

The Importance of Normative Beliefs to the Self-Prophecy Effect

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Asking people to predict whether they will undertake a target behavior increases their probability of performing that behavior. Now referred to as the self-prophecy effect, this phenomenon has been demonstrated across several contexts. Although theoretical explanations for the effect have been offered, empirical evidence for proposed accounts is sparse. The current research tests the theoretically relevant precondition for the effect that normative beliefs—evaluations of what is socially desirable or appropriate—underlie manifestation of the self-prophecy effect. Results of 2 experiments for different behaviors indicate that the act of making a prediction is most effective when normative beliefs are strong. Implications of these findings are discussed in relation to theoretical explanations for the effect and successful use of self-prophecy to promote socially desirable behaviors.

Merely asking people to predict whether they will perform a socially desirable behavior increases their probability of performing the action (Sherman, 1980; Spangenberg & Greenwald, 1999, 2001). Sherman (1980) was the first to provide evidence for such an effect, originally referred to as the *self-erasing nature of errors of prediction* (Greenwald, Klinger, Van de Kamp, & Kerr, 1988, later coined the more parsimonious term *self-prophecy*). The self-prophecy effect has been demonstrated in both field and laboratory settings to influence a wide variety of behaviors, such as increasing voter registration and turnout (Greenwald, Carnot, Beach, & Young, 1987; Greenwald et al., 1988), increasing volunteering (Sherman, 1980), reducing gender stereotyping (Spangenberg & Greenwald, 1999), decreasing cheating in a college classroom (Spangenberg & Obermiller, 1996), improving attendance at a health club (Spangenberg, 1997), improving alumni fundraising at a university (Obermiller & Spangenberg, 2000; also see Obermiller, Spangenberg, & Atwood, 1992), and boosting recycling of aluminum cans (Sprott, Spangenberg, & Perkins, 1999). Although study of the self-prophecy phenomenon has been limited to a small group of researchers, robustness of the effect with regard to effect size (average $r \cong .2$) and the variety of contexts within which the effect has been found is compelling (Spangenberg & Greenwald, 1999, 2001).

A major theory-relevant generalization common to all successful demonstrations of the effect is that behaviors (subsequent to prediction requests) are biased in socially normative directions. For example, Sprott et al. (1999) found that asking people to predict whether they would recycle or not in their dormitories

increased their likelihood of doing so—a behavior for which a clear social norm exists (i.e., responsible consumers recycle). Although it has become clear that a normative component is common to the effect (Spangenberg & Greenwald, 1999), prior published research has yet to account for the importance of this generalization. As such, the question remains: How does the self-prophecy technique increase likelihood of performing a given socially normative behavior? The basic explanation is that people are reminded of what they should do when making predictions and then act in a way that is consistent with normative prescriptions (to a greater or lesser degree than they would have absent making a prediction). Given this explanation, it is essential that people have a shared perspective as to what is desirable or appropriate for self-prophecy to manifest.

The purpose of the present research is therefore to examine the importance of people's normative beliefs regarding target behaviors in the context of the self-prophecy effect. This objective is important for both theoretical and practical reasons. Although a variety of theoretical accounts have been postulated for the effect, empirical support for the most tenable explanation is only now emerging, and conditions under which the effect manifests are not fully understood (for a review, see Spangenberg & Greenwald, 1999). From a practical perspective, published evidence suggests that Sherman (1980) was correct in his speculation that self-prophecy “. . . should have intriguing implications for applied work in the areas of consumer behavior, psychotherapy, decision making, and education” (p. 219). Knowledge of the processes underlying the effect will certainly shed light on how, and to what extent, self-prophecy can be effectively used to encourage socially normative behaviors in these and other domains.

Explaining the Self-Prophecy Effect

In his seminal work regarding the effect, Sherman (1980) noted “that by having people consider beforehand what their behavior might be in a situation involving moral behavior, their actual behavior in that situation will be more socially desirable, acceptable, and moral than if they had not made initial predictions”

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(p. 220). Thus, the self-prophecy effect is contingent on biased self-predictions such that people make predictions that are systematically different from the behavior they would have undertaken in the absence of a prediction. In addition, the bias of the prediction is in a socially normative direction. For example, in Greenwald et al.'s (1987) second study, 100% of participants in the prediction condition stated that they would vote in an upcoming election; this proportion was significantly different from the proportion that actually voted in the control condition (64.3%). The fact that all study participants in the prediction condition indicated that they would vote suggests that they had a shared view of what is socially desirable or normative (i.e., good citizens vote).

An initially plausible explanation for this systematic tendency for people to overpredict the degree to which they will undertake socially desirable behaviors is impression management (see Greenwald et al., 1987; Sherman, 1980). That is, people bias their predictions because they anticipate a more positive response from others who will be aware of their prediction. Recent experimental work suggests, however, that impression management is an inadequate explanation for the self-prophecy effect. In several studies, Spangenberg and colleagues (Spangenberg, 1997; Spangenberg & Obermiller, 1996; Sprott et al., 1999) used designs providing complete anonymity for participants' predictions as well as for their subsequent behaviors, thereby rendering an impression management explanation for the effect untenable.

Furthermore, at least one study has found a self-prophecy effect in the absence of prediction bias in an anonymous prediction context. Fisher, Sprott, and Spangenberg (1999) reported that, for some groups, the proportion of participants in the experimental condition who predicted that they would undertake the target behavior was less than the proportion who actually performed the behavior in the control condition. This result suggests that the self-prophecy effect can occur even in situations for which the type of prediction is not biased in a socially desirable manner—it therefore appears that it is the act of making a prediction rather than the type (i.e., direction) of prediction that is important.

