

# Been There, Done That: The Impact of Effort Investment on Goal Value and Consumer Motivation

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In the present article, we propose that consumers' initial effort investment in pursuing a goal may increase or decrease the value of the goal and the consumer's subsequent motivation, depending on whether the pursuit of the goal is perceived to be one's autonomous choice. When consumers perceive that the goal they pursue is adopted through an autonomous choice, the initial effort investment is experienced as reflecting the value of the goal; therefore, greater effort should increase the value of the goal as well as consumers' subsequent motivation. Conversely, if consumers perceive that the goal has been imposed on them, they experience psychological reactance that is proportional to the amount of effort that they expend in pursuing the goal; thus, they devalue the goal as they invest more effort in its pursuit and show lower subsequent motivation.

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A fundamental premise in the study of consumer goal pursuit is that people are motivated to pursue goals that are valuable to them; therefore, the understanding of goal value has taken center stage in the research of motivation. A large body of research has suggested that, rather than being stable and constant, the value of goals is mal-

leable and can be influenced by a variety of factors. For example, the value of goals and outcomes changes depending on the temporal distance of the goal (Elster and Loewenstein 1992; Mischel 1974), with the value increasing as the goal gets temporally closer. Also, other findings suggest that the value of the goal depends on the manner and strategy used in goal pursuit. For example, the regulatory fit effect (Higgins 2002) suggests that when the manner of people's goal pursuit (e.g., eager vs. vigilant) fits their orientation (promotion vs. prevention), they experience a stronger evaluative reaction to the activity, and the goal value is enhanced accordingly.

While acknowledging the malleability of goal value, the extant research has largely taken a relatively static, snapshot-like approach to the question of how it may affect consumer motivation and remains silent on how goal value and the resultant motivation may change in the course of one's goal pursuit. In the present research, we take a dynamic perspective and examine how goal value may change as people expend more effort in pursuing the goals, and how these changes may further affect consumer motivation.

We draw from the literature of the regulatory engagement theory (Higgins 2006; Higgins and Scholer 2009) and from that of the psychological reactance theory (Brehm and

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Brehm 1981; Wicklund 1974) and propose that the experienced goal value and consumers' subsequent motivation vary as a function of whether the invested effort in pursuing a goal is experienced as reflecting the value of the goal or as restrictions on personal autonomy. When consumers perceive that the adoption and pursuit of a goal have been autonomous, they experience the effort that they invest as reflecting the value of the goal; thus, the goal value, as well as their motivation for further pursuit, should increase as the amount of effort they expend increases. For example, if a person feels that he or she made an autonomous choice on whether to donate to a certain charity, the contributed amount should be experienced as the extent to which he or she values the cause—the greater the amount, the higher the goal is valued. As a result, this person should value the goal even more as his or her contribution increases and he or she should become even more motivated to further pursue the goal.

On the other hand, when people perceive that their pursuit of a certain goal is not based on an autonomous choice, they experience their effort investment as a restriction of autonomy in goal pursuit, which elicits a sense of psychological reactance. In turn, consumers respond by devaluing the goal to reaffirm their sense of autonomy. Because a greater effort investment results in greater reactance, more effort investment should result in even lower goal value and, subsequently, decreased motivation. For example, for people who are required to donate to a certain charity, the greater the donated amount, the more likely they are to experience psychological reactance. As a result, they devalue the goal and show lower motivation for providing further help.

The remainder of the present article is organized as follows. We first review research that leads to our prediction that consumers' motivation in goal pursuit varies as a function of both the process of goal adoption and the amount of effort that they have invested. We test this hypothesis in four studies that manipulate whether consumers perceive that they adopted the goal through an autonomous choice or that it was arbitrarily imposed on them, as well as the amount of effort that they have invested in pursuing the goal, before assessing their subsequent motivations. We conclude with a discussion of the implications of these findings for understanding consumer motivation and choices.

## THEORETICAL BACKGROUND

### Value from Autonomous Choices

Extant research has suggested that making an autonomous choice has a significant effect on people's valuation of options. Researchers consistently found that when people perceive themselves as having exercised an autonomous choice, they value the outcomes higher; if people perceive that the outcomes have been externally dictated, they decrease the option's value, even when the outcomes match their preferences (Cooper and Fazio 1984; Taylor and Brown 1988; Weiner 1985). In the context of motivation, autonomous

choices have also been shown to result in higher motivation in task completion, as well as better performance (Cordova and Lepper 1996; Deci 1981; Deci and Ryan 1985; Deci et al. 1982). For example, Zuckerman et al. (1978) found that participants who made an autonomous choice on which task to complete showed higher motivation and subsequently enhanced performance in the chosen task, in comparison with participants who were simply assigned a task. As an explanation to this enhanced value, past research largely attributes consumers' preference for free choice to the sense of personal control afforded by autonomy (Rotter 1966; Taylor and Brown 1988). For example, the self-determination theory (Deci and Ryan 1985; Williams et al. 2002) emphasizes the association between autonomous choice and personal control and suggests that individuals prefer autonomous control because the choice allows them to exercise control over both the outcome and their lives in general (Deci 1981).

While extant theories focus on the increase in value from the sense of autonomy, we go beyond this main effect and suggest that consumers' perception on whether they have made an autonomous choice in adopting the goal leads them to experience their effort investment in pursuing the goal differently such that the same effort may either increase or decrease the value of the goal. Specifically, people believe that whenever they are given an autonomous choice, they would only choose and pursue goals that are valuable to them. Therefore, the fact that they have chosen to pursue a goal and have invested substantial effort should allow them to experience their effort investment as reflecting the extent to which they value the goal, and greater effort investment should correspond to an enhanced goal value. For example, individuals who believe that they have chosen to exercise regularly are likely to experience their effort in exercising as reflecting how much they value the goal of being fit, and the more often a person exercises, the higher the experienced value should be.

The notion that people experience goal value with the investment of effort has been supported by research in self-regulation (Brickman 1987; Fishbach and Dhar 2005; Higgins 2006). In particular, the regulatory engagement theory (Higgins 2006; Higgins and Scholer 2009) proposed the notion that the strength of engagement in goal pursuit could be experienced as a force that intensifies the attraction of goals. In this framework, goal value is experienced as a motivational force and, as long as the goal has a positive initial value, it should become more attractive when the strength of engagement increases, such as when people put in more effort to pursue the goal. For example, if a person strongly engages in the pursuit of a certain goal (of positive valence), he or she would experience a strong commitment to the goal and hence increase the value of the goal (see also Brickman 1987).

We build our theory off the works that suggest that the experience of goal pursuit may enhance goal value, but we ask whether people experience their effort in the same way if they have autonomously chosen to pursue the goal versus having it imposed on them. We argue that only when people

perceive that they have adopted the goal through an autonomous choice do they experience their effort investment as value enhancing. Specifically, because people believe that only an unrestricted choice allows them to choose and pursue goals that they truly value, they interpret their actions as reflecting their value and commitment to the goal, which allows them to experience effort investment as intensifying this initial positive value. In contrast, whenever people perceive that the goal adoption process has been restricted, as we discuss below, consumers may experience psychological reactance instead and infer no commitment to the goal, even though the goals may be of positive initial value.

### The Lack of an Autonomous Choice

In contrast with adopting a certain goal through an autonomous choice, having a goal imposed signals to people that the autonomy of actions is restricted, which evokes the experience of psychological reactance. The psychological reactance theory (Brehm and Brehm 1981; Wicklund 1974) suggests that whenever individuals feel that a free behavior is restricted, they experience reactance and are motivated to modify their attitudes and behaviors to reaffirm their freedom and autonomy.

For consumers, one way to reaffirm their autonomy is to modify the values of the options (Clee and Wicklund 1980; Pavey and Sparks 2009). For example, Mazis, Settle, and Leslie (1973) found that, following a ban of phosphate detergents in one city, local residents evaluated the product more favorably than did residents of a neighboring city, where it was still available (see also Fitzsimons 2000). Similarly, Fitzsimons and Lehmann (2004) found that when unsolicited advice contradicts people's initial impressions, people experience a reactance state and tend to prefer the options that are not recommended.

