novel findings highlight complex effects of general action and inaction goals and suggest the need for further exploration of these phenomena.

One important aspect of the present article is that it clearly demonstrates how specific tasks are selected as potential means for satisfy action goals. As suggested by earlier findings, individuals

primed with action or inaction goals adopt a task that is the focus of attention when this task is appropriate for goal completion. Forewarning participants that they would receive a message on a specific topic prevented priming effects on the latency of attitudes about irrelevant topics. The action goal thus stimulated attitude retrieval in anticipation of message processing (the means to action goal satisfaction). Furthermore, the satisfaction findings from Experiment 7 indicated that a salient task is selected to the point that it fits the goal. For example, doodling is an appropriate means to satisfy action goals, whereas resting is not (Experiment 7). Similarly, resting is an appropriate means to satisfy inaction goals, whereas doodling is not (Experiment 7). In this last experiment, once the experimental task has the potential to satisfy the goal, the primes reduced or reversed their effect. This reversal is often but not always present in goal satisfaction conditions (for a review, see Albarracín et al., 2008) and was only marginally significant in Experiment 7.

Future Directions for Research on Attitudes, Behaviors, and Goals

Learning and changing behavioral patterns. General action and inaction goals may influence changes in behavioral routines in a way similar to attitudes. For instance, the activation of an inaction goal may facilitate quitting smoking by reducing the activation of the behavioral representation to smoke. In the future, researchers could test whether inaction goals inhibit past routines and, as a result, increase adoption of alternate behaviors. Moreover, researchers could use paradigms to automate behavioral procedures and then observe the effects of action and inaction goals on the execution of these procedures. For instance, in an initial phase of an experiment, participants could learn to press a given key in response to a particular stimulus. Then, later in the experiment, general action and inaction goals may be primed before participants repeat the key pressing.

Similar predictions can be made with respect to chronic behavioral tendencies measured by personality inventories. As an example, activating a general action goal may increase promotion approaches (see Higgins, 1997) to problem solving for people with a chronic promotion regulatory focus. Correspondingly, activating a general action goal may increase prevention approaches for people with a chronic prevention regulatory focus. However, individuals' chronic approaches to executing behavior might change following the activation of general inaction goals. Given the results of the present experiments, an inaction goal may even lead chronically promotion-focused individuals to behave in a prevention-focused manner. Although these effects have not been explored up to this point, their applicability in various contexts poses interesting empirical questions.

General change goals. Given our findings that general goals can influence attitude change, it is also interesting to consider the influence of general *change* goals. Such goals are more specific than action goals and may facilitate many forms of psychological change. In particular, an active goal to change might hinder the retrieval of prior attitudes and increase attitude change following a message. Importantly, however, change goals could become satisfied with a change that is irrelevant to the message. For example, individuals might unintentionally avoid changing attitudes by changing their posture following a primed change goal. Thus, our present research might clarify how such goals operate in an attitude-change context.

Implications for change interventions. In terms of implications for the social promotion of attitudes, our results confirm the need to instill the appropriate motivational state to ensure success by a change-promoting intervention. Consistent with Freud's (1958a, 1958b; Killingmo, 1997) abstinence recommendations, an inaction goal at the time of a change intervention may facilitate change. Furthermore, inaction goals within the specific behavioral domain may also come into play and exert similar effects on change. For example, a program to increase condom use among nonusers may be unsuccessful when recipients are currently sexually active (e.g., with ongoing action goals). Similarly, action goals induced by incidental factors such as the title of an intervention, if repeated sufficiently to produce strong priming effects, may reduce behavioral change. Moreover, at a more specific level, a program to increase condom use may be successful when recipients are currently sexually inactive (e.g., with ongoing inaction goals).

Attitude formation. Our findings that general action and inaction goals influence attitude change suggest that these goals are also likely to influence attitude formation in response to persuasive information. However, attitude formation occurs when individuals have no existing attitude toward the topic/object in question. When attitude retrieval is not the default activity, we anticipate that individuals primed with action (vs. inaction) goals will engage in greater processing of the persuasive message. For example, individuals primed with action (vs. inaction) goals should form more favorable attitudes toward messages supported by strong, rather than weak, arguments. Similarly, individuals primed with action (vs. inaction) goals should form more favorable attitudes toward a topic that is advocated than opposed in a persuasive communication.

An investigation of these ideas may yield other interesting and novel findings. For instance, effortful message processing often depends on individuals' motivation to process the presented message, which is commonly manipulated by varying the personal relevance of the message (Johnson et al., 2005). Yet, general action and inaction goals can presumably influence message processing without consciously directing message processing, but by activating a general goal to be physically or mentally active (or inactive). Even more, we anticipate that action and inaction goals could influence message processing and attitude formation even if specific processing motivations (e.g., personal relevance) are low. Furthermore, as these goals can operate outside of awareness (Albarracín et al., 2008, 2009), individuals may have no insight into why they did or did not process a message. Such a finding would extend common reports that individuals are aware of their motivation to process a persuasive message.

Closing Note

Despite popular practices in which change is supposedly achieved by an active approach (e.g., Leith, 1949/1994; Walsh, 1937/1989; more generally, see Mirels & Garrett, 1971), this philosophy may be in part erroneous. In our work, when general action goals were present, individuals appeared to activate preexisting attitudes and thus were more resistant to change. In contrast, when general inaction goals were present, individuals appeared to

deactivate preexisting attitudes and thus were more permeable to change. Despite the relative artificiality of the use of priming in this experimental work, these findings are perhaps the first to systematically establish whether more active or inactive approaches best promote psychological change. We hope that this research will fuel further work on the influence of goals of action on psychological change.

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