Existing research suggests that peoples' normative beliefs are likely to play an important role in self-prophecy. These beliefs relate to what is socially desirable or appropriate but do not necessarily depend on the anticipated reactions of others. The issue is not "What will others think of my prediction?" but rather "What should I do?" This distinction is an important one because in the former question, people are influenced by impression management concerns, whereas in the latter question they focus on what people believe to be correct or appropriate behavior. Normative beliefs are likely to be activated when a person is faced with a question about whether they will undertake a socially desirable behavior in a specific situation. Indeed, these beliefs should be a fundamental component of any prediction. Moreover, the likelihood that the focal behavior is undertaken should be enhanced to the extent that people access and use these beliefs when behavioral opportunity arises.

Consider how normative beliefs might affect behaviors regarding recycling. A prediction request for people who have strong normative beliefs about recycling should increase the salience of beliefs that support such behaviors. If a behavioral opportunity to recycle arises, people with strong beliefs are more likely to undertake the behavior because the prediction request has made their beliefs more salient and therefore more accessible. In turn, this

may evoke the norm used to guide behavior, leading people to imagine ways to pursue the behavior, such as making collection of recyclable materials easier, purchasing products that come in recyclable packaging, or contacting the local recycling service to arrange more convenient pickup of materials.

In contrast, a prediction request is less likely to produce the same behavior for those who have relatively weak beliefs about recycling. Even if people who believe that recycling is unimportant make a socially desirable prediction, by definition they have not made it because they believe that the behavior is appropriate. Rather, they have likely done so for a situational reason, such as the desire to create a favorable impression, or perhaps because of self-deceptive positivity (cf. Paulhus, 1984). Accordingly, when a behavioral opportunity arises, these people are unlikely to behave in a way that is consistent with their (biased) prediction because they do not see the necessity for the behavior. People with weak normative beliefs about recycling are unlikely to experience any negative feelings associated with a prediction that does not match their behavior.

Those with strong beliefs, on the other hand, who have not made a prediction are less likely to have their beliefs activated when a behavioral opportunity arises than those who have strong beliefs and who have been asked to make a prediction. As a consequence, these people are more likely to act on the basis of situational demands when a behavioral opportunity arises. Although they believe in the desirability of recycling, they may be unprepared to face the demands of peer pressure, inconvenience, storage constraints, and so forth. Finally, people with weak norms who do not make a prediction have no impetus to recycle—they do not have strong beliefs about the behavior and have not been asked to make a prediction.

In summary, the present research views normative beliefs as critical to the self-prophecy effect. We propose that the act of making a prediction increases the salience of normative beliefs governing socially desirable or appropriate behaviors. As a consequence, the self-prophecy effect should manifest only for people who have preexisting normative beliefs about the appropriateness of the target behavior. More importantly, the strength of held normative beliefs should influence the magnitude of the self-prophecy effect. We hypothesize that people with more strongly held normative beliefs are more likely to exhibit a self-prophecy effect than those with a weaker normative stance.

Experiment 1: Low-Fat Snacks

Experiment 1 constituted our initial test of the role of normative beliefs in manifestation of the self-prophecy effect. We used an everyday consumption behavior with a normative component, but a behavior for which there is not a universally held social norm. This test differs from all previously reported demonstrations of the effect, which have occurred in contexts for which the predicted behavior would be widely acknowledged as socially desirable, such as voting, avoiding the temptation to cheat, or recycling (Spangenberg & Greenwald, 1999, 2001). The goal was to examine the potential for the self-prophecy effect to occur in a context in which there is variability in social norms, that is, the population contains people with a wide range of normative beliefs about the behavior. Such a context provided the opportunity to demonstrate the importance of normative beliefs to self-prophecy.

The focal behavior for the experiment was the choice of a between-class snack by female undergraduate students. We selected this behavior and context because snack food choice is likely to be a familiar decision for these persons. Furthermore, there is likely to be significant variance across students' normative beliefs regarding the behavior. On the one hand, young adult women may be sensitive to their fat intake because the behavior is associated with fitness and physical attractiveness (Freedman, 1984; Kilbourne, 1999; Richins, 1991). On the other hand, many consumers have negative perceptions about the taste of low-fat products (see Masters, 1999; Wellman, 1998). As noted previously, we expected people with weak normative beliefs to be less likely to exhibit a self-prophecy effect as compared with those persons with stronger beliefs, who should be more likely to demonstrate an effect of making a prediction.

Method

Participants and design. Participants were 80 female undergraduate students at Washington State University who were part of a research pool of native English speakers from the United States and Canada (to minimize cultural differences). The experiment was administered in two controlled settings on the university campus. A two-factor, Self-Prophecy (prediction vs. control: manipulated) \times Normative Beliefs (weak vs. strong: blocked), design was implemented. The self-prophecy manipulation was similar to that used in prior research and included prediction and control conditions. Similar to prior research (e.g., Spangenberg & Obermiller, 1996; Sprott et al., 1999), participants in both conditions were asked to provide predictions for a series of three different situations. In the prediction condition, participants were asked predictions about changing a tire, the choice of airport transportation, and the selection of a low-fat snack (the self-prophecy prediction request):

You have a break between classes and are hungry. You decide that you will stop at the [student union] market and buy a snack before your next class. You are considering two products, one is the low fat version of the product, while the other is the regular version of the same product.

