

THE EFFECT OF ACTION AND INACTION GOALS ON THE USE OF
INTERNAL AND EXTERNAL EXPECTATIONS

by

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ABSTRACT

Research consistent with the placebo effect demonstrates that expectations congruently influence perceptions and judgments of an experience (Price, Chung, & Robinson, 2005). Furthermore, expectations usually come from either external sources such as provided or situational information or internal sources such as prior experience with the stimuli (Stewart-Williams, 2004). Additionally, primes affect how external expectations influence an experience (Geers et al., 2005; Yosai et al., 2012). Internal expectations are similar to pre-existing attitudes, and action and inaction primes affect whether pre-existing attitudes affect attitude change (Albarracín & Handley, 2011). Given this, action and inaction goals should also influence the extent to which internal and external expectations affect perception of an experience. In a reported experiment, participants initially did or did not experience irritating noise blasts, and were then primed with action, inaction, or neutral goals. Participants then received information that a change in a computer screen color would produce calming affects, or they were told the color was a screen saver. All participants then experienced and rated a final set of noise blasts. Other dependent measures were also included that assessed evaluations of the information manipulation and comparative ratings of the stimuli. For individuals with relevant screen information and prior experience, it was predicted that action goals would increase the influence of the internal expectation on perception, and inaction primes would decrease the influence of the internal expectation on perception. For individuals with relevant screen information and no prior experience, action primes should increase the influence of the external expectation on perception, and inaction primes will decrease the influence of the external expectation. Inaction primes had the predicted effects on evaluations of the information manipulation, but not on direct ratings of the sounds or comparative ratings of the stimuli. Inaction inhibited the influence of the relevant external expectation in the prior experience group, and also inhibited the influence of the internal expectations in the prior experience-relevant information group. These results provide support for the conclusion that action and inaction primes influence the use of internal or external expectations in the interpretation of an experience. Future research and other implications are discussed.

INTRODUCTION

Goals, Expectations, and Prior Experience

Expectations are beliefs that pertain to a situation that help individuals predict and interpret their feelings about an upcoming experience (Stewart-Williams, 2004).

Expectations influence everyday experiences; perceptions of an experience often differ based on individuals' expectation for the outcome of that experience. For example, if an individual expects an experience will be irritating, they may feel more irritation compared with someone with no such expectation for the experience. In fact, the well-known placebo effect results from expectations congruently biasing individuals' perception of an event or stimulus (Price, Chung, & Robinson, 2005). A typical placebo effect occurs when individuals experience the feelings they expected to experience. For example, an individual who expects a stimulus will induce pain – relative to someone who had no such expectation – will likely report more pain after encountering that stimulus. Indeed, a voluminous literature reporting such effects suggests that expectations commonly bias perception (e.g., Hashish, Harvey, & Harris, 1986; Hróbjartsson & Norup, 2003).

However, expectation or placebo effects do not always manifest following an event for which individuals held expectations, and some research has identified moderators of these effects (e.g. Geers, Weiland, Kosbab, & Landry, 2005; Handley, Albarracín, Brown, Li, Kumkale, & Kumkale, 2009; Storms & Nisbett, 1970).

Interestingly, sometimes placebo effects are not *observed* because individuals hold two

conflicting expectations that stem from different sources. In particular, individuals sometimes hold expectations for an event based on their previous experiences (internal expectations) and expectations provided from another source (external expectations), such as an experimenter. In such cases, internal expectations often more heavily influenced perceptions than external expectations (e.g., Geers & Lassiter, 2005). Thus, it often appears that no placebo effect occurs because the provided expectation does not influence perceptions; rather, perceptions are influenced by individuals' personal expectations.

Of course, when an individual holds conflicting internal and external expectations, the internal expectations are not guaranteed to influence perceptions more so than external expectations. Indeed, a limited amount of research has investigated factors that can determine when internal versus external expectations exert more influence on individuals' perceptions (e.g., Colloca & Benedetti, 2006; Geers & Lassiter, 2005; Holland, 2008). The current thesis explores an additional possible moderator, general action and inaction goals (e.g., Albarracín et al., 2008). In brief, individuals can hold goals to be active (inactive) generally, and engage in more (less) cognitive or motor activity as a result (Albarracín et al., 2008). When individuals encounter information about a novel topic, they tend to consider that information more in forming judgments if they hold action compared to inaction goals (Albarracín et al., 2008). So, it is possible that action goals will result in greater influence from externally provided information (external expectations) on perceptions regarding a novel experience. Yet, when individuals encounter information about which they have a pre-formed judgment, action

(compared to inaction) goals heighten the accessibility of those pre-existing judgments and new and related information has little influence on judgments (Albarracín & Handley, 2011). Thus, action goals may increase the influence of internal expectations (pre-existing expectations) over newer external expectations under some situations.

Overall then, the following discussion and investigation explores the possibility that researchers may sometimes overlook placebo effects by looking for the effect of one type of expectation rather than another co-occurring expectation. Further, the extent to which this happens may depend on whether individuals hold action or inaction goals. This thesis offers two important theoretical advances. First, action and inaction goals may be one of a limited number of factors that can influence whether internal versus external expectations predominantly influence perceptions. Identifying the effect of goals on internal and external expectations will provide an indication of how and when the influence of action and inaction goals must be accounted for when examining expectation effects. Second, this thesis directly explores the possibility that action and inaction goals can influence judgments in different ways depending on whether or not individuals hold pre-existing judgments (e.g., expectations). Much circumstantial evidence points to this possibility (see e.g., Albarracín & Handley, 2011), but no direct experimental evidence supporting this idea exists to date. The experiment reported in this thesis addresses this very possibility. These goals are likely to influence judgments in different ways because action and inaction goals affect the tendency to engage in simple cognitive processes (e.g. activation of a pre-existing attitude) when that is the default behavior for a situation. Without a pre-existing attitude or previous exposure to stimuli, external information is

more likely to influence judgments and behavior. In this case, action goals increase the influence of information relevant to the upcoming experience, and individuals experience a benefit from the external information. Inaction goals inhibit the influence of this information, so individuals reject external expectations.

