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# When Communications Collide With Recipients' Actions: Effects of Post-Message Behavior on Intentions to Follow the Message Recommendation

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*Two experiments investigated the processes through which post-message behavior (e.g., noncompliance) influences resistance to the message. Participants in Experiment 1 read preventive, consumer-education messages that either opposed the consumption of an alcohol-like product or recommended moderation. Half of the participants then tried the product, whereas the remaining participants performed a filler task. In the absence of trial, the two messages had the same effect. However, recipients of the abstinence-promoting preventive message who tried the product had stronger intentions to use the product in the future than recipients of the moderation message. This finding suggests that assessments of message impact may be inadequate unless an opportunity for trial is also provided. Results are interpreted in terms of self-perception and cognitive dissonance and contrasted from psychological reactance.*

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**Keywords:** persuasion; attitude; past behavior; health prevention; alcohol

**F**or almost a century, social psychologists have been interested in designing communications that successfully induce behavioral change (see, e.g., Ajzen, 2001; Ajzen & Fishbein, 1980; Hovland, Janis, & Kelley, 1953; for a review, see Eagly & Chaiken, 1993). Researchers typically assume that intrinsic aspects of the message and events that precede or accompany the presentation of the message will influence recipients' attitudes and ultimately their intentions and actual decisions concerning the behavior the message advocates. However, past research has neglected possible interactions between relevant post-message behavior (e.g., noncompliance) and characteristics of the message on more enduring message effects (for an analysis of other post-message events, see Kelman & Hovland, 1953). Of particular relevance is the potential conflict between the recommendations of

the persuasive message and the behavior of recipients following exposure to the message.

We argue that the impact of a persuasive communication cannot be examined in a vacuum. Consider the situation in which teenagers receive a persuasive message encouraging them not to drink alcohol because of associated health or injury risks (e.g., Darkes & Goldman, 1993; Fenaughty & MacKinnon, 1993; Murry, Stam, & Lastovicka, 1993; see also Bauman, Laprelle, Brown, Koch, & Padgett, 1991). We know that the majority of teenagers are likely to experiment with alcohol even when they have previously received communications arguing against the behavior (Bettes, Dusenbury, Kerner, James-Ortiz, & Botvin, 1990; Kline, Canter, & Robin, 1987; Russac & Weaver, 1994; Strunin & Hingson, 1992). In this context, both cognitive dissonance (Festinger, 1957; Festinger & Carlsmith, 1959; Wicklund & Brehm, 1976) and self-perception (Bem, 1965, 1967) theories imply that the more forceful the original recommendation against a freely enacted behavior, the more attractive the behavior is likely to become. If a persuasive message strongly advocates abstinence, individuals are almost certain to experience inconsistent cognitions, such as "I've been told that there are negative consequences of this behavior" but "I chose to engage in this

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behavior.” We hypothesized that this conflict could produce stronger intentions to drink when the message recommends abstinence than when it recommends moderation. That is, recipients may develop stronger subsequent intentions to perform the behavior when they engaged in the behavior despite the abstinence recommendation than when they received a moderation message. In contrast, a moderation message assumes the possibility of the behavior and therefore is unlikely to induce conflict, thus decreasing the likelihood of the message backfiring.

#### *Factors That Influence Persuasive Impact*

Several factors can influence the impact of a persuasive communication. For instance, messages are more persuasive when they contain strong arguments than when they contain weak arguments (e.g., Petty & Cacioppo, 1986). Thus, persuasive communications that contain factual data in support of a claim are often more persuasive than communications that make vague claims about the desirability of the object being considered (Eagly & Chaiken, 1993). Moreover, an expert source of a communication is more persuasive than a source recipients do not believe (e.g., Kelman & Hovland, 1953), and attractive sources are more effective than unattractive ones (Chaiken, 1979). Thus, various message and source factors at the time people receive the communication have an influence on the ultimate impact of that communication (for reviews, see Eagly & Chaiken, 1993; Wood, 2000).

Although past research had examined various factors that increase the impact of persuasive communications, there has been little if any work on the influence of post-message behavior on the impact of an earlier persuasive message. Imagine that people perform a behavior that conflicts with an advocacy they received at an earlier time. In those situations, message recipients are likely to interpret their post-message behavior in the context of the message they received previously and to use that behavior to assess their inclinations as well as the quality of the message. The present research examined the influence of post-message behavior that is either in line or in conflict with an earlier communication that advocates abstinence from or moderation in a given behavior.