Do you predict that

- (a) You will buy the low fat version of the product?
- (b) You will buy the regular version of the product?

Response alternatives were counterbalanced to preclude order effects. In the control condition, the preceding self-prophecy prediction request was replaced by a scenario unrelated to low-fat consumption (i.e., the choice of two local newspapers).

Included as a blocking factor, normative beliefs (weak vs. strong) were based on a measure of participants' beliefs (detailed subsequently in the *Measures* section). We used blocking on normative beliefs, rather than attempting to manipulate norms, because of the difficulties associated with influencing people's normative beliefs—particularly for those people for whom beliefs may be strongly held.

Procedure and materials. Data were collected in two stages. To make the stages appear unrelated in participants' minds, different experimenters in separate locations conducted respective sessions, thereby minimizing the potential for demand effects. In the first stage, 2 weeks prior to the self-prophecy experimental manipulation, participants were asked to respond to a series of questions including measures of normative beliefs about low-fat food consumption. Participants were assigned to strong or weak normative belief conditions on the basis of their scores from this first session.

In the second stage of data collection, participants from the strong and weak normative belief groups were randomly assigned to one of the

self-prophecy conditions (i.e., prediction or control). A researcher entered the room and gave participants a four-page paper-and-pencil instrument containing their condition's respective prediction requests. Research participants then were provided with an unrelated 15-min filler task. On completion of this task, a different researcher entered the room and administered a survey including the choice measure. After viewing relevant product information, participants were asked to select either a low-fat or original (higher fat) version of "Bob & Dave's Snack'n Trail Mix." This choice was followed by unrelated questions and an open-ended hypothesis-guessing question; no one correctly identified the general or specific purpose of the research.

The snack item used was a fictitious brand of trail mix, called "Bob & Dave's Snack'n Trail Mix," available in original and low-fat versions. A fictitious brand was used to eliminate the potential for confounds related to prior brand experience. For example, some existing brands have been more or less successful at developing low-fat product formulations, and preexisting beliefs would therefore have the potential to affect choice beyond our manipulations. Research participants were presented with brand labels (as would appear on the front of a package available in the market) and standard commercial nutrition information for both versions of the product. The brand labels were of a professional quality and included a sunburst design with stylized lettering. Brand labels were identical for the two versions of the product except for the words "LOW FAT" and "ORIGINAL," and the nutrition labels differed between the two snacks regarding fat and carbohydrate content.

Research participants were not presented with actual samples of the product, in part, to reduce the complexity of experimental procedures. To provide confidence in this approach, we conducted a pretest ($N = 50$) to demonstrate that a reported measure of choice corresponded with actual product selection. In the pretest, research participants had the ability to select an actual product sample (after completing the paper-and-pencil measure used in this study). There was 100% correspondence between our dependent measure and the actual product sampled.

Measures. If participants' judgments about what they felt they ought to do influenced their choice of a low-fat snack, then this should be revealed as a significant effect of normative beliefs on the manifestation of the self-prophecy effect. Five normative belief items were used to measure the extent to which participants thought it was appropriate to consume low-fat products. The questions were based on previous research on normative beliefs and were worded projectively to reduce social desirability bias (see Fisher, 1993; Rook & Fisher, 1995). These items included the following: "Students I know restrict the fat they consume," "Students I know think it's important to buy low-fat snacks," "Most students are careful about the types of food they eat," "Students I know are concerned about too much fat in their diet," and "Students I know should limit their fat intake." Items were 9-point scales anchored with 1 (*strongly agree*) and 9 (*strongly disagree*). The sum of these items created an index of normative beliefs ($\alpha = .83$; $M = 30.6$, $SD = 6.27$), such that a higher number indicated stronger beliefs. The index was used as the basis for determining participant classification as high ($M = 35.72$; $n = 39$) or low ($M = 25.92$; $n = 41$) on normative beliefs, differing significantly between the two groups, $t(78) = 11.15$, $p < .01$.

The validity of the normative belief measure was assessed with confirmatory factor analysis (CFA). The CFA model included the five normative belief items with an acceptable fit, $\chi^2(5, N = 80) = 20.35$, $p < .01$, and parameter estimates significant at $p < .01$. The goodness-of-fit index was .90, with a comparative fit index of .88. Further indicants of the scale's favorable properties are the average variance extracted value of .47 and a composite reliability of .81 (Fornell & Larcker, 1981).

A potential concern was that the administration of the normative belief measures before the experiment may have sensitized research participants to their beliefs and created a demand effect. As a consequence, we compared normative beliefs at both the beginning and end of the study (i.e., after the prediction request and behavioral opportunity). We found no

significant difference between pre- and posttest beliefs, $t(78) = 0.61, p > .50$, for either the predict or control conditions. This finding suggests that a demand effect did not manifest and beliefs remained stable despite administration of the experiment.

The dependent variable was product choice. Measurement of this variable was modeled after the approach used in Sherman's (1980) seminal work. Specifically, after evaluating the experimental stimuli (i.e., brand labels and nutrition information), participants were asked the following: "Assume that you will purchase one of these two products as a snack between classes. Which product would you purchase? Bob & Dave's Original Snack'n Trail Mix or Bob & Dave's Low Fat Snack'n Trail Mix." Choice alternatives were counterbalanced to eliminate order effects.