Internal and External Expectations

Expectations can derive from individuals' personal experiences (internal sources) or from situational information (external sources). These expectations may develop through internal associative experiences in which a specific stimulus is repeatedly linked with a specific response (Holland, 2008). Expectations can also develop through direct exposure to external information about an upcoming experience, an example that often occurs in placebo manipulations (Wampold, Imel, & Minami, 2007). Further, both internal and external expectations can influence perceptions. For example, an individual may have consumed coffee many times, and thus learned that coffee consumption increases feelings of energy. Given this, the individual will have an expectation that coffee consumption increases feelings of energy the next time he or she consumes coffee. As a result, the individual may feel energetic after drinking coffee again due *in part* to his or her internally derived expectation (i.e., prior personal experience). Yet, expectations can derive from other sources as well. For example, an individual who has never consumed coffee – and thus has no internally derived coffee expectation – may nonetheless develop an expectation about coffee consumption if a friend suggests that drinking coffee will increase his or her energy level. If that individual eventually does consume coffee, he or she is likely to feel more energized if the friend earlier

communicated this energy expectation than if the friend did not. Overall then, expectations can be separated into two types depending on source (Stewart-Williams, 2004); internal expectations are created through an individual's previous experiences, whereas external expectations are created from sources other than the individual (e.g., other people or culture). Further, independently, expectations from either source can bias perceptions (Geers & Lassiter, 2005).

Yet, individuals sometimes hold more than one expectation for an event, and those expectations could derive from different sources and even conflict. In this case, it is possible that internally derived or externally derived expectations might exert more influence on an individual's perception of an event. In fact, strong internal expectations based on prior experience can override expectations from external sources in biasing perceptions and judgments. For example, Colloca and Benedetti (2006) conducted an experiment in which participants were told a mild electrical stimulation on their finger would induce analgesia on the back of their hand. Further, participants in the internal expectation group were told a red light would signal the onset of pain. The external expectation group received this information but was also told that a green light signaled the onset of analgesia. For all participants, pain was induced via electrical stimulation on the back of the hand, and participants underwent a set of six red and six green trials during the first day of the experiment. The amount of electrical stimulation was reduced during three of the green trials for participants in the external expectation group. All participants re-experienced the trials during the second day of the experiment, and the electrical stimulation was reduced only for participants in the internal expectation group.

Consequently, participants in the external expectation group reported an effect of the analgesic treatment even though the pain was not actually reduced. Participants in the other group had already developed a strong internal belief that the analgesic treatment was ineffective. This internal expectation overcame the external information, so these individuals reported the same level of pain despite the reduction in the strength of the stimuli.

Similarly, a medical patient who has received prior injections may have an internal expectation that the next injection he or she receives will also be painful. Yet, just before the patient receives the next injection, a nurse might provide an external expectation by indicating that the shot will not be painful. Much research suggests that the patient's internal expectation will exert more influence than the external expectation on his or her perception of pain from the injection. Further, an individual who had no (or a weak) internal expectation about the injection, as compared to an individual who had an internal pain-expectation, would likely report less pain as a result of the external expectation. In addition, other research also provides evidence that expectations from either source can bias perceptions and that internal expectations often overrule external expectations (Geers & Lassiter, 2005). Here, individuals were given an extremely positive expectation or no expectation for an experience of watching a video. Participants reported their affect before receiving the external information and again after watching the video, and higher scores at time two relative to time one indicated an increase in positive affect. Participants in the prior exposure group had previously seen the source movie for the video clip, and participants that had not seen the movie were in the no prior

exposure group. Prior exposure to the video led individuals to adopt an internal expectation and experience similar positive affect at time two versus time one. Individuals without prior experience relied on the external expectation and expressed more positive affect at time two relative to time one when they received the positive expectation versus no expectation. This supports the conclusion that prior experience can bias perception toward an internal expectation, and a lack of prior experience can bias perception toward an external expectation. Thus, the influence of personal experience is extremely important in that internal expectations created through prior experience can often have a much stronger influence on perception than expectations developed from the situation.

Goals and Expectations

As a default, it seems that internal expectations exert more influence on perception than do external expectations. But, recent research has uncovered variables that might alter the relative influence of external expectations on perception. For example, cooperation goals can alter the relative influence of expectations on perceptions (Geers et al., 2005). In the first experiment reported by Geers et al. (2005), participants were told that listening to a particular piece of music would increase positive feelings. This is akin to an external expectation, and individuals that were not given this information likely had a much weaker external expectation about the potential influence of the music. In addition, some of these individuals were exposed to primes related to cooperation, whereas others received neutral primes. The researchers likened this to a typical medical situation in which patients want to cooperate with the medical

practitioner and experience the intended effects of medical procedures. Individuals reported their affect before the music and prime manipulations and again afterward. An affect difference score represented the extent to which individuals accepted the external expectation for a positive experience, and lower scores on this measure indicated that internal expectations had a greater effect. Cooperation primes increased positive feelings from time one to time two, and individuals with neutral primes retained the internal expectation that music would not increase positive affect. These results provide further support for the idea that priming affects how expectations influence perception of an experience.

In another experiment (Yosai, Jackson, Close, Handley, Rasinski, Fowler, & Geers, 2012), research participants listened to a series of loud and irritating noise blasts, and thus had the internal expectation that a series of similar noises would be irritating in the future. Next, depending on random assignment, participants were primed with either a dissimilarity or similarity mindset by describing the differences or similarities between two pictures, respectively (Mussweiler, 2001). Following that manipulation, participants were told that the color of the computer monitor would change to green. Depending on random assignment, participants were further informed that this color change was to preserve the life of the computer monitor (control) or that the screen color would have a calming and soothing effect on the participants (external positive expectation). Finally, participants listened to 5 more noise blasts and rated their irritation for each. Importantly, individuals prompted into a similarity mindset reported high irritation from the final noises regardless of the external information provided about the screen color. That is, the

internal expectation for irritation coupled with a similarity mindset resulted in individuals perceiving irritation from the second set of noises overall. However, individuals prompted into a dissimilarity mindset reported less irritation from the final noises if they received the external expectation that the screen color would be calming (vs. control information). That is, the dissimilarity mindset apparently prompted individuals to ignore their internal expectations and attend to external expectations, resulting in the influence of external expectations on their perception of the noises. Thus, the research of Yosai et al. (2012) and Geers et al. (2005) indicates that the relative influence of internal and external expectations on perception varies depending on the situational manipulation of goals and mindsets.

To summarize, expectations can derive from internal or external sources. Independently, either type of expectation can influence perceptions, resulting in placebo effects. However, predictions for individuals' event perceptions become more complicated when there are conflicting internal and external expectations for the same event. In this case, internal expectations will predominantly influence perceptions under many circumstances. However, some research demonstrates that mindsets and goals can moderate whether internal or external expectations predominantly influence perceptions.