#### *Processes Mediating the Impact of Post-Message Actions*

Several theories have implications for the processes that are likely to mediate the resolution of conflict between the message recommendations and post-message behavior. Such conflict is likely to arise when people receive a communication that advocates behavior abstinence. However, conflict is less likely to arise when a communication advocates behavior moderation.

Post-message behavior induces resistance when it conflicts with the message advocacy. Cognitive dissonance theory (Festinger, 1957; Festinger & Carlsmith, 1959; Wicklund & Brehm, 1976; see also Beauvois & Joule, 1999) implies that people who become aware that they have voluntarily performed a behavior that contradicts the implications of a persuasive message may experience arousal and rationalize their behavior. Thus, the stronger the original recommendation against the behavior, the better the case (or the rationalization) a person must develop in support of the behavior to restore cognitive consistency.

Self-perception theory (Bem, 1965, 1967) postulates that when individuals are called on to report a preference, they may infer their attitudes or intentions from the implications of a behavior that happens to be salient to them at the time. In addition, when people choose to engage in a behavior the message discourages, they may subsequently infer that the message was unconvincing. Thus, recipients may resolve conflict between a message recommending abstinence from a behavior and subsequent violations by inferring that the message was weak or biased. In either case, the attributional reasoning hypothesis, similar to the cognitive dissonance hypothesis, suggests that messages that strongly oppose a behavior may increase resistance when recipients later engage in the behavior.

Although straightforward self-perception is likely to be common (see Albarracín & Wyer, 2000), people may engage in other types of attributions. For example, according to Bandura (1986, 1997), setting excessively high goals leads most people to fail. Moreover, people who feel that they have failed at meeting a behavior goal may infer that they lack personal efficacy over the behavior of concern. To this extent, a more extreme recommendation against the behavior may lead to failure and lower perceptions of control over the behavior. This decreased subjective control may in turn weaken compliance with the message recommendation. As with cognitive dissonance and self-perception, a lack of control inference suggests that an abstinence recommendation will increase resistance for recipients who later develop message-incongruent behaviors. Unlike the other possibilities, self-efficacy-based models suggest that people's perceptions of control should mediate this resistance.

In sum, people may engage in different types of processes to reconcile their behaviors with the message they received at an earlier time. For example, when they engage in behaviors that contradict an earlier communication, they may experience anxiety and attempt to reduce dissonance. In that situation, they may conclude that the behavior has more favorable attributes when they experience conflict than when they do not. They also may infer that they performed a behavior that con-

tradicts a prior persuasive message because they have a strong motivation to perform the behavior (self-perception). Alternatively, recipients who behave in ways that conflict with the recommendation of an earlier message may conclude that the message is weak or that they lack control to resist performing the behavior. Regardless of the underlying explanation, the cognitive dissonance and attributional hypotheses both predict a reverse, “backfire” effect of messages that contain abstinence recommendations.

*Message extremity itself provokes resistance.* Brehm (1966; see also Bensley & Wu, 1991) argued that people who are told not to engage in actions they would otherwise perform may develop weaker intentions to perform the recommendation in the future than people who do not receive such a “heavy-handed” message recommendation. People may attempt to regain their freedom or display their individuality by refusing to follow the external recommendation, a mechanism that may produce effects that are opposite to the communicator’s objectives. However, unlike the dissonance and attribution hypotheses, reactance theory does not imply that the reverse effect of the message should occur only when message recipients engage in inconsistent post-message behaviors. Instead, the reactance hypothesis suggests that the reverse effect of the abstinence message will occur independently of whether message recipients perform message-incongruent behaviors after receiving the message. To this extent, reactance suggests that the behavior of message recipients is unlikely to influence their resistance to the message they received at an earlier time.