Following the same reasoning, the experience of reactance should influence the experienced goal value if a person perceives that the goal has been imposed and that his or her freedom of action is restricted. Whenever consumers experience restrictions in the adoption process, such as when the choices of goals to pursue are limited or the pursuit of the goal is mandatory, they are likely to respond by lowering the goal value to reaffirm their autonomy. Moreover, because the magnitude of the psychological reactance depends on the extent to which people feel their autonomy is being restricted, and greater effort investment on an imposed goal suggests a greater loss of autonomy, we expect that more effort investment in these situations will lead people to value the goal even lower, even though they may have valued it higher before it was imposed.

Central to our theorizing is the different experience of the same effort investment when people perceive the goal is autonomous versus imposed. Note that in the present model, the reactance-based devaluation of goals differs from the process proposed in the regulatory engagement theory (Higgins 2006), which suggests that regulatory intensity makes the goal value more extreme; that is, for goals of negative value, greater effort investment in pursuing them would fur-

ther decrease their value. In our theorizing, the basis for devaluation is the experience of effort as restrictions in the goal adoption and pursuit; therefore, even with goals of positive value, greater effort investment should still lead to decreased value by inducing greater experience of psychological reactance. Moreover, in our model, the decrease in goal value should be consistent with the magnitude of psychological reactance rather than with the effort investment itself. Therefore, when effort investment does not lead to psychological reactance, such as for people who show low dispositional tendency to experience reactance, greater effort should not lower the value of the goal.

To summarize, we propose that effort invested in pursuing a certain goal can enhance or decrease the goal value as well as one's motivation to further pursue this goal, depending on whether people perceive that the goal was adopted autonomously or by force. We conducted four experiments to test this hypothesis. In study 1, we manipulated the goal adoption process and assessed whether initial effort investment increases consumer motivation on autonomous goals but decreases motivation in imposed goals. In study 2, we used a field experiment to test whether the changes in motivation were consistent with the changes in consumers' experienced goal value. Holding the actual effort investment constant, in study 3, we directly tested the role of reactance in determining goal value. Finally, in study 4, we tested whether people experience their effort investment in the same way when the goals have a positive versus a negative initial value.

## STUDY 1: MOTIVATION IN COMPLETING ESSAY QUESTIONS

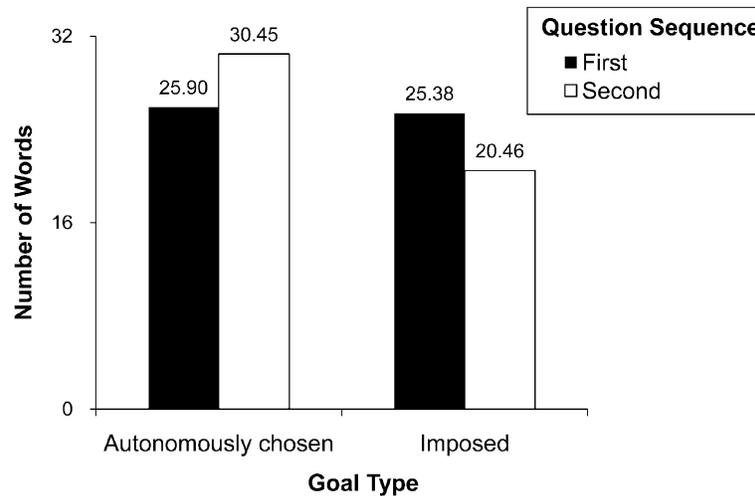
In our first study, we directly manipulated individuals' goal adoption processes and the effort they invest before examining their actual motivation in accomplishing the goal. Participants were asked to complete a survey and were either allowed to choose the survey topic that they would like to write about or were simply assigned one. We then measured participants' motivation in completing the survey, depending on the amount of effort they had invested.

### Procedure

Thirty-three undergraduate students (19 females, 13 males, 1 unidentified) from a large public university participated in study 1 for partial course credit. This study used a 2 (goal type: autonomous vs. imposed)  $\times$  2 (effort investment: low vs. high) mixed design, with the goal type manipulated as a between-subjects factor and the effort investment manipulated within. In the autonomous goal condition, the experimenter first explained that there were two different surveys involving essay questions—one on leadership and the other on personality—and then she told the participants that they could choose which one they would like to complete. Participants then received the survey of their choice. In contrast, participants in the imposed goal condition were simply told that they needed to complete a survey on leadership and personality and were given the

FIGURE 1

NUMBER OF WORDS WRITTEN FOR ESSAYS AS A FUNCTION OF GOAL TYPE AND QUESTION SEQUENCE (STUDY 1)



survey. We explained to all participants that their participation was very important and that their answers should be as complete and detailed as possible; therefore, successfully completing the survey by providing detailed answers should constitute a goal that participants tried to attain.

The surveys that participants in both conditions received were, in fact, identical, consisting of seven questions that were vague enough to be related to both personality and leadership measures. Among the seven questions, five were multiple-choice questions that asked participants to pick which answer most accurately described them (e.g., *Circle the one that is closer to your own feelings and beliefs: A) When people compliment me I sometimes get embarrassed vs. B) I know that I am good because everyone keeps telling me so*), and the remaining two were essay questions (*Describe one situation in which you wish you were more assertive and Describe one situation where you took responsibility and made an important decision*). We manipulated the effort investment as a within-subjects variable by placing the two essay questions in the survey as the third and the sixth questions, so that we could measure the participants' effort in providing complete and detailed answers twice: first toward the beginning of the task, when they had invested only limited effort in completing the survey (when answering the third question) and then again toward the end of the task when they had invested relatively more effort (when answering the sixth question). We counterbalanced the two essay questions and provided ample space below each question to allow participants to write as much as they desired. Participants completed the survey in the lab and were then debriefed and dismissed.

## Results and Discussion

We measured participants' motivation to provide quality and detailed answers by counting the number of words they

wrote down for each of the two essays. To reduce the skewness of the number of words that participants wrote down for both questions (kurtosis > 2; Wilk-Shapiro test  $w(30) = .93$  and  $.72$  for the third and sixth questions, respectively,  $p < .01$ ), we submitted them to a standard log transformation (Kruger et al. 2004). The number of words that the participants wrote down for the two essays was highly correlated ( $r = .79$ ,  $p < .01$ ). A repeated measures ANOVA using the goal type as the independent variable and the number of words that participants wrote down for the two essays as dependent measures showed a significant interaction ( $F(1, 31) = 12.06$ ,  $p < .01$ ). No main effects emerged from the analysis. As is shown in figure 1, participants who made an autonomous choice about which survey to complete wrote down more words for the second essay question ( $M = 30.45$ ) than for the first essay question ( $M = 25.90$ ;  $t(19) = 2.31$ ,  $p < .05$ ), indicating that their motivation for completing the survey increased as they invested more effort in doing so. However, participants who were assigned the topic wrote fewer words for the second essay question ( $M = 20.46$ ) than for the first ( $M = 25.38$ ;  $t(12) = 2.43$ ,  $p < .05$ ), showing that their motivation for completing the survey decreased as they expended more effort in working on the survey.

In study 1, we demonstrated that the goal adoption process (autonomous vs. imposed) and the effort that people had already invested in pursuing the goal interact to influence their subsequent motivation in the goal pursuit. Participants who made an autonomous choice showed higher motivation and worked harder as they went deeper into the task. Thus, it appears that choosing which survey they would like to complete (and hence which goal they would like to pursue) allowed them to experience their invested effort as reflecting the extent to which they value the chosen goal. In this case, greater effort investment led to increased motivation. On

the other hand, when participants felt that the goal was imposed on them, they experienced the imposed goal as a restriction on their autonomy. As a result, people's initial effort led them to decrease the value of the goal, and they reduced their effort accordingly.

Although we suggest that individuals' motivation changes because they alter goal value after initial effort investment, our first study did not explicitly measure goal value. In the next study, we tested our hypothesis in a field experiment and directly measured the extent to which people valued the goals.