One can construe internal expectations as pre-existing constructs or judgments and external expectations as (potential) new constructs based on new information. Importantly, recent theorizing and research suggests that individuals who hold a general goal to be active versus inactive develop judgments based more on new information for novel events (Albarracín et al., 2008), but develop judgments based more on pre-existing

judgments when they have experienced the same or a similar event previously (e.g., Albarracín & Handley, 2011). Thus, individuals' general goal to be active or inactive might represent another variable that determines the relative influence of internal and external information on perceptions. The following section provides discussions on these goals, the effects of these goals in different contexts, and provides general predictions of how these goals interact with internal and external expectations to influence perceptions.

Action and Inaction Goals

Some goals cause an individual to engage in varying levels of motor and cognitive activity, ranging from highly inactive end states such as resting to highly active states such as running a marathon or effortful thought (Albarracín et al., 2008). Action goals often increase motor and cognitive output when this is the normative behavior for a situation, and inaction goals decrease the same behavior. These goals have a general rather than a specific influence, so an individual given a choice between any highly active behavior and any inactive behavior will choose active behavior if primed with an action goal and inactive behavior if primed with an inaction goal. In the first experiment reported by Albarracín et al. (2008), individuals were primed with action or inaction goals and then given the choice of a restful activity (sitting quietly) or an active activity (doodling). Here, action primes increased the tendency to choose doodling over sitting quietly, and inaction primes increased the tendency to choose sitting quietly over doodling.

Another experiment by Albarracín et al. (2008) demonstrates that priming action increases the degree to which individuals engage in the task at hand, while an inaction

goal decreases task engagement. Individuals completed word fragments related to action or inaction words, after which they were presented with the opportunity to eat grapes as part of an ostensible evaluation of a new type of food container. Individuals with an action goal ate more grapes than individuals with an inaction goal, providing evidence that action goals increase physical output and inaction goals decrease physical output. In a similar experiment, individuals received supraliminal action or inaction primes. Afterward, these individuals read a written passage on evolution and were then asked to recall information from this text. Accurate recall was greater with action primes, supporting the conclusion that general action and inaction influence cognitive as well as motor output.

Action and inaction goals not only influence individuals' choice and amount of behavior, but they also affect the extent to which individuals engage in the normative behavior for a situation. For example, Albarracín & Handley (2011) demonstrate that action primes increase the use of simple cognitive processes when the use of such processes is common, and that forewarning increases attitude activation. Therefore, individuals that are forewarned that they will read and evaluate information on a particular topic tend to activate their attitude regarding that topic in preparation and therefore report their attitude on that topic more quickly relative to attitudes on a non-forwarded topic. Albarracín & Handley (2011) tested the prediction that this pattern of results would be enhanced following an action goal, and reduced following an inaction goal. Goal activation facilitates future action (in the case of action goals) and also inhibits future action (inaction goals). This is because the action goal increased the accessibility

of the attitude and participants were able to quickly refer to this attitude. Specifically, if an individual has a relevant attitude about an upcoming experience, an action goal facilitates the activation of that attitude. As a result, the individual can use that attitude and act more efficiently in future situations. The inaction goal decreased this accessibility of this attitude, and because the attitude is not as cognitively available, reporting of this attitude is slower compared with individuals primed with action. In their Experiment 2, individuals were forewarned that they would receive a message about gun control or euthanasia. Afterward, all individuals read a series of marketing slogans related to action or inaction goals and then reported their attitudes toward gun control. Individuals who were accurately forewarned about the topic of gun control were quicker to report their attitude if they received an action goal versus an inaction goal. This suggests that action primes served to increase the accessibility of the attitude about the forewarned topic. Further, participants primed with action that were not forewarned about gun control did not have this attitude readily available and were not able to report it more quickly than participants primed with an inaction goal.

Additionally, Albarracín & Handley (2011) also demonstrate that action goals increase attitude accessibility for forewarned topics and therefore decrease the influence of other external information on attitude change. If an attitude has been made highly accessible by an action goal and is relevant to an upcoming experience, individuals will base judgments about this experience on the most readily available and accessible information (e.g. the activated attitude). Doing this allows individuals primed with an action goal to act more quickly in the future with regard to the message topic. In their

fourth experiment, participants were prescreened for approval of gun control and euthanasia and were forewarned that they would receive a message about euthanasia. Participants were primed with action and inaction goals using a word completion task and then received and evaluated either a message against euthanasia or gun control. Similar to the previous experiment, these individuals presumably activated their pre-existing attitude about euthanasia, but not their attitude about gun control. Action primes increased the accessibility of the euthanasia attitude, which made participants less likely to think carefully about counter-attitudinal euthanasia information. Individuals that were accurately forewarned and primed with an action goal were less persuaded by counter-attitudinal euthanasia information relative to individuals with an inaction goal because action primes increased the accessibility of this attitude. In contrast, participants who were not forewarned about euthanasia (but were incorrectly forewarned about gun control) reported comparable euthanasia attitudes regardless if they had an action goal or an inaction goal. These results provide evidence that action and inaction goals influence the normative behavior for a situation. If the situation is conducive to effortful thought and more complex cognitive processes, action primes increase the use of effortful cognitive processes relative to inaction primes (Albarracín et al., 2008). However, if the situation is conducive to the use of a previously activated attitude, action primes increase the use of this attitude relative to inaction primes (Albarracín & Handley, 2011). Internal expectations are similar to pre-existing attitudes because both are pre-formed concepts, and action goals enhance the activation of attitudes that are relevant to an upcoming experience. In the absence of internal expectations, external information and expectations

may have more influence on the perception of an experience, and action and inaction goals should influence the use of these expectations. This thesis aims to test these ideas in the context of prior experience with irritating stimuli and predicts that the effects of goal primes differ based on the strength of expectations developed from prior experience with the irritating stimuli.

The effect of goals on expectations may differ depending on the most likely behavior for a situation (Albarracín et al., 2008; Albarracín & Handley, 2011).

Additionally, action and inaction goals could be used to test the proposed idea that internal expectations are similar to pre-existing attitudes, and external expectations have a greater influence on perception when internal expectations are absent or weak. It is likely that manipulating prior exposure to stimuli increases the influence of internal beliefs on the interpretation of those stimuli. For example, individuals with prior exposure to stimuli develop an internal expectation that additional experiences with stimuli will be similar to the initial experience, so these individuals will not be influenced by external expectations. Individuals without prior exposure to the stimuli might have an idea how they will feel about the experience, but this will be a relatively weak internal expectation. These individuals are more likely to be influenced by the external expectation that a different stimulus will affect feelings about the upcoming experience. However, goal primes also influence the effects of expectations within these conditions. Action and inaction primes change the relative influence of internal and external expectations, so it is likely that the effects of primes will differ based on prior exposure to the irritating noise.