*Summary.* Altogether, the past conceptualizations we reviewed make two predictions about the possible effects of a behavior that contradicts an earlier persuasive message that recommends behavior abstinence. On one hand, performing the conflicting behavior may increase resistance to the initial abstinence message due to dissonance reduction or attributional reasoning (i.e., self-perception, message derogation, and loss of control). These mechanisms are unlikely to be mutually exclusive and past attempts to distinguish one to the exclusion of others have often proved difficult (see Greenwald, 1975). However, self-perception is likely to predominate even when people are distracted and prevented from thinking carefully about their behavior (Albarracín & Wyer, 2000), whereas dissonance requires more elaborate thought processes as well as emotional involvement (Albarracín & Wyer, 2000; Cooper & Fazio, 1984). On the other hand, an abstinence message could trigger psychological reactance if people feel deprived of their personal freedom to engage in an attractive behavior. In contrast to dissonance reduction and attributional

reasoning, people who rebel against an abstinence message should experience the same negative reaction regardless of whether they engaged in post-message actions that contradict the message recommendation.

#### *The Present Research*

We conducted two experiments to examine the hypothesis of increased resistance to persuasion when message recommendations conflict with a post-message behavior. In Experiment 1, the experimenter informed participants that the study concerned an alcohol-substitute product. She explained that although the effects of simulated alcohol were similar to those of alcohol, the product was not legally alcohol and therefore was going to be available to people of all ages. Following this preamble, participants read several short ads and a longer, more elaborate message, all recommending either abstinence or moderation. After reading these prevention materials, half of the participants tried the ostensible product, whereas the other half performed a filler task. All participants reported their intentions to use the product in the future. If participants in trial conditions reduce cognitive dissonance and/or engage in attributions, they should develop more favorable intentions to use the product when they receive an abstinence appeal than when they receive a moderation message. However, based on both hypotheses, participants who do not try the product should not manifest a reverse effect. They may have similar intentions regardless of the message they received or may have stronger intentions to use the product when the message recommends moderation than when it recommends abstinence. In contrast, the psychological-reactance hypothesis suggests that people should have stronger intentions to use the product when the message recommends abstinence than when it recommends moderation. However, reactance is presumably due entirely to the characteristics of the persuasive message and should occur regardless of whether participants tried the product.

Experiment 2 examined whether the effects of a behavior that follows the reception of a persuasive message can occur solely as a result of attributional reasoning such as self-perception. Participants in this experiment acted as observers of the reactions of (target) participants in Experiment 1. Specifically, they received a description of the conditions in Experiment 1 and, in some conditions, about the drinking behavior of participants in Experiment 1. All participants then estimated the target’s intentions to drink simulated alcohol at a later time. Consistent with Bem (1965), people who reach a given conclusion on the basis of their overt behavior (self-perception) should be able to reach the same conclusion given similar information about the behavior of another person. Thus, an interpersonal sim-

ulation of the conditions in Experiment 1 should yield the same results as in Experiment 1.

## EXPERIMENT 1

### *Method*

#### *OVERVIEW*

In this research, a female experimenter wearing a laboratory coat informed participants that we were conducting research on an alcohol-substitute product to be marketed to people of all ages. Participants in the study first read informational materials about the product. The informational materials recommended that participants either abstain from the product or use it in moderation.

After participants read the preventive, consumer education materials, they either performed a filler task (message-only conditions) or tried the product (trial conditions). The filler task involved a series of unrelated questionnaires. At the end, participants in all conditions completed measures of their evaluations of the product and their intentions to use the product in the future.

We told participants in trial conditions that they would report their reactions to the product and to the written materials at the end of the study. They were then served a measure of a mix of tonic water and fruit juice.

Immediately after that, the experimenter administered measures of cognitive impairment, ostensibly to determine the effects of the beverage on potential consumers. In addition, a confederate obtained an unobtrusive measure of consumption of simulated alcohol. For that purpose, once each participant completed the measures of cognitive performance, the experimenter left the room and the confederate tried to induce the participant to drink more. The confederate was thus able to record the number of drinks each participant had in response to the binge induction. At the end of the first session, participants completed measures of their evaluations of the message and their intentions to use the product in the future.

Participants in trial conditions came back to a follow-up session. The follow-up session took place 2 weeks after the first session. At this time, we told participants that they would see ads used to promote sales of simulated alcohol and then answer questions about these ads. The ads advocated consumption of simulated alcohol and thus could counter the influence of the initial, preventive persuasive messages. Therefore, the follow-up session allowed us to examine the extent to which the two different prevention appeals presented at Time 1 conferred resistance to counterpropaganda at a later time.<sup>1</sup>

#### *PARTICIPANTS AND DESIGN*

Participants were 99 male students who received credit for an introductory marketing class in exchange for participation in the study. They were randomly assigned to one of the four conditions of a 2 (message: abstinence vs. moderation)  $\times$  2 (trial: trial vs. message only) factorial design. Between 19 and 30 participants were randomly assigned to each cell.