## STUDY 2: CHOICE OF ENVIRONMENTAL CAMPAIGN

In study 2, we solicited volunteers for environmental campaigns, and people either autonomously chose to support a certain environmental campaign or were asked by the experimenter to support the same campaign. We varied their initial effort investment before assessing the extent to which they valued the campaigns, as well as their willingness to provide further help with the campaign.

### Procedures

A total of 123 students (54 females, 69 males) from a large public university participated in this field study. Students were intercepted at a public area on campus and completed the study at a nearby desk. This study used a 2 (goal type: autonomous vs. imposed)  $\times$  2 (effort investment: low vs. high) between-subject design.

Two experimenters administered the study. The experimenters intercepted passing students and told them that we were running campaigns promoting environmental issues and asked whether they would like to help out. Of the 162 attempts, 123 people agreed to help and completed the study. For those who agreed to participate, the experimenters explained that they were simultaneously running campaigns promoting two environmental issues: "forest protection" and "energy conservation," and the objective of both campaigns was to raise awareness of these issues among the general public. Participants were then given detailed descriptions of the mission of both campaigns. The experimenters further explained that they needed people to sign pledges supporting the two issues so that they could rally more support and increase the public's awareness of them. Participants in the autonomous goal condition were told that they could choose one of the two campaigns and could sign a pledge to help raise public awareness for their chosen environmental issue. On the other hand, participants in the imposed goal condition were told that we needed support for both campaigns but were collecting pledges for the two campaigns on alternate days. They were further told that on that particular day, we were running the campaign for forest protection (or energy conservation) and that their help was needed to promote it by signing a pledge. The two campaigns were randomly alternated in the imposed goal condition so that we had

roughly the same number of participants for each campaign issue.

We further manipulated the amount of effort that people invested in signing the pledge by varying what they needed to do: while participants in the low-effort condition were asked to carefully read the pledge of the specific program (either chosen or assigned) and to sign their name at the bottom of the pledge, those in the high-effort condition were asked to transcribe the content of the pledge before signing their name. The pledge included specific actions that the campaign tried to encourage, from both individuals and governments (e.g., "I will remember to turn off lights when exiting rooms," and "I will avoid the use of disposable products whenever possible"). The transcription task took, on average, 4–6 minutes to complete for each participant in the high-effort condition.

After signing a pledge, participants were given a sign-up sheet that asked whether they would like to help with additional activities for the environmental campaigns. We explained in the sign-up sheet that we needed more volunteers to help with the campaigns, and participants were asked whether they would like to commit some free time in the following weeks to help the campaign on the issue that they had just signed a pledge for. If they said "yes," participants were asked to provide their contact information (e-mail address and phone numbers) so that the organizers could get in touch with them. These participants were then asked to indicate the number of hours in the coming month that they were willing to commit to help campaign for the issue for which they had signed the pledge, as well as for the alternative issue.

In the last section of the study, participants were asked to provide some general information about their views on environmental issues. Of key interest in this section were questions measuring the extent to which people value the issues for the current campaigns. Specifically, among filler questions (e.g., "How interested are you in learning more about environmental issues?"), we asked participants, "How important is it to promote the concept of protecting the forest (conserving energy)?" and "How meaningful is it for this particular campaign to increase the awareness of protecting the forest (conserving energy)?" All of the questions were answered on a 9-point scale (1 = not at all, 9 = extremely). After completing all of the questions, participants were thanked and debriefed.

### Results and Discussion

Three participants failed to complete the entire experiment and were dropped from the analysis, resulting in a total of 120 subjects in the subsequent analyses. Regardless of whether they made the autonomous choice or were assigned to a campaign issue, for each participant, we treated the campaign issue that they supported as the "focal campaign" and the one that they did not support as the "alternative campaign" for the following analyses. Among participants who made an autonomous choice on which campaign issue to support, 48.3% chose to support the campaign of forest

protection, and 51.7% chose the campaign of energy conservation.

**Goal Value.** One of our key dependent variables was individuals' valuation of promoting the environmental issue that they supported (i.e., the focal campaign). We averaged the two items that measured the value of each campaign (the *importance* and the *meaningfulness* of promoting this particular issue, Cronbach's alpha = .73) to obtain a composite index measuring the value of the campaigns. An ANOVA of this measure first yielded a main effect of goal type ( $F(1, 116) = 26.31, p < .01$ ), suggesting that participants valued the focal campaign more if they had made an autonomous choice ( $M = 7.73$ ) than if they were simply assigned one ( $M = 6.52$ ). More importantly, this analysis yielded a goal type  $\times$  effort investment interaction ( $F(1, 116) = 20.89, p < .01$ ). Individuals who made an autonomous choice about which campaign they would like to support valued the campaign more after investing more effort ( $M = 8.30$ ) than if they had invested less effort ( $M = 7.15; t(58) = 3.44, p < .01$ ; see fig. 2). Conversely, participants who were simply asked to support a campaign reported a lower value of the campaign if they had invested more effort ( $M = 5.88$ ) than less effort ( $M = 7.15; t(58) = 2.03, p < .05$ ). This pattern confirms that greater effort investment can either increase or decrease the value of the goal that people pursue, depending on whether they perceive that the goal is autonomously chosen.

**Subsequent Motivation.** Does goal value lead to different motivation? We first examined the percentage of participants who provided their personal contact information and indicated that they would be willing to be contacted for

further help as a measure of their motivation to help accomplish the goal of promoting the environmental issue. This measure first yielded a main effect of goal type: in the autonomous goal condition, 75.5% of the participants provided their contact information, as compared with 29.9% in the imposed goal condition ( $\chi^2(1, 119) = 24.64, p < .01$ ). This main effect was qualified by the predicted goal type  $\times$  effort investment interaction ( $\chi^2(1, 116) = 8.80, p < .01$ ). For individuals in the autonomous goal condition, more participants provided their contact information if they had expended more effort (45.3%) than if they had expended less effort (30.2%) in signing the pledge ( $\chi^2(1, 59) = 4.80, p < .05$ ). For the imposed goal, however, fewer participants provided their contact information when they had expended more effort (5.7%) than if they had only expended less effort (18.9%) in signing the pledge ( $\chi^2(1, 59) = 4.80, p < .05$ ).

Another key dependent variable in this study was the number of hours that individuals were willing to commit to provide further help with the focal campaign. An ANOVA of this measure yielded a goal type  $\times$  effort investment interaction ( $F(1, 116) = 17.47, p < .01$ ). Participants who made an autonomous choice about which campaign to sign a pledge for committed more time to help promote this issue if they had invested more effort ( $M = 2.63$  hours) than if they had invested less effort ( $M = 1.60$  hours) in signing the pledge ( $t(58) = 3.65, p < .01$ ; see fig. 3). Conversely, participants who were assigned to a specific campaign to support committed to offer less time if they had expended more effort in signing the pledge ( $M = .47$  hour) than if they put forth less effort in doing it ( $M = .93$  hour;  $t(58) = 2.10, p < .05$ ).

We hypothesized that people vary in their subsequent

FIGURE 2

THE VALUE OF THE CAMPAIGNS AS A FUNCTION OF GOAL TYPE AND EFFORT INVESTMENT (STUDY 2)