Similar to the effects of these goals in the context of persuasion (Albarracín & Handley, 2011), action primes will increase the use of pre-formed judgments when individuals have a pre-formed judgment, and action-primed individuals will not be heavily influenced by externally provided expectations for a related experience (the same holds for individuals without a specific goal). However, inaction primes will decrease the use of internal expectations derived from previous experience, and inaction-primed individuals will therefore base judgments on externally provided expectations for a related experience. Therefore, action primed individuals with prior experience increase their reliance on internal expectations and will report comparable experiences regardless of the type of external information they receive. Inaction primes will decrease reliance on the internal expectation, so individuals in this same condition will report their experience with the stimuli was influenced by the external information.

Action primes will increase the use of external information when individuals do not have a pre-formed judgment, and will be influenced by externally provided expectations for a related experience (the same will hold for individuals without a specific goal). In contrast, inaction primes will decrease the use of external information when individuals do not have internal expectations derived from previous experience, so judgments will not be based on externally provided expectations for an experience.

Experiment Overview and Hypotheses

Depending on random assignment, some participants experienced a set of irritating sounds and provided ratings about these sounds after the experience. In contrast, some participants did not experience the sounds but instead rated their predicted

experience with these stimuli, so these participants had a relatively weak internal expectation about the sounds. All participants then received action, inaction, or neutral (control) goal-primers. Then, participants were randomly assigned to receive information that the screen color would be calming, or irrelevant information about the screen color. Participants with information that the screen was calming had an external expectation that a change in the color of the computer screen affected the perception of sounds. Next, all participants experienced a set of sounds and provided ratings about these sounds. After this, participants rated the effectiveness of the screen change manipulation.

This experiment is largely based on design of Yosai et al. (2012). Importantly, this is the first time prior judgments of an experience have been manipulated in action and inaction research. Although previous research has investigated the effect of prior exposure on the influence of expectations (Colloca & Benedetti, 2006; Geers et al., 2005), it has not investigated how motivational factors such as goal primes could reverse the relative influence of internal and external expectations. The results of this experiment can help determine whether differences in expectations cause differences in judgments when individuals have action and inaction goals.

Hypothesis 1: When participants have a prior experience with the irritating sounds, their perceptions of the final set of sounds and the screen color's effect on calmness will be based more on internal expectations and less on external expectations if they were primed with action and control goals. As a result, individuals in the action-goal and control conditions will report the screen was less soothing, and the second set of sounds more irritating regardless of external information. Conversely, participants' perceptions

of the final set of sounds and the screen color's effect on calmness will be based more on external expectations and less on internal expectations if they were primed with inaction goals. Thus, participants in the inaction-goal conditions will report the screen was more soothing, and the second set of sounds less irritating, if they received the calming versus control external information.

Assuming internal expectations are akin to pre-existing attitudes, action goals should increase the activation of internal expectations and inaction goals should decrease the activation of internal expectations (Albarracín & Handley, 2011). Thus, action primes should decrease the influence of subsequent external information about the computer monitor, whereas inaction goals should allow this external information to influence perceptions. In the control condition, participants will report that the screen change was ineffective, but this will be less pronounced than in the action prime condition. Action primes will increase the use of simple cognitive processes like attitude activation, and this will be reflected in participants' ratings and evaluations. Inaction primes will decrease the use of these processes, and these individuals will rely primarily on external expectations.

Hypothesis 2: When participants do not have prior experience with the irritating sounds, their perceptions of the second set of sounds and the screen color's effect on calmness will be based more on external expectations and less on internal expectations if they were primed with action and control goals. As a result, individuals in the action-goal and control conditions that were told the screen color was calming will report the screen was more soothing, and the second set of sounds less irritating compared to participants who received the control information. Conversely, participants' perceptions of the sounds and

the screen color's effect on calmness will be based less on external expectations and more on internal expectations if they were primed with inaction goals. Thus, participants in the inaction-goal conditions will report the screen was less soothing, and the second set of sounds more irritating regardless of type of external information.

Individuals without prior experience do not have a strong internal expectation, so action primes will increase the degree to which participants form an expectation based on the relevant external information (e.g. screen color is calming). In contrast, inaction goals decrease the degree to which participants form an expectation based on this information. Given this, individuals primed with action (or even control) goals should rate the screen as more soothing, and the sounds as less irritating if they received information that the screen is calming than if they received irrelevant information. Conversely, individuals primed with inaction goals should rate the screen as comparably soothing, and the sounds as comparably irritating regardless of whether they received information that the screen is calming or irrelevant screen information. Essentially, action primes will increase the influence of relevant external information on judgments about an experience relative to inaction primes, and inaction primes will decrease the influence of this information relative to action and control primes.

METHOD

Participants and Design

Male and female undergraduate students attending Montana State University received course credit for their participation in this experiment. Participants were randomly assigned to conditions in a 2 (prior exposure: yes prior vs. no prior exposure) x 3 (goal: action, inaction, control) x 2 (external information: calming vs. control) between-subjects factorial design.

Procedure

The experiment was conducted on computers using MediaLab software (Jarvis, 2004). The experiment used a similar procedure to Yosai, et al. (2012), but manipulated prior experience and introduced goal primes instead of dissimilarity primes. Participants were told the purpose of the experiment was to investigate the effect of visual stimulation on auditory perception. After participants read and signed informed consent documents, they began the experiment.

Participants were randomly assigned to listen to and rate three noise blasts (prior-exposure condition) or rate their predicted experience with the noise blasts (no-prior-exposure condition). Participants then received marketing slogans that, depending on random assignment, primed an action, inaction, or control (neutral) goal (Laran, 2010). Following the slogan presentation, participants were told the computer monitor color would change from white to green. Depending on random assignment, participants learned the color change was part of a normal process to preserve the life of the computer

monitors (control) or that the color spring green has calming and soothing effects on the perception of sound (external expectation). After the screen change, all participants listened to a series of five noise blasts and rated each noise blast individually and the noise blasts as a whole. Finally, participants reported on their overall experience of the sounds and their evaluation of the change in screen color. The ratings about the overall experience of the sound waves were similar to the ratings provided directly after the noise blasts. However, this measure used different descriptors than the first overall measure of the sounds, and asked participants to compare their experiences (or their predicted and actual experiences) rather than simply rate the sounds. The screen evaluations asked participants to provide ratings about the effectiveness and usefulness of the screen change. At the end of the experiment, participants reported demographics, and answered questions assessing demand characteristics and manipulation checks.

Demographics

Participants indicated their gender, male or female, and reported whether they spoke English better than any other language.