#### *PROCEDURES*

Participants were recruited for a consumer behavior study and were instructed to sign up if they were willing to try a new, simulated alcohol product. The experimenter was blind to the study hypotheses and unaware of the type of message each participant received. She provided written information that the study concerned a new alcohol-type product under development at the time. The written materials specifically explained that the product was a potential substitute for alcoholic beverages that could be marketed to people of all ages following approval by the Food and Drug Administration (FDA). These materials further indicated that we were conducting research on the potential psychological effects of the product and on the effectiveness of the warning materials that would accompany the product once marketed. After introducing participants to the study, we randomly assigned them to (a) reading the consumer-education messages or to (b) to reading the messages and also trying the simulated-alcohol product. Participants in message-only conditions were run with other participants. Participants in trial conditions were run with a confederate who posed as another research participant. The confederate was blind to the study hypotheses and unaware of the type of message each participant received. To equalize processing ability across conditions, neither participants nor the confederate were allowed to talk or move during the presentation of these materials.

*Presentation of initial messages.* The experimenter informed participants that they would see materials from a consumer education program designed to inform people about products containing the alcohol substitute. She explained that parts of the program were more informational in content and tone, whereas other parts more closely resembled advertising messages. All participants then received one of two versions (i.e., abstinence vs. moderation) of a booklet that contained four persuasive messages. The first message was a 771-word informational passage that described the risks of either using or abusing the product and then recommended either abstinence from or moderation in product consumption. Three short messages modeled after public service announcements (PSAs) followed. These short messages were humorous and also recommended either

**TABLE 1: Correlations Among Dependent Measures**

Variable	1	2	3a	3b	4a	4b	4c	4d	5a	5b	6	7a	7b	7c
1. Behavior <sup>a</sup>	1.00													
2. Intention <sup>b</sup>	.37**	1.00												
3. Message relevance and strength <sup>b</sup>														
a. Message strength	.24	.24**	1.00											
b. Message relevance	.10	.40***	.37***	1.00										
4. Evaluations of the product <sup>a</sup>														
a. Product high	.21	.54***	.28*	.16	1.00									
b. Alcohol-like taste	-.09	.07	.16	-.11	.32*	1.00								
c. Allowed them to think clearly	.08	.06	-.04	-.04	-.13	-.17	1.00							
d. Liked product	.33**	.57***	.35**	.23	.41**	.04	.02	1.00						
5. Perceived lack of control														
a. Number of drinks <sup>b</sup>	-.14	.09	.06	.09	.22	.29*	-.11	-.10	1.00					
b. Little control <sup>a</sup>	.37**	.64***	.16	.15	.50***	.03	-.02	.53***	-.06	1.00				
6. Perceived normative pressure <sup>a</sup>	-.14	-.23	.09	-.09	.06	.47***	-.16	-.32**	.35**	-.23	1.00			
7. Past drinking habits <sup>b</sup>														
a. Number of events with alcohol	.24	.22*	.01	-.15	.18	.04	-.07	-.02	-.05	.23*	-.14	1.00		
b. Total number of drinks	.31*	.35**	.13	.05	.32*	.08	-.09	.11	-.18	.42***	-.40***	.52***	1.00	
c. Maximum number of drinks	.28*	.29**	.052	-.08	.15	-.05	.01	.13	-.19	.45***	-.42***	.59***	.77*	1.00

a. These measures were completed by participants in trial conditions of Experiment 1 ( $N = 57$ ).

b. These measures were completed by all participants in Experiment 1 ( $N = 99$ ).

abstinence from or moderation in the use of simulated alcohol. For example, one of the abstinence messages presented a picture of a dog and read, "When your dog is looking sexy . . . you know you've had too much to drink. There is a new product coming your way. Even though it is not legally alcohol, it has the same effects. No one needs to drink. Say no!" The moderation version was identical except that the recommendation was "Play it smart. Set Limits!"

After the presentation of the consumer education messages, the experimenter introduced participants in trial conditions to the trial procedures and the ostensible cognitive impairment measures in the study. Participants in message-only conditions were given an unrelated questionnaire that was designed to last the same amount of time as the trial. This filler task ensured that the time between message presentation and completion of the dependent measures was about the same across the two conditions.