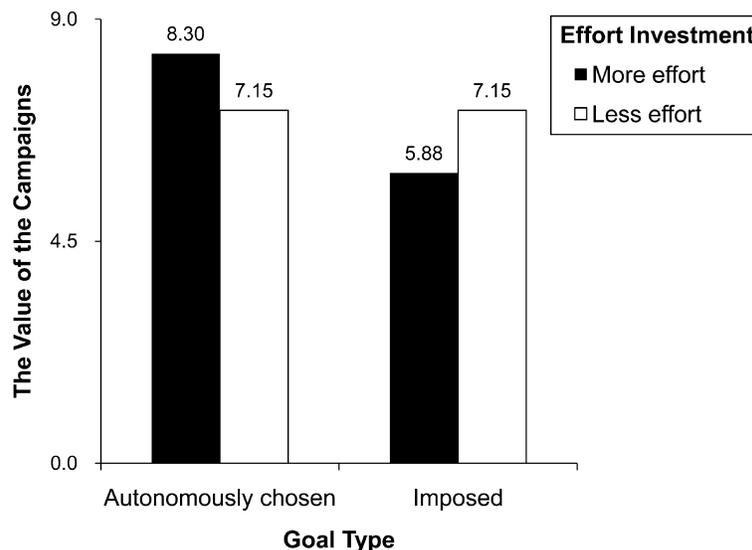
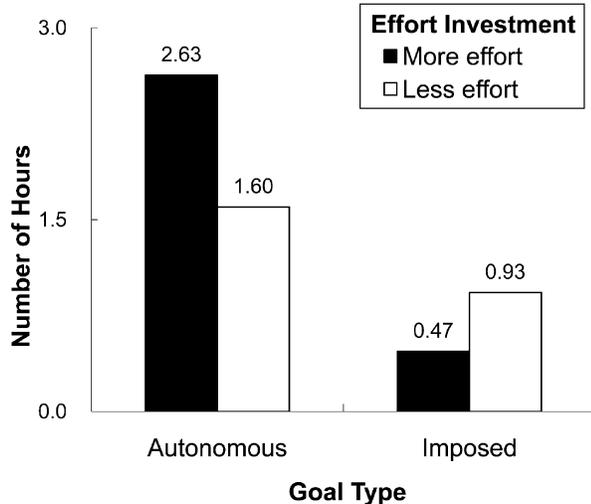


FIGURE 3

NUMBER OF HOURS DONATED FOR FOCAL CAMPAIGN AS A FUNCTION OF GOAL TYPE AND EFFORT INVESTMENT (STUDY 2)



motivation to pursue the focal goal because they infer a different value for the goal on the basis of whether they made an autonomous choice and on the amount of effort they have already invested. A regression analysis of the amount of time that participants were willing to give on the value that they assigned to the focal goal supported this hypothesis, suggesting that the extent to which participants valued the focal goal positively predicted the amount of time they committed to helping the campaign ( $\beta = .40, p < .01$ ).

To test the process underlying the moderating effect of effort investment on goal type, we conducted a mediated moderation analysis following the procedure described in Muller, Judd, and Yzerbyt (2005), using the value of the focal goal as the mediator. In step 1 of the regression, the interaction of goal type and effort investment significantly predicted the amount of time that participants were willing to donate ( $\beta = .56, t = 4.18, p < .05$ ; see fig. 4). In step 2, the interaction of goal type and effort investment predicted the difference in the value of the focal campaign ( $\beta = .29, t = 3.19, p < .05$ ). To this end, the amount of time that was donated was regressed simultaneously on goal type, effort investment, and their interaction as well as on the value of the focal campaign and the interaction between the value and effort investment. Step 3 required that the mediator should significantly affect the dependent variable. The analyses of the full model showed a significant main effect of campaign value on the amount of time donated ( $\beta = .51, t = 8.08, p < .01$ ). Finally, step 4 further required that the moderation effect found in step 1 should drop in magnitude significantly. Indeed, the interaction between goal type and effort investment was no longer significant in the full model ( $\beta = .27, t = 1.34, p > .10$ ). Together, these

four steps indicated that the interaction between goal type and effort investment on the amount of time donated was fully mediated by the value assigned to the focal campaign.

Using real behaviors in a field experiment, in study 2, we further demonstrated that greater initial effort in goal pursuit can either increase or decrease the value of the goal, depending on whether people perceive that they have made an autonomous choice to pursue the goal. These different values, in turn, affect people's motivation in further pursuing the goal. Importantly, for people in the imposed choice condition in this study, even though they also made a voluntary choice to help with the campaigns when first approached by the experimenters, the mere fact that they were not allowed to choose which campaign to support led them to devalue the goal as their initial effort investment increased. This suggests that a threat to the sense of autonomy may occur at any stage of the adoption of goals, and as long as individuals perceive that their autonomy is endangered, they experience reactance and alter the goal value accordingly.

Note that in this study our design only included two direct measures of goal value (the importance and meaningfulness of promoting this particular issue), but it is possible that some other relatively indirect measures (e.g., interest in learning more about the issue) in the experiment may also have touched upon this construct. Although our current design excluded them from further analysis, it would be important for future research to include different measures (e.g., both direct and indirect) when assessing goal value.

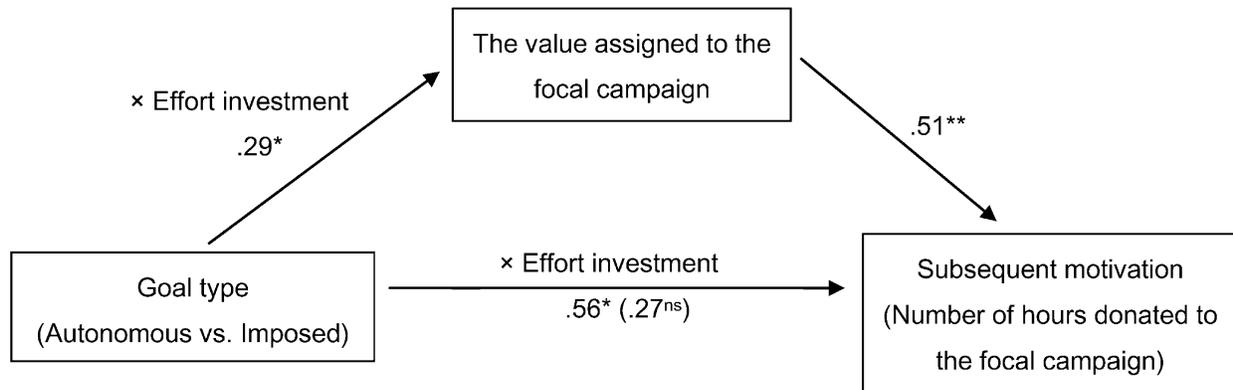
Having demonstrated that effort investment may both increase or decrease goal value, we had three main objectives in study 3. First, we theorized that when people perceive that the pursuit has been imposed on them, they devalue the goal because of the experience of psychological reactance. In study 3, we directly tested this process. Second, while in the initial studies we manipulated the amount of effort invested by varying the actual amount of effort people expended, in study 3 we tested our hypothesis by holding the actual effort constant and varying people's perceived effort investment. Finally, while our last study measured people's motivation to further pursue the goal by soliciting their personal contact information, we did not follow up with them to measure their actual helping behaviors. In study 3, we used a more direct behavioral measure (i.e., actual donation) to assess people's motivation to further pursue the goal after their initial effort investment.

### STUDY 3: HELPING TO PROTECT WILDLIFE

In this study, we first assessed participants' individual differences in the tendency to experience psychological reactance in an ostensibly unrelated task (Fitzsimons and Lehmann 2004; Kivetz 2005). Then, participants were either induced to choose to help a wildlife protection organization by completing a long survey or they were required to do so. For dependent variables, we measured people's valuation of the goals as well as their behaviors in further pursuing

FIGURE 4

MEDIATION ANALYSIS (STUDY 2): THE VALUE OF THE FOCAL CAMPAIGN MEDIATES THE EFFECTS OF GOAL TYPE AND EFFORT INVESTMENT ON SUBSEQUENT MOTIVATION



Note.—\* Significant at the .05 level; \*\* significant at the .01 level.

the goal, after they believed that they had invested a relatively large, or small, amount of effort.

### Procedure

A total of 202 undergraduate students (102 females, 100 males) from a large southwestern university participated in the study to receive \$5 in cash as compensation. We employed a 2 (goal type: autonomous vs. imposed)  $\times$  2 (effort investment: low vs. high)  $\times$  2 (psychological reactance: low vs. high) mixed design; the first two factors were manipulated between subjects, and the last factor was measured as an individual trait.

Upon arriving at the lab, all of the participants were given a "General Questionnaire" that asked them to answer a number of questions about themselves to help us "better understand our participants for future experiments." Among the filler questions in this questionnaire, we embedded the individual reactance scale (Hong and Faedda 1996; Hong and Page 1989) that measured people's tendency to experience reactance (Fitzsimons and Lehmann 2004). After completing the initial questionnaire, participants went directly to the main task.