Demand Characteristics

Participants rated the extent to which they felt the desire to report less irritation than was actually experienced (*I felt like I owed it to the experimenter to report less irritation than I actually experienced*). They also rated the extent to which they were motivated by the need to impress the experimenter (*To what extent were you concerned*

about what the experimenter thought of you during this study?). These questions measured two potential demand characteristics, and were on a scale of 1 (*Not at all true of me; Not at all concerned*) to 7 (*Very much true of me; Very much concerned*).

Manipulation Checks

Prior Experience

Participants provided initial ratings based on an actual or predicted experience of the sounds. Participants that actually experienced the sounds heard a set of three sounds and rated their overall experience of the sounds (*Overall, how IRRITATED did you feel when listening to this particular set of sounds?*). The labels for these five items were: irritated, uncomfortable, annoyed, unpleasant, pain. Participants that provided ratings based on their predicted experience received the same items and only the question differed (*Overall, if you had to guess, how IRRITATED would you have felt when listening to the sounds?*). For both groups, these items were rated on a scale of 1 (*Not at all*) to 7 (*Very much*). Higher numbers on this measure indicated a more unpleasant experience, and these items had high internal consistency (*Cronbach's $\alpha = .90$*). These items were added to create a composite measure on a scale of 5 to 35 that indicated whether participants had an irritating initial experience with the sounds and developed a strong internal expectation. It was expected that individuals with prior experience would have a much stronger internal expectation relative to individuals without prior experience and would report greater irritation from the sounds.

External Expectation

In the final phase of the study, participants were asked to report the type of external information they received (*Memory test: What exactly were you told earlier about changing the color of the computer screen to the color green? Please write down, as closely as you can recall, what you were told the reason was for changing the color of the computer screen to green.*). Responses were coded as correct (1) if participants mentioned the appropriate type of information for their condition (screen color is calming vs. screen color is irrelevant), and incorrect if participants did not mention the appropriate type of information for their condition. Participants' ability to correctly recall what type of external information they received would indicate that they were aware of and attending to the information. Given this, participants that received information that the screen was calming could potentially be affected by the external expectation introduced by this information.

Independent Variables

Prior Experience

Participants in the prior experience condition listened to a set of three noise blasts during the beginning of the experiment. These stimuli were used in previous research (Yosai et al., 2012), and were played through headphones at an audible but not painful level. Participants in this condition rated each noise blast after hearing it, and then rated their overall experience of the noise blasts. In the no prior experience condition, participants did not hear any noise blasts during the beginning of the experiment. Still,

they rated their overall predicted experience with the noise blasts. Prior experience with these stimuli should create a strong internal expectation for an irritating experience, and participants without initial exposure to the noises will have a weak internal expectation.

Goal Activation

Participants were told the researchers were interested in their memory for various marketing slogans (Laran, 2010). Depending on random assignment, participants viewed slogans that primed an action, inaction or neutral (control) goal. Each phrase was presented for two seconds, in white text on a black screen. Presentation order was randomized for each participant, and each participant viewed 30 phrases in total from a set of ten prime-related phrases. For example, action primes consisted of a set of ten action-related phrases that were presented three times each in random order (see Appendix for a specific list of phrases presented for each prime).

Screen Information

The computer monitor screen changed from white to green before participants heard the final noise blasts. Depending on random assignment, participants were told the color change was part of a normal process to preserve the life of the monitor (control information) or the color spring green has calming and soothing effects on the perception of sound. In the control condition, participants listened to a message that said, “In order to preserve the quality of the computer screen's image, the color of the screen will be changed for the next sound frequency trials. Please be patient while the computer updates the background.” Participants in the calming condition heard the message, “Previous

studies have shown that people can be sensitive to different colors. One color people appear to be sensitive to is the color spring green. People often report spring green to be soothing and calming. In the present study, we are looking to see if the color spring green can influence the way people perceive high-frequency sound waves.” All participants experienced a brief six-second uploading screen during the color change.

Dependent Measures

Sound Ratings Difference Scores

Participants listened to a set of five noise blasts and were asked to rate the noise blasts as a whole. The questions asked participants to indicate the degree to which they experienced different feelings when listening to the sounds. Regardless of prior experience, participants rated their actual experience for the final set of sounds (e.g., *Overall, how IRRITATED did you feel when listening to this particular set of sounds?*). As with the initial ratings, these items were rated on a scale of 1 (*Not at all*) to 7 (*Very much*). The labels for these items were: irritated, uncomfortable, annoyed, unpleasant, pain. Higher numbers on this measure indicated a more unpleasant experience, and these items had high internal consistency (*Cronbach's* $\alpha = .93$). These items were added to create a composite score, and as with the initial ratings, the final ratings ranged from 5 to 35. The composite scores from the initial set of ratings were subtracted from the composite scores from the final set to create a difference score. This measure had high internal consistency (*Cronbach's* $\alpha = .91$) and assessed whether external expectations affected participants' perception of the sounds. Higher positive numbers on this measure

indicated a more unpleasant experience, and lower numbers, particularly negative numbers, indicated that irritation was reduced during the second experience with the sounds relative to the first actual or predicted experience.

Overall Sound Ratings

After the final experience with the noise blasts, participants in the no prior experience condition compared how they thought they would feel to how they actually felt about the noise blasts (*Compared to how I thought I would feel, the set of sound waves was...*). Participants in the prior experience condition compared their feelings about the first set to their feelings about the second set of sounds (*Compared to how I felt during the first set of sound waves, the second set of sound waves was...*). The labels on these three items were on a scale of 1 to 7, and addressed loudness (*Much softer...The same*), obnoxiousness (*Much less obnoxious...The same*), and irritation (*Much less irritating...The same*). The items in this measure also had high internal consistency (*Cronbach's a = .91*). These ratings were added to create a composite measure of overall sound ratings. This measure ranged from 3 to 21, and lower numbers indicated participants believed they felt comparatively less irritation during the final exposure relative to how they initially expected to feel.

Screen Evaluations

After answering the questions about the overall sound ratings, participants completed a series of two questions that addressed their evaluation of the screen change (*How would you evaluate the change in screen color during the set of sound waves...*).

The scale ranged from 1 (*useless, worthless*) to 7 (*useful, beneficial*). These items were significantly correlated, $r(312) = .696, p < .01$, and were added to create a scale measuring participants' evaluation of the effectiveness of the screen change manipulation. The scale ranged from 2 to 14, and higher numbers indicated that the screen change had a positive effect on perception of the sounds. This was the primary dependent variable and is a more direct measure of the influence of external expectations because it directly measures participants' endorsement of the calming information.