Results

Self-prophecy and normative belief effects on choice. A chi-square difference test indicated that the act of making a prediction did not significantly affect the proportion of participants who chose the low-fat alternative when normative beliefs were not considered, $\chi^2(1, N = 80) = 2.77, p > .05$, effect size $r = .186$. However, when normative beliefs scores were used as a blocking factor, we found a significant self-prophecy effect for the strong normative belief group, $\chi^2(1, N = 39) = 4.44, p < .05$, effect size $r = .337$, but not for the weak normative belief group, $\chi^2(1, N = 41) = 0.07, p > .50$, effect size $r = .041$. These results and additional details related to the means are presented in Table 1 and depicted in Figure 1.

Process measures. Two process measures were included to understand more fully the effect and to eliminate alternative explanations. The first process measure (collected at the end of the second stage of the experiment) asked participants to indicate whether they recalled that they had made a prediction about snack food choice and, if so, to indicate whether the prediction was to select low fat or original. At issue is whether it was the prediction request or the specific type of prediction affecting behavioral

Table 1

Experiment 1 Descriptive Statistics: Self-Prophecy by Normative Beliefs About Low-Fat Consumption

Treatment	Normative beliefs about low-fat consumption		Total
	Weak	Strong	
Control			
%	66.7	60.0	63.6
<i>n</i>	16	12	28
Norms	26.75	35.90	30.94
<i>N</i>	24	20	44
Prediction			
%	70.6	89.5	80.5
<i>n</i>	12	17	29
Norms	24.82	35.53	30.44
<i>N</i>	17	19	36
Total			
%	68.3	74.3	71.1
<i>n</i>	28	29	57
Norms	25.95	35.72	30.70
<i>N</i>	41	39	80

Note. Cell entries indicate the percentage and number of participants selecting the low-fat snack, means on the normative beliefs scale (Norms), and sample sizes.

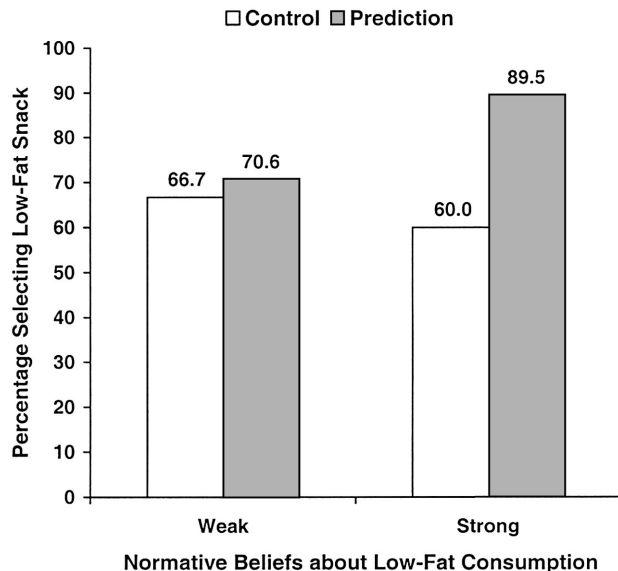


Figure 1. Interactive effects of self-prophecy and normative beliefs about consuming low-fat foods on the selection of a low-fat snack (Experiment 1).

choice. If the type of prediction is important, participants should remember whether they had made a prediction and, having done so, whether they predicted selection of low fat or regular. Results revealed that there was no difference between the proportion of participants in each of the prediction and control groups who remembered having made a snack food prediction, $\chi^2(1, N = 80) = 0.15, p > .60$. Indeed, 70% of participants recalled having made a prediction despite the fact that only 45% had actually been asked to do so—thus, a large percentage of participants incorrectly recalled having been asked to make a prediction when that was not the case. Furthermore, of those who made a prediction and correctly recalled having done so, 20% incorrectly recalled the type of prediction they had made. Assuming that responses to this recall measure were reliable and valid, these results indicate important process evidence about self-prophecy. In particular, the type of prediction does not appear to explain the self-prophecy effect given the inability of those in the prediction and control groups to recall accurately having made a snack food prediction and a significant percentage of those who made a prediction to recall incorrectly.

The second process measure (collected during the first stage of the study) was a scale designed to assess participants' tendency or desire to act consistently. The objective was to assess further the importance of the type of prediction on the manifestation of the self-prophecy effect. If prediction type was important, then we should find that the self-prophecy effect was increased by people's desires to remain consistent with their prediction. A consistency measure was developed using six Likert-type items (measured on 9-point scales), such as "I always do what I say I will do" and "I feel uncomfortable when I don't live up to a commitment that I have made" ($\alpha = .67; M = 45.43, SD = 5.49$). If the consistency explanation is tenable, participants who desire greater consistency should be more likely to follow through on their prediction. To test this explanation, we calculated a difference score where partici-

pants scored a zero if there was no difference between their prediction (i.e., regular or no fat) and behavior and a one if there was a difference. Using logistic regression, no significant relationship was found between the consistency measure and the difference score ($p > .60$). Thus, it appears that the self-prophecy effect is not significantly affected by people's desires to behave in a manner consistent with their stated predictions.

A further consistency issue is whether normative beliefs operate to affect the correspondence between prediction type and choice behavior. It is possible that people with stronger normative beliefs are making normatively appropriate predictions and then are simply following through with their predictions. This explanation requires that normative beliefs have a direct effect on the type of prediction (stronger beliefs should lead to a greater likelihood of low-fat predictions), and there should be a greater consistency between prediction and behavior for those with strong normative beliefs. However, we did not find a significant effect of normative beliefs on the type of prediction made, $\chi^2(1, N = 36) = 0.15, p > .60$, nor did we find a significant effect of normative beliefs on the consistency between prediction type and choice behavior, $\chi^2(1, N = 36) = 0.15, p > .60$. The evidence suggests that normative beliefs do not have a main effect on prediction type, or prediction-behavior consistency, but rather interacts with the prediction request to affect behavior.