Participants were first informed that there would be two sections in that day's experiment. In the autonomous choice condition, participants were told that, although there were two sections of studies, the initial section would be an optional questionnaire on the issue of wildlife protection. Specifically, participants in this condition were told that the questionnaire, administered by the National Wildlife Federation, was designed to gather information on college students' knowledge about wildlife protection and that this information would be used to help the organization design more effective communication materials. We emphasized the

importance of their help and urged them to complete the questionnaire by clicking "yes" on the computer screen. In contrast, participants in the imposed choice condition were given the same information on the experiments and were told that they were required to complete both sections.

The participants' perceived effort investment was manipulated through an electronic timer on the top right corner of the computer screen. Participants in all of the conditions were informed that, in order to help them keep track of the time, the experimenter had included an on-screen timer. For those in the low-effort investment condition, the timer provided accurate feedback indicating the amount of time that the participant had spent on the question. In the high-effort investment condition, the time reported was 4 seconds faster than the actual time for every 15 seconds. For example, when participants saw the timer displaying "15s," the actual time that they had spent on the question was only 11 seconds; when the timer showed that the time spent was "30s," the actual time that participants had spent on the question was 22 seconds. Therefore, participants in this condition were led to believe that they had spent more time on these questions than they actually did (Sackett et al. 2010; Wan and Sternthal 2008). In both timer conditions, the timer refreshed every 15 seconds, so that participants in the high-effort investment condition were less likely to detect the inaccuracy in the timer.

After these instructions, participants started the questionnaire on wildlife protection. As in other studies using similar procedures, all participants in the autonomous goal condition chose to complete the survey (Baumeister et al. 1998; Moller, Deci, and Ryan 2006). All of the participants were shown pictures of two endangered animals (an American bald eagle and a grizzly bear) and were asked to answer a few questions, including when and where they first learned

about each of the animals and what the first three words were that came to their mind when thinking of each of them. The questionnaire was relatively easy and intentionally structured so that the actual amount of time that participants needed to answer the questions would not vary significantly.

After participants completed the initial four questions, they were asked to answer a few questions about wildlife protection before moving on, including a question that asked them whether they would like to donate part of their compensation for completing the experiment (\$5) to the National Wildlife Federation to help protect the endangered species, and if so, how much. We told participants that we would appreciate their help, and that at the end of the experiment, they would receive \$5 minus whatever amount they had indicated they would like to donate.

Following these questions, the screen turned to a wait page and instructed participants to wait for the remaining questions of the wildlife survey to load. All of the participants were thanked for being patient and were told that they could click “skip” at any time to skip the remainder of the questionnaire and to move on to the next task. We measured the time that participants waited before deciding not to finish the questionnaire as the indicator of their motivation toward completing the wildlife survey. We capped the loading time at 10 minutes, and all of the participants eventually clicked “skip” to quit the questionnaire before the next page was loaded. Participants then moved on to the second experiment and were then debriefed and dismissed.

## Results and Discussion

*Willingness to Donate.* We first analyzed the percentage of participants who were willing to donate in each condition as an indicator of their motivation to continue pursuing the goal of protecting endangered species. We coded the participants who donated as 1 and those who did not donate as 0, and then submitted this binary variable of willingness to donate into a logistic regression model. We included goal type, effort investment, reactance, and all of their interaction terms into the model as predictors. The analysis yielded a main effect of goal type ( $\beta = .55$ ,  $\chi^2(1, 202) = 6.21$ ,  $p = .01$ ), a goal type  $\times$  effort investment interaction ( $\beta = .58$ ,  $\chi^2(1, 202) = 6.79$ ,  $p < .01$ ), and, more importantly, a predicted goal type  $\times$  effort investment  $\times$  reactance three-way interaction ( $\beta = .92$ ,  $\chi^2(1, 202) = 5.24$ ,  $p < .05$ ).

To better understand the three-way interaction, we followed the spotlight analysis procedures (Irwin and McClelland 2001) to explore the impact of goal type on participants’ willingness to donate, depending on their perceived effort investment and their reactance level. Among the participants who perceived that completing the survey on wildlife protection was mandatory, there was a main effect of reactance ( $\beta = -1.40$ ,  $\chi^2(1, 202) = 4.37$ ,  $p < .05$ ), and an effort investment  $\times$  reactance interaction ( $\beta = -1.50$ ,  $\chi^2(1, 202) = 5.04$ ,  $p < .05$ ). Further spotlight analyses showed that those participants who were high on reactance

(1 SD above the mean) were less likely to donate when they felt that they had invested more effort in completing the first part of the survey ( $M = 1.49\%$ ) than those who felt that they had invested less effort ( $M = 22.60\%$ ;  $\beta = -1.48$ ,  $\chi^2(1, 202) = 5.54$ ,  $p < .05$ ). Conversely, for participants who were low on reactance (1 SD below the mean), there was no significant difference between those who felt that they had invested more effort in the initial questions ( $M = 22.54\%$ ) and those who felt that they had invested less effort ( $M = 20.81\%$ ;  $\beta = .05$ ,  $\chi^2(1, 202) = .02$ , NS).

On the other hand, among the participants who made an autonomous choice to complete the wildlife survey, there was only a main effect of effort investment: regardless of the reactance level, participants who felt that they had invested more effort in completing the first part of the survey were more likely to donate ( $M = 39.06\%$ ) than those who felt that they had invested less effort ( $M = 20.85\%$ ;  $\beta = .44$ ,  $\chi^2(1, 202) = 3.81$ ,  $p = .05$ ). There was no effect of the reactance measure.

*Donation Amount.* Our key variable in this experiment was the amount that participants were willing to donate—an indicator of their motivation to continue pursuing the goal of helping to protect endangered species. Because of the relatively small proportion (23% on average) of participants who chose to donate in this experiment, we analyzed the data using a Tobit model (Greene 2003; Mitchell and Dacin 1996). We included goal type, effort investment, reactance, and all of their interaction terms into the model, and the Tobit model was run with zero (no donation) as the lower bound. The analysis yielded a main effect of goal type ( $\beta = .86$ ,  $t(194) = 2.54$ ,  $p < .05$ ), a main effect of reactance ( $\beta = -1.20$ ,  $t(194) = -1.96$ ,  $p < .05$ ), a goal type  $\times$  effort investment interaction ( $\beta = 1.06$ ,  $t(194) = 3.12$ ,  $p < .01$ ), and, more importantly, a predicted goal type  $\times$  effort investment  $\times$  reactance three-way interaction ( $\beta = 1.17$ ,  $t(194) = 1.89$ ,  $p < .06$ ).

We further performed a spotlight analysis (Irwin and McClelland 2001) to explore the impact of goal type on the donation amount, depending on the participants’ perceived effort investment and their reactance levels. Among the participants who perceived that completing the survey on wildlife protection was mandatory, there was a main effect of effort investment ( $\beta = -1.15$ ,  $t(194) = -2.06$ ,  $p < .05$ ), a main effect of reactance ( $\beta = -2.35$ ,  $t(194) = -2.34$ ,  $p < .05$ ), and an effort investment  $\times$  reactance interaction ( $\beta = -2.09$ ,  $t(194) = -2.08$ ,  $p < .05$ ). Further spotlight analyses showed that those participants who were high on reactance (1 SD above the mean) donated less when they felt that they had invested more effort in completing the first part of the survey ( $M = \$0$ ) than did those who felt that they had invested less effort ( $M = \$.58$ ;  $\beta = -2.22$ ,  $t(194) = -2.39$ ,  $p < .05$ ). Conversely, for participants who were low on reactance (1 SD below the mean), there was no significant difference between those who felt that they had invested more effort in the initial questions ( $M = \$.68$ ) and those who felt that they had invested less effort ( $M = \$.85$ ;  $\beta = -.08$ ,  $t(194) = -.16$ , NS).

On the other hand, among the participants who made an autonomous choice to complete the wildlife survey, there was only a main effect of effort investment: regardless of the reactance level, participants who felt that they had invested more effort in completing the first part of the survey donated more ( $M = \$2.24$ ) than those who felt that they had invested less effort ( $M = \$.32$ ;  $\beta = .96$ ,  $t(194) = 2.63$ ,  $p < .01$ ). There was no effect of the reactance measure.