*Trial of simulated alcohol.* After the message presentation, participants in trial conditions received a measure of the ostensible simulated alcohol, which was a mixture of fruit juice and tonic. This mix was selected to have a taste that was consistent with the cover story and that participants could distinguish from both alcoholic and nonalcoholic beverages. (One participant refused to

drink and was dismissed without penalty.) The experimenter waited until the participant and the confederate drank the ostensible simulated alcohol and then administered some brief psychological tests that ostensibly measured cognitive impairment. The battery included abbreviated versions of the Wechsler (1955) Adult Intelligence Test (WAIS) digit span and vocabulary tests.

#### DEPENDENT MEASURES

We first obtained an unobtrusive measure of participants' consumption of simulated alcohol. Participants then completed measures of intentions to drink as well as measures of various features of the messages and the product. Correlations among the dependent measures appear in Table 1.

*Behavior.* Immediately after participants tried the ostensible simulated alcohol, we obtained an overt measure of participants' behavior. Specifically, once the psychological testing was complete, the experimenter indicated that it was necessary to wait 20 min to make sure that the participants had no adverse reaction or allergies to the product. She indicated that during that time she would be working in an adjacent office. Furthermore, she explained that the door would lock itself from the inside and announced that she would knock on her return. When the experimenter left, the confederate said,

Well, it's pretty clear I'm not allergic to this stuff! It tasted a little bit like a very smooth vodka. What do you think? I've always been able to hold my liquor pretty well, so I'm sure one drink isn't going to have much of an effect on me. What about you? Hey, since she is away, this means we can have a bit more of this stuff—maybe get a nice buzz! I'm going to help myself to a few more drinks before she comes back. Look at these containers, she will never know we drank some more.

The confederate then poured six 1-oz drinks, offered three to the participant, and drank the other three. If the participant wanted to drink some more, the confederate did not stop him. The confederate mentally recorded how many drinks the participant had, a number that we used as a measure of behavior. (We log-transformed the measure of drinking behavior to reduce the skewness of the distribution, as is standard for frequency measures.)

*Drinking intentions.* At the end of the first session, participants reported their intentions to (a) "use simulated alcohol when it hits the market" and to (b) "use the product regularly at that time." They provided their responses on a scale from 1 (*disagree*) to 7 (*agree*). We averaged the two scales to form a global index of intentions ( $r = .76$ ).

*Message strength and relevance.* All participants reported whether (a) their evaluation of the messages was positive. In addition, they indicated how (b) convincing, (b) effective, and (c) well designed the messages were on a scale from 1 (*disagree*) to 7 (*agree*). We averaged responses to these items as an index of argument strength ( $\alpha = .79$ ). In addition, participants reported whether the messages (a) attracted their interest and (b) were relevant to them personally on a scale from 1 (*disagree*) to 7 (*agree*). We averaged the responses to these two items to form an index of message relevance ( $r = .60$ ).

*Evaluations of the product.* Participants in trial conditions indicated whether the product (a) gave them a high, (b) tasted similar to alcohol, and (c) allowed them to think clearly. They also reported the extent to which (d) they enjoyed trying the product. In all cases, participants reported their answers on a scale from 1 (*disagree*) to 7 (*agree*).

*Perceived lack of control.* All participants judged (a) the number of drinks they might have if they lost control over consumption of simulated alcohol. (We log-transformed this measure of control to decrease the skewness of its distribution.) In addition, participants in trial conditions reported whether (b) they had little control over drinking during the experiment on a scale from 1 (*disagree*) to 7 (*agree*).

*Perceived normative pressure.* To measure perceptions of social pressure, we asked participants to report (a)

whether they felt pressure to drink because another person was drinking. Participants also indicated (b) their agreement with the statement, "If somebody else weren't drinking, I wouldn't have drunk either." They provided responses to these two questions on a scale from 1 (*disagree*) to 7 (*agree*). We averaged the two measures as an indication of perceived normative pressure ( $r = .45$ ,  $p < .01$ ).

*Drinking habits.* Participants were asked to consider the last 4 weeks and to report (a) the overall number of social events they attended in which alcohol was served. In addition, participants reported (b) the overall and (c) maximum number of alcoholic drinks they had at any given time during the last 4 weeks.