Discussion

The results of Experiment 1 support the hypothesized role of normative beliefs in the self-prophecy effect. The self-prophecy effect did not manifest for the overall sample for which variation in normative beliefs existed. The effect held only for people in the strong normative belief group, that is, for those who believed that it was desirable or appropriate for students to be concerned about their fat intake. Although one must be careful in any instance of generalizing results beyond the conditions of the study, we feel confident that the intentions stated by participants in Experiment 1 are representative at least to some degree of what their actions would have been. Thus, it seems reasonable to assume that those with stronger normative beliefs would respond behaviorally in a manner similar to their stated choices. Confidence in this conclusion is provided by the pretest of Experiment 1 demonstrating a strong relationship between intentions and behavior. Additional support is offered by the fact that most self-prophecy research to date has demonstrated effects on actual behavior (see Spangenberg & Greenwald, 1999, 2001).

This experiment also provided important insights into how the self-prophecy effect occurs. The first insight is that the nature of a prediction (i.e., the direction) does not appear to be a necessary condition for the self-prophecy effect to hold, and normative beliefs do not appear to have a direct effect on either the prediction type or prediction-behavior consistency. Normative beliefs only affect choice through an interaction with the prediction request. We also saw in this experiment that a significant proportion of participants were unable to recall the direction of the prediction they had made or indeed to recall whether or not they had even made a prediction. A further insight is that the self-prophecy effect is not significantly affected by people's desires to behave in a manner consistent with their stated predictions.

Experiment 2: Health and Fitness Assessment

Experiment 2 was designed to replicate the findings of Experiment 1 in a different context but also where a wide variation of normative beliefs exists. This experiment examines the self-prophecy effect within the context of predictions about a health and fitness assessment, that is, an appraisal of a person's fitness in a series of tests that identifies health-risk factors. The measures of normative beliefs and desire for consistency used in Experiment 1 appeared face valid and were modeled after published scales. In Experiment 2, the reliability and validity of the normative beliefs measure is established in a pretest on an independent sample of the participant population, and desire for consistency is measured with a published scale. Following the general hypothesis of Experiment 1, we examine self-prophecy effects while blocking on participants' normative beliefs with the expectation that the effect will be greater in the presence of stronger (as compared with weaker) normative beliefs.

Pretest

Measures of normative beliefs about having a health and fitness assessment were modeled after previous research (e.g., Rook & Fisher, 1995) and administered to a sample of Washington State University undergraduate students ($N = 84$). Although the students in the pretest came from the same population as that of Experiment 2, there was no overlap between the samples. Participants in the pretest also responded to items measuring their involvement with health and fitness (e.g., "Health and fitness are important parts of my life") and exercise behaviors—these final measures were used to establish the convergent and discriminant validity of the normative belief measure.

A factor analysis (with principal-axis factoring and varimax rotation) was conducted on the measures of normative beliefs about, and involvement with, health and fitness. A three-factor solution emerged (based on eigenvalues > 1). Items identified as tapping normative beliefs loaded on a single factor, whereas the remaining items represented involvement. The five items measuring normative beliefs and four items measuring health and fitness involvement were then subjected to a CFA forcing two factors in the model specification. This analysis revealed that the two-factor model (including both the normative belief items and involvement items) had an acceptable fit, $\chi^2(34, N = 84) = 70.49, p < .01$. All parameter estimates were significant at $p < .01$; the goodness-of-fit index was .87, and the comparative fit index was .93. Other psychometric properties included an average variance extracted value of .58 and a composite reliability of .87 (Fornell & Larcker, 1981) for the normative belief measure; regarding health and fitness involvement, average variance extracted was .68 and composite reliability was .89. Thus, the CFA indicated that items measuring both the normative beliefs and involvement with health and fitness loaded as expected, thereby providing evidence of construct validity (Gerbing & Anderson, 1988).

Thus, our final measure of normative beliefs included five Likert-type items (measured on 9-point scales): "Students I know monitor their health and fitness," "Students I know think it's important to pay attention to their overall health," "Most students participate in activities that maintain health and fitness," "Students I know should perform behaviors to promote health and fitness,"

and “Students I know are concerned about health and fitness.” The resulting summated scale exhibited high internal reliability and relatively high variance across students ($\alpha = .87$; $M = 32.2$, $Mdn = 33.0$, $SD = 5.69$; minimum = 19, maximum = 45).

To examine further construct validity of the normative belief measure, we conducted two additional analyses. First, it was expected that people with higher levels of involvement in health and fitness would also have stronger normative beliefs about health and fitness activities. As hypothesized, the involvement and normative belief measures were positively associated ($r = .43$, $p < .01$). Second, we expected also that normative beliefs should be positively related to the self-reported level of exercise. Those participants who reported exercising more than 3 days per week had stronger normative beliefs about exercising ($M = 33.8$; $n = 38$) than those participants who reported exercising 3 or fewer days per week ($M = 31.0$; $n = 46$), $t(82) = 2.31$, $p = .02$. Thus, the measures used in Experiment 2 show acceptable levels of reliability as well as convergent and discriminant validity.