#### *Persistence in Waiting for Additional Questions.*

Because the analyses of the actual donation amount included only a subset of all participants, we also analyzed the amount of time that all participants waited for the additional questions to load before deciding to skip the task as an indicator of their motivation to help the cause by successfully completing the questionnaire. The results yielded the same significant pattern as the actual donations (three-way interaction,  $\beta = .16$ ,  $t(194) = 2.42$ ,  $p < .05$ ; see table 1). Also, for all participants, their donation amount was positively correlated with the amount of time that they persisted in waiting for the additional questions ( $\beta = .56$ ,  $t(200) = 9.47$ ,  $p < .01$ ), suggesting indeed that individuals' motivation for further pursuit followed the experienced value of the goal.

The results of study 3 supported our hypothesis by showing that psychological reactance is an underlying mechanism for the drop in motivation when people feel that the goal they are pursuing is imposed on them. Greater initial effort investment results in lower motivation among people who tend to experience reactance, but not among those who do not, supporting our hypothesis that it is the experienced reactance that causes the decrease in goal value.

However, because we did not directly measure the value of the specific goals that people were pursuing, one potential alternative account for the results in this study is that effort investment in the autonomous goal condition might have enhanced people's general feeling about themselves and allowed them to infer that they were more compassionate or more caring, rather than directly increased the value of the

specific goal. We therefore decided to address this concern in our next study by directly assessing the value of the goal.

Our next study also tried to provide further evidence for our proposed model by testing the theory using goals of different initial value. Specifically, in study 4 we tried to address the possible alternative account of effort justification—that it is possible that participants in our autonomous conditions merely increased the goal value after effort investment because they needed to justify their initial effort investment (see Aronson and Mills 1959; Cooper 1980). Similarly, dissonance-based accounts would also suggest that consumers alter the goal value in order to maintain consistency between their actions (investing effort in pursuing a particular goal) and their cognition (i.e., “this goal is valuable”).

Although the justification and dissonance-based accounts cannot sufficiently explain the decrease in goal value in the imposed goal condition, we nevertheless feel that it is important to further rule out these alternatives and to demonstrate that it is the experience of effort as reflecting goal value, rather than justifications of effort, that leads to the changes in value. Our next study tries to examine the process by introducing goals of negative value: on the basis of the dissonance and effort justification accounts, consumers should increase the goal value after effort investment regardless of the initial goal value; that is, even if the goal is negative initially, effort investment should make it more positive (i.e., less negative). In contrast, our proposed theory would predict the opposite: because effort can be experienced as reflecting goal value only when people feel that they value the goal initially, effort investment in negative goals should not be perceived as reflecting how much the goal is valued. Instead, it should decrease, rather than increase, goal value, because it induces even greater reactance.

## STUDY 4: CHOICE OF MOVIES

In this field study that was inspired by a common marketing practice, we demanded effort investment from our partici-

TABLE 1

STUDY 3: WILLINGNESS TO DONATE, DONATION AMOUNT, AND WAITING TIME IN AUTONOMOUS AND IMPOSED GOAL CONDITIONS

	Autonomous goal		Imposed goal	
	High effort	Low effort	High effort	Low effort
Willingness to donate (%):				
High reactance	44.60 <sub>a</sub>	19.06 <sub>b</sub>	1.49 <sub>a</sub>	22.60 <sub>b</sub>
Low reactance	33.78 <sub>a</sub>	22.76 <sub>b</sub>	22.54 <sub>a</sub>	20.81 <sub>a</sub>
Donation amount (\$):				
High reactance	2.34 <sub>a</sub>	.17 <sub>b</sub>	0 <sub>a</sub>	.58 <sub>b</sub>
Low reactance	2.15 <sub>a</sub>	.47 <sub>b</sub>	.68 <sub>a</sub>	.85 <sub>a</sub>
Waiting time (in seconds):				
High reactance	74.08 <sub>a</sub>	29.29 <sub>b</sub>	14.71 <sub>a</sub>	69.24 <sub>b</sub>
Low reactance	73.18 <sub>a</sub>	41.80 <sub>b</sub>	72.91 <sub>a</sub>	70.47 <sub>a</sub>

NOTE.—Means are displayed following spotlight analysis procedures (Irwin and McClelland 2001). Within autonomous and imposed goal conditions, means in the same row with different subscripts are significantly different at  $p < .05$ .

pants in the redemption of free products, which allowed us to manipulate the initial value of the goal by changing the choice options (Higgins 2006). Specifically, we asked participants to climb stairs to collect free movie tickets. We either allowed participants to choose which movie they would like to see or did not give them the option, and we varied the amount of effort that they needed to expend to get the ticket, before assessing participants' valuation of the movies.

## Procedure

In study 4, we employed a 2 (goal value: positive vs. negative)  $\times$  2 (goal type: autonomous vs. imposed)  $\times$  2 (effort investment: low vs. high) between-subjects design. We recruited our participants by circulating advertisements around campus. The ad informed people that we were giving out free tickets for two French movies that would be shown the next weekend. The ad listed the time and location at which the tickets could be claimed and gave only very general information about the movies without specifying the titles. A total of 250 people showed up to claim the tickets.

Two experimenters were present at the advertised location (a classroom on the first floor of a campus building) on the day to welcome the participants, and they attended to them one by one to prevent conversations between participants. The experimenter showed each participant descriptions of the two movies. Based on a pretest, we selected two French movies that were unknown to our participants. Each introduction contained the title of the movie, a brief plot description, and, more importantly, a rating for the movie that was accompanied by two short reviews from two movie critics. These movies were described either positively or negatively: in positive goal conditions, the movies were rated, on average, 9.5 on a 10-point scale, and both reviews spoke highly of the movies; in contrast, movies in the negative goal conditions were rated, on average, 4 on the same scale, and both reviews were moderately negative. After reading the movie descriptions, participants in the autonomous goal condition were asked to choose one movie that they would like to see, whereas those in the imposed goal conditions were told which movie they could watch, giving the excuse that the tickets for the other one were not available that day. The two movies were randomly alternated in the imposed goal conditions.

After it was determined (either by autonomous choice or by imposition) which movie the participants would see, the participants were asked to collect their tickets in a classroom upstairs: those in the low-effort condition were asked to collect their tickets in a classroom on the second floor, whereas those in the high-effort condition had to collect their tickets on the sixth floor of the building. We ensured that there was no working elevator in the building and that participants had to use the stairs to get to those floors.

A total of 26 participants, whose distribution did not differ significantly across conditions ( $\chi^2(1, 243) < 1$ ), did not go upstairs to collect the tickets, leaving us with 224 people (135 females, 89 males) in our subsequent analyses. In the

classrooms upstairs (on either the second or sixth floor), another experimenter gave participants their movie tickets with the condition number on it and asked them to fill out a short survey. In the questionnaire, we first asked participants to report how much effort they felt they had spent to get the ticket (11-point scale; 1 = nothing at all, 11 = very much). Then, in a section that ostensibly collected participants' feedback on the setup of the experiment, we embedded two questions that measured participants' momentary reactance: "I feel I would enjoy the other movie more because I did not get to choose mine," and "The limited movie option triggers a sense of resistance in me." These measures were adopted and modified from the Hong psychological reactance measure (Hong and Faedda 1996). Finally, we measured people's willingness to pay (WTP) for the ticket under the cover story of determining the price for future events. We told participants that we would like to know, had they been asked to purchase the ticket, how much they would have been willing to pay in the local currency (RMB). We urged them to give us their true value since it would help us to set an appropriate price for future screenings. Upon completing the survey, participants collected the tickets and left the experiment location. On Saturday night, we showed the promised movies and counted the number of participants who actually showed up to see them.