RESULTS

It was determined a priori that the complicated nature of the questions about an imagined experience with the noises could be difficult to understand for individuals not fluent in English. Fourteen participants were removed from the sample because they answered False on a self-report question about whether they spoke English better than any other language. There were 172 females and 142 males in this trimmed sample (N=314).

Demand Characteristics

Participants may have felt the need to impress the experimenter, which could have acted as a demand characteristic and influenced responses on the dependent measures in this experiment. Ratings on this question were entered into a 2 (prior exposure: yes prior vs. no prior exposure) x 3 (goal: action, inaction, control) x 2 (external information: calming vs. control) between-subjects factorial Analysis of Variance (ANOVA). There were no significant main effects or interactions, $F_s < 1$, suggesting that participants' responses on the dependent measures were not motivated by a need to impress the experimenter.

Demand characteristics may have also played a role in the extent to which participants felt they owed it to the experimenter to report less irritation than they actually experienced. Ratings on this question were analyzed using the same ANOVA as above. There were no significant main effects or interactions, $F_s < 1$ suggesting that participants'

responses on the dependent variables were not motivated by the desire to report less irritation than was actually experienced.

Manipulation Checks

Prior Experience

The initial ratings of participants' actual or predicted perception of the sounds were entered into a 2 (prior exposure: yes prior vs. no prior exposure) x 3 (goal: action, inaction, control) x 2 (external information: calming vs. control) between-subjects ANOVA. This analysis revealed a significant main effect of prior exposure, $F(1, 302) = 70.82, p < .01$. There were no significant main effects or interactions, $F_s < 1$. Participants that actually experienced the sounds perceived them as more unpleasant relative to participants that had an imagined experience with the sounds. This indicated that participants with prior exposure developed a stronger internal attitude about the sounds compared with individuals without prior exposure.

External Expectation

Participants that received information that the screen color was calming were completely accurate in recalling this information. Similarly, each of the participants that received irrelevant external information correctly reported the change in color acted as a screen saver. This supports the idea that the information was effective at introducing an external expectation.

Dependent Measures

Sound Ratings Difference Scores

The sound ratings difference scores were entered into a 2 (prior exposure: yes prior vs. no prior exposure) x 3 (goal: action, inaction, control) x 2 (external information: calming vs. control) between-subjects ANOVA. As with the manipulation check for prior experience, this analysis revealed a significant main effect of prior exposure, $F(1, 302) = 60.904, p < .01$. No other main effects or interactions were significant, all F s < 1 . These results do not support the hypothesis that prior experience, goal prime, and information type interact to affect the perception of the sounds. Rather, these results suggest that prior exposure to irritating stimuli led to habituation to the stimuli, thus individuals without prior exposure experienced greater irritation to the second set of sounds. In addition, individuals with prior experience experienced greater irritation initially and likely developed a much stronger internal expectation about the sounds relative to participants without prior exposure. It is likely that these ratings of imagined irritation resulted in a much bigger difference in difference scores for these individuals.

Overall Sound Ratings

The overall sound ratings were entered into a 2 (prior exposure: yes prior vs. no prior exposure) x 3 (goal: action, inaction, control) x 2 (external information: calming vs. control) between-subjects ANOVA. Results indicated a significant main effect of prior experience, $F(1, 302) = 19.700, p < .01$, such that individuals without prior experience perceived greater irritation ($M = 15.270, SD = 4.453$) from the second set of noise blasts

than individuals with prior experience ($M = 13.355$, $SD = 2.816$). The other main effects and interaction were not significant, all $F_s < 1$. These results do not support the hypothesis that prior experience, goal prime, and information type interact to affect the perception of the sounds. Rather, the main effect of prior exposure may be driven by an effect similar to that observed in the sound ratings difference scores. For this measure, individuals with prior exposure were asked to compare two actual experiences, but individuals without prior exposure were asked to compare an actual experience with an imagined experience. Thus, participants that heard two sets of noises did not perceive much difference between them, but participants that heard one set of noises perceived it as more irritating than the imagined experience.

Screen Evaluations

The screen evaluations were entered into a 2 (prior exposure: yes prior vs. no prior exposure) x 3 (goal: action, inaction, control) x 2 (external information: calming vs. control) between-subjects ANOVA. The main effects of prior exposure, goal, and external information were not significant, all $F_s < 1$. The interaction between prior experience and goal prime was significant, $F(1, 302) = 4.565$, $p < .05$. However, this 2-way interaction was qualified by the significant and predicted 3-way interaction between prior experience, goal prime, and placebo information, $F(2, 302) = 3.296$, $p < .05$ (see means reported in Table 1).

The nature of this interaction was tested using contrasts. The effect of the external expectation was compared within the exposure and goal prime conditions. Six pair-wise contrasts, one for each of the 6 exposure x goal prime conditions, were

constructed such that conditions with calming information were weighted with 1 and the conditions with control information were weighted with -1. Conditions unexamined in a given contrast received weights of zero. Among individuals who had no prior experience with the sounds, only participants who received an inaction goal demonstrated a significant difference, $t(302) = -1.778, p = .038$, such that the mean for control information was greater than the mean for calming information. That is, these participants actually found the screen less calming if they received the calming information than the irrelevant information. This finding suggests inaction goals inhibited the influence of external expectations and participants might have reacted against the calming information. However, contrary to predictions, these comparisons indicated no differences between screen ratings for individuals who did or did not receive the information that the screen change would be calming (for control primes, $t[302] = -.224$, and for action primes, $t[302] = .905$). This suggests that although action primes did not facilitate the influence of the relevant external expectation on perception, inaction inhibited the influence of the external expectation.

These same differences in the prior exposure conditions were again tested using contrasts. This difference was marginally significant for individuals who were primed with an inaction goal, $t(302) = 1.609, p = .055$. The mean for control information was less than the mean for calming screen color information, so individuals primed with an inaction goal perceived the screen was more effective if they received information that the screen color was calming versus irrelevant screen information. This suggests inaction inhibited the influence of internal expectations and allowed the influence of external

information. As predicted, the contrasts comparing individuals who received control primes, $t(302) = -.588, p > .05$, and action primes, $t(302) = -.719, p > .05$, were not significant. Overall, these results provide evidence that individuals primed with inaction were affected by the external expectation if they had no prior experience, and the internal expectation if they had prior experience. These differences suggest the three-way interaction was in the predicted direction for inaction primes. However, the anticipated pattern of results was not supported within the action or control conditions in either the no-prior or prior experience conditions.