Method

Participants and design. Research participants included 137 undergraduate students from Washington State University. As in Experiment 1, participants were part of a research pool and were native English speakers from the United States and Canada. Experiment 2 was a two-factor, Self-Prophecy (prediction vs. control: manipulated) \times Normative Beliefs (weak vs. strong: blocked) design.

Following Experiment 1 and prior research, the self-prophecy manipulation was contained on a survey with three other unrelated predictions. In both conditions, participants were asked to make predictions about selecting a job, eating while in Europe, and reporting a shoplifter. In the prediction condition, participants also completed the following:

A health and fitness assessment is locally available to you. The assessment will evaluate your overall physical fitness and health and is offered free of charge to you as a member of the university that you attend.

Do you predict that:

- (a) You will not participate in the health and fitness assessment.
- (b) You will participate in the health and fitness assessment.

Response options were counterbalanced. In the control condition, the self-prophecy manipulation was replaced with a prediction regarding tipping in a restaurant.

Procedure and materials. Data were collected in single sessions conducted in an on-campus behavioral laboratory following similar procedures used in other published self-prophecy research (see Spangenberg & Greenwald, 1999). On entering the lab, research participants first completed the measure of normative beliefs concealed within several dozen questions unrelated to the purpose of this study. Participants were then randomly assigned to conditions (i.e., prediction or control) and completed a one-page survey containing the respective prediction requests. Once complete, all participants took part in an unrelated 20-min filler task. As people prepared to leave, the experimenter provided them with a memorandum from the university describing a health and fitness assessment available to members of the university community (an actual service being made available to students at the university); the dependent variable (see following description) was integrated within the memo.

Measures. Consistent with pretest results, the five normative belief items in the main experiment loaded on a single factor and demonstrated strong internal consistency, $\alpha = .83$. As such, the sum of the five normative belief items ($M = 31.2$, $SD = 6.57$) was used as the basis for assigning

research participants into high ($M = 36.7$; $n = 65$) and low ($M = 26.2$; $n = 72$) normative belief groups, $t(135) = 15.79$, $p < .01$.

The focal dependent variable in Experiment 2 was commitment to participate in an on-campus health and fitness assessment. The dependent variable was included at the bottom of a memo from the university's health program describing the nature of the health and fitness assessment. In particular, participants were asked, “Are you interested in participating in the health and fitness assessment?” (with counterbalanced response options “yes” or “no”). For those who were interested in a health assessment, two follow-up items requested contact and scheduling information (it is important to note that all three items must have been completed to be considered an affirmative response on the dependent measure). This dependent variable is consistent with Sherman (1980), wherein he used a person's willingness to volunteer to collect money for the American Cancer Society as the focal dependent variable.

Desire for consistency was measured using a scale developed by Cialdini, Trost, and Newsom (1995). The scale includes nine items such as, “I typically prefer to do things the same way.” The summated scale exhibited high internal reliability ($\alpha = .90$) and statistical characteristics ($M = 47.1$, $SD = 13.44$) similar to those reported by Cialdini et al. (1995). Therefore, a median split on this scale was used to assign research participants to groups based on high ($M = 57.7$; $n = 68$) and low ($M = 36.7$; $n = 69$) preference for consistency, $t(135) = 14.61$, $p < .01$.

Results

Self-prophecy and normative belief effects on choice. For Experiment 2, the self-prophecy prediction request influenced participants' commitment to the health and fitness assessment, such that those making a prediction had a higher commitment rate (38.2%) than those not making a prediction (20.3%), $\chi^2(1, N = 137) = 5.34$, $p = .02$, effect size $r = .197$. As with Experiment 1, normative beliefs influenced these results—the significant self-prophecy effect remained so for those persons with strong normative beliefs, $\chi^2(1, N = 65) = 5.60$, $p = .02$, effect size $r = .294$; it was nonsignificant, however, for those with weaker normative beliefs, $\chi^2(1, N = 72) = 0.91$, $p = .34$, effect size $r = .112$. These results and additional details related to the means are presented in Table 2 and depicted in Figure 2.

Process measures. As in Experiment 1, participants' desire for consistency had no influence on consistency between prediction and choice, $\chi^2(1, N = 137) = 0.24$, $p = .88$, effect size $r = .042$. Consistent with our findings in Experiment 1, it appears that self-prophecy is not merely an effect of people acting consistent with their predictions.

As with Experiment 1, we assessed whether normative beliefs had a direct effect on the direction of prediction and consistency between prediction and commitment. If the influence of normative beliefs on self-prophecy operates through the type of prediction, the stronger beliefs should lead to an increased likelihood of health-conscious predictions and greater consistency between prediction and commitment. As in Experiment 1, this explanation is not supported—normative beliefs were not a significant influence on the type of prediction, $\chi^2(1, N = 68) = 2.49$, $p = .12$, nor did normative beliefs affect consistency between prediction type and commitment, $\chi^2(1, N = 68) = 0.29$, $p = .59$.