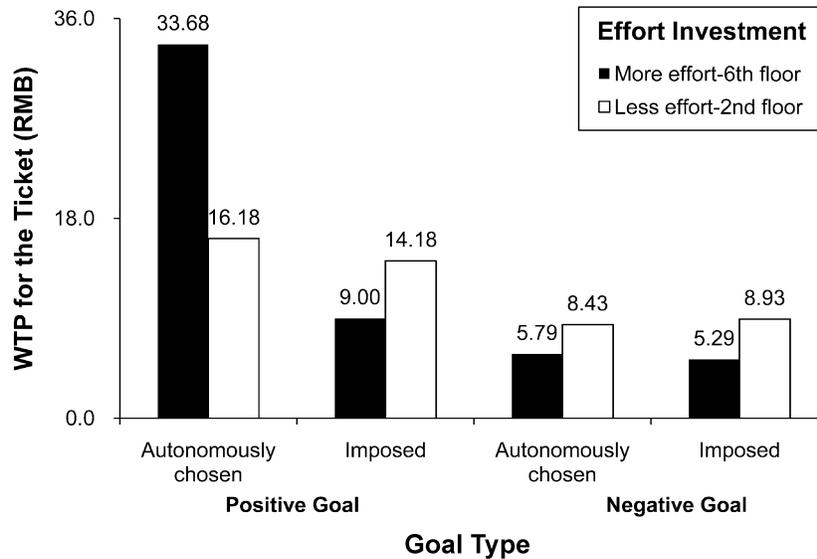
## Results and Discussion

*Manipulation Check.* In general, participants in the high-effort conditions spent more time climbing the stairs ( $M = 3.35$  minutes) than those in the low-effort conditions ( $M = 1.40$  minutes;  $F(1, 222) = 59.00, p < .01$ ). Also, those in the high-effort conditions perceived that they had invested more effort ( $M = 5.99$ ) than those in the low-effort condition ( $M = 3.52$ ;  $F(1, 222) = 67.47, p < .01$ ).

*Willingness to Pay for the Ticket.* An ANOVA of WTP prices yielded a main effect of goal value ( $F(1, 216) = 92.20, p < .01$ ), suggesting that participants valued the ticket more if the movie was described positively ( $M = 18.26$ ) than negatively ( $M = 7.11$ ), and a main effect of goal type ( $F(1, 216) = 32.98, p < .01$ ), suggesting that participants were willing to pay more for the ticket if they had made an autonomous choice ( $M = 16.02$ ) than if they had been assigned one ( $M = 9.35$ ). More importantly, this analysis yielded a goal valence  $\times$  goal type  $\times$  effort investment three-way interaction ( $F(1, 216) = 21.78, p < .01$ ). When the movies were described positively, we replicated the results of previous studies: individuals who made an autonomous choice about which movie they would watch valued the movie ticket more if they collected it on the sixth floor of the building ( $M = 33.68$ ) than if they got it on the second floor ( $M = 16.18$ ;  $t(54) = 4.24, p < .01$ ; see fig. 5). Conversely, participants who were not given an option to choose reported lower WTP prices if they had to collect the ticket on the sixth floor ( $M = 9.00$ ) than on the second floor ( $M = 14.18$ ;  $t(54) = 4.06, p < .01$ ). However, when the goal value was negative, goal type did not interact with

FIGURE 5

THE WILLINGNESS TO PAY FOR THE TICKET AS A FUNCTION OF GOAL VALUE, GOAL TYPE, AND EFFORT INVESTMENT (STUDY 4)



effort investment ( $F(1, 108) = .34, p > .1$ ). Participants valued the ticket higher if they had invested less effort ( $M = 8.68$ ) than if they had invested more effort ( $M = 5.54$ ;  $F(1, 110) = 13.82, p < .01$ ) regardless of whether they had made an autonomous choice on which one to see.

Although the results of goal value in this experiment supported our hypothesis, it is important to note one limitation in this measure: because we assessed participants' willingness to pay after the reactance scale in the same experiment, it is possible that the scale might have unnaturally highlighted participants' experience of reactance, which in turn influenced their answers to the subsequent questions. Although filler questions were used to reduce the potential influence, we do believe that a less intrusive assessment of reactance could further improve the validity of these measures in future studies. To partially address this concern, we further analyzed participants' actual decisions to come to the movie screening.

**Actual Behavior.** We measured the percentage of participants who actually showed up to see the movie on Saturday night in each condition as a second measure of the extent to which they valued the goal. A logistic regression of this measure on goal value, goal type, and effort investment yielded a three-way interaction ( $\chi^2(1, 219) = 41.73, p < .01$ ). In positive goal conditions, for participants who autonomously chose the movie to see, more participants showed up on Saturday night if they had collected the ticket on the sixth floor (71.4%) than if they collected the ticket on the second floor (42.9%;  $\chi^2(1, 55) = 4.67, p < .05$ ). For participants who were not given an option to choose which

movie they could see, fewer participants showed up if they had to go to the sixth floor to get their ticket (10.7%) than if they had to go to the second floor (35.7%;  $\chi^2(1, 55) = 4.91, p < .05$ ). When the goal was negative, only 7 participants (12.5%) came to watch the movie, and all of them were from the low-effort condition ( $\chi^2(1, 111) = -7.47, p < .05$ ). Because of this very small number of participants, we were unable to perform further analyses in this condition.

**Experienced Reactance.** We averaged the participants' indicated agreement to the two reactance-related statements (Cronbach's alpha = .94) to create an index for their experienced reactance. This measure did not differ among participants who autonomously chose which movie to see; therefore, all of the following analyses were performed only on participants who were not given an opportunity to choose. These participants reported higher reactance ( $M = 6.60$ ) if they collected the ticket on the sixth floor than if they collected it on the second floor ( $M = 5.59$ ;  $t(111) = 2.43, p < .05$ ), and there was no difference between positive and negative goals on the measure. To further test the process underlying the effect of effort investment on goal value, we conducted a mediation analysis using experienced reactance as the mediator and whether participants showed up at the actual movie screening (yes vs. no) as the dependent variable. Directly, a logistic regression suggested that effort investment negatively predicted whether participants showed up for the movie screening (Wald  $\chi^2(1) = 6.21, p < .05$ ). Indirectly, effort investment positively predicted the experienced reactance ( $t(110) = 3.11, p < .01$ ), which in turn negatively predicted whether people came to the movie

screening (Wald  $\chi^2(1) = 16.36, p < .01$ ). When entering both the effort investment and the experienced reactance as predictors in the logistic regression, the effect of effort investment became nonsignificant (Wald  $\chi^2(1) = 2.11, p > .1$ ), while experienced reactance remained a significant predictor (Wald  $\chi^2(1) = 14.81, p < .01$ ; Sobel  $z = -2.37, p < .05$ ).

## GENERAL DISCUSSION

The four studies reported in the present article supported our hypothesis that the value of consumers' goals and their motivation in the pursuit can vary as a function of whether consumers perceive that they autonomously adopted the goal and as a function of the amount of effort that they have invested in it. Specifically, in study 1, we found that participants who made a free choice on the topic of essay writing increased their effort as they moved further into the task, whereas those who were assigned a topic withdrew their effort as they advanced in the task. In study 2, we used a field study to demonstrate that when a certain goal was autonomously adopted, greater (vs. less) initial effort investment increased goal value. Conversely, when the goal was imposed, greater (vs. less) initial effort resulted in lower goal value. In study 3, we found that when the same task was perceived to be optional and people nevertheless pursued it, more (vs. less) initial effort led them to value the goal more and elicited more personal effort (donation) to further pursue the goal. However, when the same task was believed to be mandatory, people experienced more reactance when they invested more (vs. less) effort, and they withdrew their effort subsequently. This decrease in value, importantly, occurs only for people who are prone to experience reactance. Finally, in study 4, we demonstrated that the effort increased goal value only when the goal had a positive initial value, supporting our hypothesis that it is the experience of effort, rather than of justification, that contributes to the value increase. Taken together, these studies provided converging evidence that, depending on whether people perceive that they are pursuing an autonomous goal or not, greater effort investment may increase or decrease the value of the goal, which subsequently leads to higher or lower motivation for further pursuit.