An additional, somewhat exploratory, contrast was created to test predictions just within conditions that receive the information that the screen color would be calming. Among individuals who had prior experience with the noises, individuals should be more influenced by the external information if they were primed with inaction as compared to action or control goals. Thus, inaction should lead to more favorable evaluations of the screen change compared with action and control primes. Among individuals who had no prior experience with the noises, individuals should be more influenced by the external information if they were primed with action or control goals as compared to inaction goals. Thus, action and control primes should lead to more favorable evaluations of the screen change compared with inaction primes. For this test, all conditions with control information were given a weight of 0 and the contrast only tested predictions (using weights of 1 and -1) for conditions that received the calm information. In the prior-experience conditions, the inaction-prime condition was given a weight of 1 and the action and control-prime conditions were given weights of -1. In the no-prior-experience

conditions, the action and control-prime conditions were given a weight of 1 and the inaction-prime condition was given a weight of -1. This exploratory comparison was significant, $t(302) = 3.291, p < .01$. For individuals with prior experience, inaction primes inhibited the influence of internal expectations and increased the influence of external (calming) expectations relative to action primes and control primes. For individuals with no prior experience, inaction primes inhibited the influence of external (calming) expectations and increased the influence of internal expectations relative to action primes and control primes.

These results provide further support that the effect of inaction primes on evaluations of the screen manipulation differed based on exposure to that information and prior experience with the irritating stimuli. Specifically, it was predicted that, compared with action and control primes, inaction primes would decrease the influence of internal expectations for participants with prior experience. Thus, these participants were able to use the external expectation in their judgments. As a result, inaction goals lead to an increase in the influence of relevant calming information. Further, inaction primes should decrease the use of external expectations for participants with no prior experience. Here, inaction primes decreased the influence of calming information compared to control information when compared with action and control primes.

Table 1: Screen Evaluations as a Function of Goal, Experience, and Information

	Action	Inaction	Control
Prior Experience			
Calming	6.732 (3.514)	9.167 (2.550)	6.696 (2.305)
Irrelevant	7.304 (3.560)	7.690 (3.083)	7.238 (2.406)
No Prior Experience			
Calming	7.550 (2.724)	6.298 (2.895)	8.000 (2.976)
Irrelevant	6.720 (3.398)	7.633 (3.034)	8.200 (3.354)

Note: Numbers in parentheses represent standard deviations.

Overview

It was predicted that action primes would increase the influence of relevant screen information for individuals without prior experience, but decrease the influence of relevant screen information for participants with prior experience. Similarly, it was predicted that inaction primes would decrease the influence of calming information for participants without prior experience and increase the influence of calming information in the prior experience condition. Although the predicted effects were not found for action primes, the results indicated that inaction primes had the predicted effects. Further, for individuals with relevant screen information and prior experience, inaction primes led to more favorable screen evaluations when compared with individuals given the same information and action or control primes. For individuals with relevant screen information and no prior experience, inaction primes led to less favorable screen evaluations when compared with individuals given the same information and action or

control primes. These results indicate that inaction goals inhibited the influence of internal expectations for individuals with prior experience and relevant screen information. Inaction goals also inhibited the influence of external expectations for individuals with relevant screen information and no prior experience.

DISCUSSION

Goal Primes and Expectations

Previous research suggests action and inaction goals influence the use prior judgments and new information. Generally speaking, action goals increase and inaction goals decrease the amount of effortful cognitive processing of new information (Albarracín et al., 2008). Yet, action goals relative to inaction goals can sometimes promote simple cognitive processes over complex ones. For instance, when individuals have a prior attitude about a topic and know they will receive information regarding that topic, action goals can increase the activation of that attitude relative to inaction goals. Further, the activation of this attitude inhibits processing of newer information related to that topic (Albarracín & Handley, 2011). In the current experiment, participants were or were not exposed to several irritating noise blasts. By doing this, participants who were exposed to the irritating noises initially should have formed an evaluation of those noises, and an internal expectation that similar noises would also be irritating. Thus, assuming such internal expectations like attitudes are activated (or inhibited) by action (inaction) goals, this thesis tested the idea that these goals can influence the extent to which individuals' perceptions are influenced by subsequent related external information versus previously formed internal expectations. In the reported experiment, participants received external information that a screen-color change would or would not produce calming and soothing effects as they listened to a final set of noise blasts. After hearing the noise blasts, participants reported how effective the screen-color change was in reducing noise

irritation and reported how irritating they found the noises. These screen evaluations, in particular, measured the extent to which individuals' internal expectations or external expectations influenced their perceptions.

Manipulation checks for this experiment confirmed that participants rated the initial set of sound blasts more irritating when they actually heard those noises rather than imagined them. Thus, the former individuals likely formed a stronger expectation that an experience with similar noises would also be irritating in the future. Participants also accurately recalled the information they were given about the purpose of the change in screen color. Further, participants' evaluation of how effective the screen was in reducing their irritation was overall more positive if they received information that the screen color would be soothing versus control information. Thus, the experiment was overall effective in supplying external expectations as well. Further, much previous research demonstrates that the manipulation used to prime the action, inaction, and control goals is effective (Albarracín et al., 2011; Laran, 2011). Thus, the experiment set the required criteria for testing the prediction that action and inaction goals can influence the extent to which individuals' perceptions are influenced by internal or external expectations.

The first hypothesis states that action (and control) primes would decrease the influence of external calming information, and inaction primes would increase the use of this information, when individuals have prior experience with the noises. As predicted, planned comparisons demonstrated that only participants who had a prior experience with the noise and then received an inaction goal evaluated the screen as more calming if they received the external calming versus control information. That is, when participants had

an internal expectation, external expectations influenced perceptions for individuals primed with an inaction goal but not for individuals primed with an action or control goal. The second hypothesis states that action (and control) primes would increase the influence of external information, and inaction primes would decrease the use of this information. The significant three-way interaction between prior exposure, goal, and external information in part supports this hypothesis and hypothesis 1. In addition, planned comparisons demonstrated that participants with an inaction goal but no prior experience evaluated the screen as *less* calming if they received the calming information than the control information. This suggests these participants were not influenced congruently, and even reacted against, the external information. However, the predicted differences did not emerge for the action or control conditions, indicating their perceptions were not significantly influenced by the external screen information even when they had no prior experience with the noises. Of note, these sporadic predicted effects only emerged for the screen-evaluation measure; the variables measured in this experiment were not influenced by the interaction between the three factors tested in this experiment. These results are consistent with the idea that action primes increased the activation of a prior internal expectation and inaction primes decreased the activation of this expectation. In the prior exposure condition in particular, these primes inhibited or enhanced the influence of external information (about the screen color) to influence perceptions of the screen.