Discussion

The results of Experiment 2 indicate that people's normative beliefs influenced the magnitude of the self-prophecy effect for

Table 2
Experiment 2 Descriptive Statistics: Self-Prophecy by Normative Beliefs About Health and Fitness

Treatment	Normative beliefs about health and fitness		Total
	Weak	Strong	
Control			
%	20.0	20.6	20.3
<i>n</i>	7	7	14
Norms	25.94	36.21	31.00
<i>N</i>	35	34	69
Prediction			
%	29.7	48.4	38.2
<i>n</i>	11	15	26
Norms	26.41	37.32	31.38
<i>N</i>	37	31	68
Total			
%	25.0	33.8	29.2
<i>n</i>	18	22	40
Norms	26.18	36.74	31.19
<i>N</i>	72	65	137

Note. Cell entries indicate the percentage and number of participants committing to the health assessment, means on the normative beliefs scale (Norms), and sample sizes.

their commitment to a health and fitness assessment. Experiment 2 was a convincing replication of Experiment 1 in a context distinct from that of Experiment 1. One important difference is that in Experiment 1, snacking choices are made on a very frequent basis and nearly all students would have already had direct experience with the choice they were asked to make in the experiment. In contrast, the behavior in Experiment 2 was not a behavior that many students are likely to have undertaken. Nevertheless, the results were remarkably similar between experiments.

General Discussion

The current research provides evidence that the self-prophecy effect appears to operate best when people possess strong beliefs about what is normatively right or wrong. Consequently, asking people to make predictions that are counter to these beliefs is unlikely to be effective. Indeed, because the self-prophecy effect appears to be driven by people's personal beliefs about what is appropriate, the most fundamental requirement for self-prophecy to manifest is a population (or subset thereof) that shares such beliefs. For example, a prediction request will not likely change the behaviors of heavy smokers, people who often litter, nonvoters, and those who do not engage regularly in exercise unless they become convinced that their current lifestyle with regard to these activities is inappropriate.

Overall, the results of our two experiments support the hypothesized role of normative beliefs regarding the self-prophecy effect. As predicted, people with stronger normative beliefs were more likely to exhibit a self-prophecy effect than those with weaker beliefs—apparently because the act of making a prediction increases the salience of one's normative beliefs, regardless of the type of prediction that is made. It does not appear that the type of prediction is important, given the inability of participants to remember whether they had made a prediction about the focal

behavior and the lack of desire for consistency to have an effect in either study. Although our results compellingly support our hypothesis, they should be considered in the larger context of alternative explanations for the effect.

Alternative Explanations

A variety of explanations have been offered in the literature for the self-prophecy effect, including script evocation (Sherman, 1980), impression management (Greenwald et al., 1987), attitude accessibility (e.g., Morwitz, Johnson, & Schmittlein, 1993), and commitment and consistency (Cialdini, 1993; Cialdini & Trost, 1998). The most compelling explanation for the effect emerging from published research, however, suggests that self-prophecy is likely a manifestation of Festinger's (1957) theory of cognitive dissonance (Spangenberg, 1997; Spangenberg & Greenwald, 1999). The results of the current research are relevant to several of the aforementioned theoretical perspectives.

Self-prophecy has been suggested to be a compliance technique based on the principle of commitment and consistency (Cialdini, 1993; Cialdini & Trost, 1998). From this perspective, self-prophecy effects would occur when people act consistently with the commitment (i.e., prediction) made earlier. According to Cialdini and Trost (1998), the initial prediction is biased such that the request puts "people in a situation in which refusing a specific request would be inconsistent with a value they wish to be known as possessing" (p. 179). The process measure evidence from the current experiments, however, suggests that self-prophecy is not merely a form of commitment and consistency.

Similarly, the current research counters the attitude-accessibility explanation recently offered for a conceivably related phenomenon called mere-measurement (Fitzsimons & Morwitz, 1996; Morwitz et al., 1993). Morwitz and colleagues (1993) argued that the effect of measuring intent on brand-level purchase behavior is the result of attitude accessibility created by product usage. They hold that

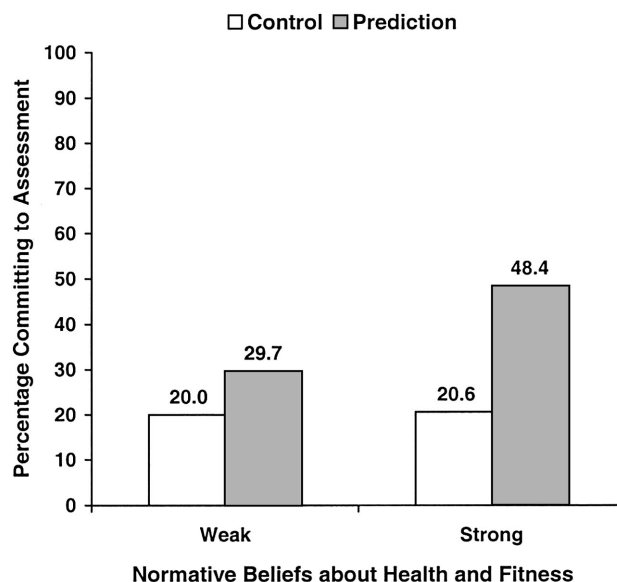


Figure 2. Interactive effects of self-prophecy and normative beliefs about health and fitness on commitment to a health assessment (Experiment 2).

the more familiar consumers are with a brand, the more accessible their brand attitudes and the greater the consistency between self-reported intentions and subsequent behaviors. Additional research by Fitzsimons and Morwitz (1996) found that measuring intent increased the market share of leading brands among new users and attributed this effect to “external cues such as advertising, prominence of product display, and product promotion” (p. 4). Our normative belief perspective, however, easily accommodates such results. Specifically, consumers are likely to have normative beliefs about large market share brands because they are, by definition, more prevalent within the social system. As the most accepted brands, novice consumers may view them as more socially acceptable or appropriate. New users are less likely to have expertise within a category and therefore are more likely to rely on descriptive information related to market share as informative about product quality and social acceptability. This frame of thought is also consistent with a dissonance explanation for self-prophecy in that postpurchase dissonance would be diminished for those buying market leaders as opposed to copycat brands because market-leading brands often serve as a proxy for expertise for naive consumers.