### Implication for Research in Intrinsic Motivation and Dissonance Theory

Intrinsic motivation, defined as motivation originating from doing the task itself rather than from external reward or reinforcement, has been shown to be superior in inducing higher task enjoyment and performance (deCharms 1968; Deci 1978; Lepper, Greene, and Nisbett 1973). For example, Vallerand, Fortier, and Guay (1997) found that students who enjoy high autonomy in decisions reported higher self-determined motivation and were more likely to stay motivated to finish school. Similarly, recent work by Moller et al. (2006) found that allowing participants to make autonomous

choices increased their intrinsic motivation and led to higher persistence on a related task.

Although sharing some consistent findings with these other studies, the present research differs from the framework of intrinsic motivation in a few important ways. First, at the center of intrinsic motivation research is the emphasis on individuals' desire for the volitional control of outcomes and processes (Deci and Ryan 1985). By comparison, we focus on the motivational consequences of value and suggest that individuals adjust their effort level on the basis of their experience of goal value. Under our present framework, the value of an autonomous goal derives from the fact that it allows people to experience their effort investment in the goal as reflecting the extent to which they value the goal, whereas the lack of autonomy induces reactance and activates one's need to reaffirm the freedom. By focusing on how the goal adoption process may influence the experience of goal pursuit, we are therefore able to distinguish our work from those studying the difference between intrinsic and extrinsic motivation and to emphasize the changes in goal value throughout the process of goal pursuit.

Second, we further extended the extant literature by exploring the interaction between the goal adoption process and the amount of effort that one invests in the goal pursuit. Rather than finding a main effect that autonomous goals are more valuable than imposed goals, we found that the perceived adoption process affects the experience of the same effort investment and, subsequently, the motivation. We argue that investing effort in pursuing a certain goal does not necessarily result in greater or less motivation; rather, it depends on how people experience and interpret the effort.

Our findings also have specific relevance for the cognitive dissonance theory (Elliot and Devine 1994; Festinger 1957), which suggests that individuals experience an uncomfortable feeling when their behaviors are inconsistent with their expressed attitude. A key tenet of cognitive dissonance theory is that people feel uncomfortable when their actions appear to be inconsistent (Cooper and Fazio 1984), and they are motivated to reduce the feeling by pursuing behavioral consistency as an end. Similarly, the effort justification hypothesis suggests that individuals change goal value to mentally justify their invested effort; therefore, greater effort investment should result in greater value of the goal. For example, the "IKEA effect" (Norton 2009) suggests that people may love the products better if they have invested effort in putting them together.

In contrast with the dissonance and justification-based hypotheses, our present framework proposes a different mechanism that focuses on the different experience of the same effort. Building on the regulatory engagement theory (Higgins 2006) and the reactance theory, we found that the same effort investment may be experienced as reflecting the goal value or as the loss of autonomy that induces psychological reactance, and these experiences, in turn, change goal value. Importantly, we also found that efforts increase goal value only when people can interpret their effort as reflecting the extent to which they value the goal. Whenever the goal

is negative in value and people do not feel that they value the goal in the first place, effort investment decreases rather than increases goal value, showing that it is unlikely that people bolster goal value simply to reduce the dissonance or to justify their effort investment.

### Implications for Research in Consumer Goal Pursuit

Previous research has documented consumers' tendencies to both engage in further pursuit of the goal after investing effort (Fishbach, Dhar, and Zhang 2006; Kivetz, Urminsky, and Zheng 2006) and disengage from goal pursuit after initial effort (Fishbach and Dhar 2005; Khan and Dhar 2006; Muraven, Tice, and Baumeister 1998). The present research provides evidence that is consistent with both streams of research and identifies the perception of the pursuit of an autonomous goal as an important moderator of consumers' continued motivation in goal pursuit following initial effort investment. Importantly, whether a certain goal reflects one's preference depends on one's perceived decision process rather than on the actual process. Thus, it is possible that the same decision process can be perceived either as an autonomous goal adoption or as an external demand, depending on which aspect of the decision the individuals focus on, particularly when the processes involve ambiguous components. For example, for participants in study 2, while focusing on the fact that they chose to help the campaigns in general would allow them to experience autonomy, focusing on the fact that they were not given a chance to choose which specific campaign to help would result in an experience of reactance. This distinction in perception suggests that it is possible that even the same decision process may lead to opposite trends in consumer motivation and allows us to reconcile some inconsistent findings in previous works.

Similarly, although our present model suggests that people devalue an imposed goal when they invest effort, we acknowledge that not all imposed goals become less valuable as time goes by. For example, people raise children that they did not plan or wish to have, and they enter into arranged marriages. In many of these cases, they become more, rather than less, committed. We speculate that the experience of effort investment depends on which aspect of the pursuit people focus on, and psychological reactance should occur only when they focus on the fact that the goal is imposed and interpret their subsequent effort as loss of autonomy. Whenever people shift their focus away from the goal adoption process and to the attractiveness of the goal itself, as is often the case in the pursuit of long-term goals, they should no longer experience effort investment as a loss of autonomy; hence, they are unlikely to devalue the goal. Empirical tests of these possibilities would provide an interesting avenue for future research.

Note that when people invest effort to pursue a certain goal that they perceive as having been imposed on them, they devalue the goal, even though they may have chosen

this goal if they had been provided an opportunity to make their own choice. This adds additional evidence to the findings that value and preferences are constructed and malleable (Amir and Levav 2008; Dhar and Simonson 2003). Because of the ambiguity in value, consumers often rely on external cues to construct their preferences and value. The fact that people devalue an imposed goal as a result of psychological reactance suggests that it is possible that the choice procedures may outweigh the actual experience of the chosen option in influencing consumers' subsequent actions. This possibility highlights how important it is for marketers to pay attention not only to the actual structure of consumer goals but also to how people adopt them. For example, offering a less attractive "filler" option (e.g., an obviously inferior loyalty program) in the goal adoption process to create a "choice" not only increases consumers' motivation to pursue the dominant option but also makes them even more motivated as they invest more effort in the pursuit.

Although effort investment in autonomous goals can be value enhancing, it remains to be tested whether this relation follows a monotonically increasing curve. Although theoretically one may assume that the value of the goal should always increase when people invest more effort because greater effort suggests higher value, it is possible that the goal value may level off or even reverse to a decrease after a certain point. For example, when facing limited resources, excessive effort investment may make people feel the need to balance among multiple goals. Excessive effort investment, in this case, may enhance the value of the competing goals and decrease that of the current goal. Empirical tests of these possibilities provide interesting avenues for future research.

### Implications for Research in Variety (and Consistency) Seeking

Although the present research studied the effect of the choice process on consumers' motivation to pursue a goal, these findings also have important implications for understanding consumer behaviors beyond self-regulatory goal pursuit. The finding that consumers experience their actions as reflecting preferences and value should be equally applicable in situations in which the target of choice is a product rather than a self-regulatory goal. For example, if a person chooses to stay in a certain hotel, he or she is likely to experience the choice as reflecting how much he or she likes this place, which should in turn increase the likelihood that this person will stay in the same hotel again when the opportunity arises. Conversely, if consumers perceive that the option they consumed was dictated by an external agent, they experience reactance and lower the value of the option to express the freedom of choice; thus, they become more likely to seek variety on subsequent occasions to express the freedom of choice.

These findings highlight an important factor in the study of sequential choices: whether consumers choose to maintain

behavioral consistency or to seek variety may be influenced by how they interpret their initial choices. This insight has implications for marketers who seek to encourage either repeated consumption or variety-seeking behaviors. For example, it is possible for marketers to highlight the autonomous aspect of consumers' past choices and to encourage them to experience the choices as reflecting the value of the options (e.g., "Congratulations on your fine taste!"). Conversely, marketers who are seeking to encourage consumers to switch to an alternative product may do so by focusing on the external influences of their prior consumption (e.g., "Your parents thought that would be a good car for you . . . do you?"). Our findings also suggest that the strength of these persuasive efforts can be enhanced by emphasizing previous consumption amounts. For example, emphasizing how often or how frequently one has been making an autonomous choice strengthens the argument that he or she should stay with the long-term choices (e.g., "You've trusted your taste for so long . . . why switch?"). Meanwhile, those who seek to encourage switching behaviors should emphasize the excessive amount of consumption experience with the externally imposed option (e.g., "You've suffered enough with cable—now options are here!").

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