#### EXPOSURE TO COUNTERPROPAGANDA AND FOLLOW-UP MEASURES

Participants in trial conditions returned to the lab 2 weeks after the first session. At that point, we indicated that the purpose of the second session was to evaluate ads that the industry designed to promote simulated alcohol. Participants received a series of print ads, which were simple modifications of real alcohol advertising. For example, one of the messages read,

Unlike your girlfriend, they never ask where this relationship is going. Mix it with your favorite juice, soft drink or tonic . . . or just on the rocks . . . New Smooth Sailing. So much like vodka, but better, smooth sailing is made from 100% grain . . .

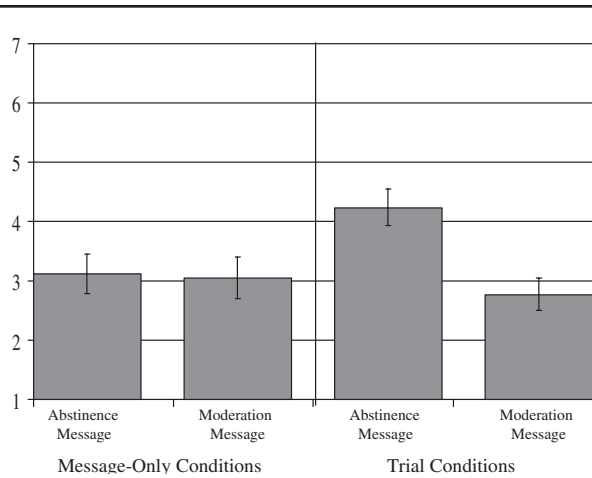
After reading the persuasive messages, all participants reported their intentions to use the product using the same measures as the first session.

#### Results and Discussion

We first analyzed post-trial consumption of the product during the study, intentions to use the product when it became available, and perceptions of the message and product, as a function of type of message and trial. We next conducted some supplementary analyses to clarify the interpretation of certain findings from the experiment.

#### EFFECTS OF THE PERSUASIVE MESSAGE AND TRIAL ON BEHAVIOR AND INTENTIONS

Of the 59 participants who read a persuasive message and then tried the product during the study, 35 participants refused to consume additional drinks in response to the confederate, 24 had at least one drink, 19 (of the 24) had the three drinks the confederate offered, and 2 (of the 24) had more than three drinks. We analyzed the log-transformed number of drinks as a function of the type of message participants received. For the sake of clarity, we display raw number of drink as well as log-



**Figure 1** Effect of message recommendation and post-message behavior on intentions to use the product in the future (resistance): Experiment 1.

transformed means. Overall, participants who previously tried the product showed a slight tendency to drink more of the beverage when they received the abstinance message than when they received the moderation message ( $M = 1.44$  vs.  $1.10$ ;  $\log M = 0.29$ ,  $\log SD = 0.32$  vs.  $\log M = 0.23$ ,  $\log SD = 0.29$ );  $F(1, 57) = 0.11$ , *ns*. However, half of the participants refused to drink in response to the confederate's suggestion, which resulted in a skewed distribution. Focusing on participants who had at least one drink in response to the confederate's induction, recipients of the abstinance message had a greater number of drinks than recipients of the moderation message ( $M = 3.35$  vs.  $2.42$ ;  $\log M = 0.63$ ,  $\log SD = 0.15$  vs.  $\log M = 0.52$ ,  $\log SD = 0.12$ ),  $F(1, 20) = 5.48$ ,  $p < .01$ . Thus, the different types of recommendations had behavioral consequences even in a rather constrained laboratory setting.

We also analyzed intentions to use the product as a function of (a) type of message received (abstinance vs. moderation) and (b) trial versus message-only conditions by means of an analysis of variance and pair-wise contrasts. The results from these analyses appear in Figure 1 and were consistent with our predictions; that is, among participants who tried the product, those exposed to the abstinance message had stronger intentions to use it than those exposed to the moderation message,  $F(1, 89) = 12.89$ ,  $p < .001$ . In contrast, the intentions of participants who read the messages but did not try the product were not contingent on the type of persuasive message they read,  $F(1, 89) = 0.02$ , *ns*. (These participants were apparently equally persuaded by both types of appeals.) This pattern was confirmed by a significant interaction between type of message and trial,  $F(1, 89) = 4.94$ ,  $p < .05$ .<sup>2</sup>