A dissonance-based account for self-prophecy accords nicely with the findings reported in this research. Festinger (1957) originally conceptualized that dissonance may arise from a variety of factors, including cultural mores and past experience. A dissonance explanation for self-prophecy holds that prediction request may cause psychological discomfort for people who become aware of a discrepancy between their normative beliefs (i.e., mores regarding performing the behavior) and their failure to have undertaken the behavior in the past. If these cognitions are discrepant (e.g., “I should recycle but I haven’t been very diligent about recycling”), dissonance is likely to result. Subsequent behavior consonant with the prediction can then alleviate experienced dissonance. Such a view of self-prophecy is akin to, and supported by, the relatively recent dissonance-related paradigm demonstrating an effect of induced hypocrisy by reminding people of their failure to act consistent with prescribed norms (Fried & Aronson, 1995; Stone, Aronson, Crain, Winslow, & Fried, 1994). Within the dissonance conceptual framework, behaviors for which there are clear social mores that nonetheless are not always strictly adhered to should be prime candidates for manifestation of the self-prophecy effect. The current results do not rule out a dissonance explanation for the effect—the greatest cognitive dissonance should occur for people who make a prediction regarding a respective behavior and have the strongest normative beliefs but have failed to undertake said behavior in the past. It is this group that seems most likely to change their behavior because of an intervention such as a prediction request.

Future Research

Clearly, future research on self-prophecy should explore further the theoretical underpinnings for the effect. As noted previously, the mere-measurement effect in consumer psychology is conceptualized from an attitude-accessibility perspective. An interesting experiment would therefore be one that tests both norms and attitudes in the mere-measurement and self-prophecy domains. At a minimum, research is needed to examine the simultaneous effects of attitudes toward the object and normative beliefs. Future

research should also test the hypothesis not addressed in the current article that cognitive dissonance is integral to manifestation of the self-prophecy effect.

Relatedly, further research is needed to develop an understanding of people’s psychological responses to prediction requests in the context of self-prophecy. As suggested by a reviewer of this article, predictions made by people with stronger normative beliefs related to the prediction itself) than those with weaker beliefs. Additional research collecting more direct measures evidencing the theoretical processes underlying self-prophecy may also prove valuable. For example, people completing a self-prediction (as compared with a control group) could be measured regarding the accessibility of attitudes associated with the target behavior (per Morwitz and colleagues, 1993) or the evoked cognitive discomfort potentially associated with the prediction (per Spangenberg and Greenwald, 1999).

Other potential moderators for the effect are also likely to exist. In the current research, it seems probable that the willingness to act on one’s normative beliefs about snacking or health-related behaviors depends on various contextual factors, such as time of day, hunger, and emotions. For example, if asked to make a choice just before bed, one may prefer a lighter version of a snack product. On the other hand, a higher fat version may be more welcome when really hungry or before participation in strenuous activity. Similarly, the time of year (e.g., just after New Year’s or before swimsuit season) is likely to influence the strength or salience of norms held by people regarding snacking and fitness issues. Emotions may also play a role in the consistency between prediction and behavior. For example, feeling very happy or depressed may lead one to celebrate or console oneself with a high-fat alternative or a trip to the gym, depending on what has historically satisfied a person.

An additional moderator to consider in future research is the nature of the normative beliefs within a given context. The focus theory of normative conduct (Cialdini, Reno, & Kallgren, 1990; Cialdini, Kallgren, & Reno, 1991; Reno, Cialdini, & Kallgren, 1993) proposes that norms will affect the performance of a behavior when norms are made salient. Cialdini and colleagues also demonstrated that it is important to consider the nature of the norms as well—that is, whether they are injunctive, descriptive (e.g., Cialdini et al., 1990), or personal (e.g., Cialdini et al., 1991; Schwartz, 1973). Additional research might test how the type of social norm (e.g., injunctive vs. personal) could moderate the self-prophecy effect. Integral to such an undertaking would be a charter to provide better understanding of how various norms relate to one another (as suggested by Cialdini et al., 1991) and how those norms ultimately relate to self-prophecy.

From an applied psychology perspective, there are a number of questions remaining regarding how to use self-prophecy for social change. As noted by most self-prophecy theorists since Sherman (1980), the self-prophecy effect has the potential for changing many socially significant behaviors—indeed it has been shown to affect voting, cheating, recycling, gender stereotyping, charitable donations, and exercising. Additional research is needed to determine the most effective methods and circumstances for implementation of the technique. Some important issues include the difficulty in assessing a campaign’s success other than by directly measuring behavior and the challenges associated with adminis-

tering prediction requests in an efficient manner to large target groups (e.g., mass communicated). The current research does, however, provide important direction for those desiring to use self-prophecy as a tool for social change.

In particular, researchers are advised to select only those behaviors for which strong social norms are present. In many instances, preliminary research may be necessary to determine what behaviors are self-prophecy prone for target populations. For example, although safe sex is normatively positive for most persons, recent work suggests that normative beliefs may not be an important predictor for the use of condoms among intravenous drug users (e.g., Corby, Schneider, & Wolitski, 1996). In such a situation, self-prophecy would be unlikely to increase condom usage, as target persons do not have strong normative beliefs about using these prophylactics. Thus, self-prophecy holds substantial promise for implementing social change but not to the extent that it can amend social norms—only act in concert with them.

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