The difference between action/control primes and inaction primes in the calming information- conditions supports the hypothesis that goal primes affect the relative

influence of internal and external expectations. Specifically, the default tendency for individuals with prior experience was to rely on their pre-existing attitude or internal expectation about the sounds. Inaction primes decreased the likelihood of relying on this tendency, and it became more likely that these individuals would rely on the external expectation introduced by the calm information. The most likely behavior for individuals with no prior experience was to rely on the external expectation rather than a weakly formed internal expectation about the sound. In this case, inaction primes decreased reliance on the external calming expectation relative to the action and control conditions.

Limitations

Of the three dependent variables used in this experiment, only screen expectations showed the predicted three-way interaction with exposure, goal prime, and information type. Although it seems strange that this effect did not show up in the other dependent variables, this may have been due to the difficulty of providing an expected rather than an actual reaction to the initial sounds. Participants without prior experience may not have been able to accurately compare a real experience to an imagined experience, which may have increased the salience of the irritating sounds. Although this effect was predicted, future research should also investigate how prior experienced might be manipulated so that individuals are not asked to report their expected reaction to the stimuli. For example, individuals with very little prior experience (e.g. heard only one sound) could be compared to individuals with much more prior experience (e.g. heard five sounds). As with the current experiment, the former group would have a much weaker internal

expectation compared with the latter, but this manipulation might allow for a more accurate comparison between these groups.

The results for screen evaluations provided support for the prediction that action primes increase reliance on internal or external expectations depending on prior exposure and information type. However, this effect was observed when comparing action and inaction primes, not when comparing action and control primes. Specifically, goal primes influence the relative effects of expectations within each situation. Action-primed individuals with calming information but no prior experience experienced a benefit from the screen change, particularly when compared with inaction-primed individuals in the same condition. Inaction-primed individuals with calming information and prior experience also experienced a benefit from the screen change when compared with action-primed individuals in the same condition. Thus, internal expectations guided perception for individuals with increased exposure to the irritating stimuli. In contrast, external expectations had a strong influence on perception when inaction primes inhibited the influence of internal expectations. In a similar manner, calming external information was effective for individuals without prior experience when they were primed with an action goal rather than an inaction goal.

Although some expected effects were obtained with participants' screen evaluations, the results for sound ratings difference scores and overall ratings did not support the hypotheses of this experiment. Interestingly, research suggests that individuals are often inaccurate in self-reports of explicit attitudes because of self-presentation and demand characteristics, but are more accurate when attitudes are

measured implicitly (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). The overall ratings and difference scores assessed participants' feelings about the sounds. The screen evaluations were not necessarily an implicit measure, but it may be that these questions indirectly assessed participants' attitudes about the sounds. Thus, it could be that the screen evaluations provide an accurate representation of whether judgments were influenced by internal or external expectations because it was more of an implicit measure than the difference scores or overall ratings.

A potential weakness in the design of this study was the potential difficulty of providing an expected rather than an actual reaction to the initial sounds. It is likely that the main effect of prior experience on differences scores was due primarily to abnormality of asking participants to report feelings about novel stimuli. As discussed previously, it may have been difficult for participants to assess their potential feelings about stimuli they had not experienced. This inflated the difference scores between the prior experience and no prior experience groups such that participants with prior experience had a strong internal attitude and reported much more initial irritation. Although goal primes did not affect difference scores, this was most likely due to difficulty of providing expected reactions to the stimuli that were novel to the participants. Furthermore, goal primes had the predicted effect on screen evaluations, the direct measure of expectation endorsement.

Implications

These results somewhat support previous research that shows that strong internal expectations often have a greater influence on perception than external expectations

(Colloca & Benedetti, 2006). In addition, these results provide some evidence that information from external sources influences perception primarily when there is not a strong opposing internal expectation. This is important for the future of research involving expectations, because it demonstrates that the strength of internal and external expectations must be accounted for when examining the effects of these expectations on experience.

Future research must also take into account how action and inaction goals might influence expectation effects. For example, it is clear from these results that action and inaction goals can be used to reverse the effects of expectations. Specifically, information about a calming color has a much more pronounced influence on perception than it would without these goal primes, depending on the relative strength of internal and external expectations. Additionally, it is important to examine whether these results generalize to manipulations that induce irritation to a greater extent than in this experiment. Perhaps goal primes could be used to increase the effectiveness of a medication for individuals that experience chronic pain. Furthermore, it is also necessary to investigate how goal primes affect the influence of expectations when the initial expectation is for a pleasant rather than an unpleasant experience. Theoretically, the effects of goal primes should be similar for a pleasant experience, in that inaction primes should inhibit the influence of internal expectations for individuals with prior experience and inhibit the influence of external expectations for individuals without prior experience. Future research should confirm this hypothesis and provide further support for the idea that action and inaction primes affect how expectations influence judgments about an experience.

Another important line of research should investigate what effect action and inaction goals have on perception when internal and external expectations are complementary rather than contradictory. For example, an individual may have an internal expectation that an experience will be pleasant, and to the extent that external information also furthers this view, the influence of internal and external expectations may be additive. It is also important to examine the effects of goal primes within this context, although it is likely that action primes would increase these effects, and the additive process would be inhibited by inaction goals. The influence of other goals within this context should also be assessed. It may be that some individuals have a long-term goal to avoid pain, a tendency that would likely increase the influence of calming external information.

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APPENDIX A

GOAL PRIME PHRASES

Action

Victory won't wait for the nation that's late.
 It's time to fly.
 Hurry on down to Hardee's.
 Fedex. When it absolutely, positively has to be there overnight.
 Time is what you make of it.
 Think fast. Think Puma.
 Play fast. Start living.
 Do Whataburger. Cuz we know you're in a hurry.
 You are in a race to win everyday of your life.
 Enjoyment is a matter of choice: Hurry up or be left behind.

Inaction

You deserve a break today.
 The pause that refreshes.
 Relax, it's Holiday Inn.
 Slow life. You deserve it.
 Slow down to get around.
 Don't rush to find what's right for you.
 Want calmness? Think state of Florida.
 Ace is the place for the careful shopper.
 Live slow. No stress.
 Take it easy. We will be waiting for you.

Control

Skim milk does not come from skinny cows.
 I can't believe I ate the whole thing.
 Credit card. Don't leave home without it.
 Promise her anything. But give her Arpege.
 Bayer works wonders.
 Nothing comes between me and my Calvin's.
 We can do it. We can handle it.
 We got it all.
 Charm - a class all it's own.
 It's not a dream. It's real.