We next tested whether perceptions of the product differed as a function of the persuasive message partici-

pants received. These analyses showed that participants who tried the product were more likely to report that the product induced a "high" when they received the abstinance message than when they received the moderation message ( $M = 3.57$ ,  $SD = 1.50$  vs.  $M = 2.40$ ,  $SD = 1.50$ ),  $F(1, 56) = 7.53$ ,  $p < .01$ . Other perceptions of the product, however, did not vary as a function of the persuasive message participants received. Specifically, recipients of abstinance and moderation messages reported similar perceptions of alcohol-like taste ( $M = 2.81$ ,  $SD = 1.72$  vs.  $M = 2.87$ ,  $SD = 1.68$ ), ability to think clearly at the time of the trial ( $M = 5.86$ ,  $SD = 1.24$  vs.  $M = 5.93$ ,  $SD = 1.28$ ), and enjoyment of the trial ( $M = 5.24$ ,  $SD = 1.18$  vs.  $M = 4.60$ ,  $SD = 1.71$ );  $F(1, 56) < 2.18$ , *ns*, in all cases.

To examine whether the initial preventive messages conferred differential resistance to counterpropaganda, we analyzed the intentions of trial participants at Time 2 as a function of the type of the message they received at Time 1. As shown by these analyses, these participants reported stronger intentions to drink when they initially received the abstinance message than when they received the moderation message ( $M = 3.05$ ,  $SD = 1.36$  vs.  $M = 2.05$ ,  $SD = 1.31$ ),  $F(1, 40) = 5.61$ ,  $p < .05$ . Thus, the moderation messages also promoted greater resistance to counterpropaganda than the abstinance appeal.

#### SUMMARY OF RESULTS

According to the psychological-reactance hypothesis, all participants should react against an abstinance message regardless of whether their future behavior contradicts that message. However, as shown in Figure 1, the data from this experiment did not support this possibility. Instead, the data from this experiment were consistent with the cognitive-dissonance and attributional hypotheses. These hypotheses both imply that recipients who act in ways that conflict with an earlier message are likely to resist that message to a greater extent than recipients who experience no post-message conflict. Supplementary analyses as well as Experiment 2 examined attributional reasoning more closely.

#### SUPPLEMENTARY ANALYSES

Recipients who behave in ways that contradict an earlier persuasive message may infer (not only that they like that behavior but also) that the message was weak. In this study, it was also important to ensure that the messages that recommended abstinance from the product were not subjectively weaker or less persuasive than the moderation messages, particularly for participants who tried the beverage. Analyses indicated that participants deemed messages equally strong regardless of whether these messages advocated abstinance or moderation ( $M = 4.13$ ,  $SD = 1.10$  vs.  $M = 4.05$ ,  $SD = 0.92$ ),  $F(1, 93) = 0.41$ , *ns*. In addition, perceived strength was not contingent on the combined influence of message type and trial,

$F(1, 93) = 0.23$ , *ns*. Furthermore, participants deemed messages equally relevant regardless of the type of appeal they received ( $M = 4.28$ ,  $SD = 1.28$  vs.  $M = 3.93$ ,  $SD = 1.47$  for abstinence and moderation messages, respectively),  $F(1, 93) = 1.68$ , *ns*. The combined effect of type of message and trial on message relevance was not significant either,  $F(1, 56) = 0.01$ , *ns*. We next assessed whether the type of message participants received influenced their perceptions of lack of control over their behavior. Participants thought that, were they to lose control, they would consume a similar number of drinks regardless of whether they received an abstinence or a moderation message ( $M = 0.47$ ,  $SD = 0.36$  vs.  $M = 0.48$ ,  $SD = 0.34$ ),  $F(1, 96) = 0$ , *ns*. Specifically, participants who tried the product imagined that they would have a similar number of drinks in those situations across the moderation or the abstinence conditions ( $M = 0.52$ ,  $SD = 0.38$  vs.  $M = 0.50$ ,  $SD = 0.35$ ). Likewise, participants in message-only conditions had similar expectations regardless of the message they received ( $M = 0.41$ ,  $SD = 0.34$  vs.  $M = 0.43$ ,  $SD = 0.34$  for abstinence and moderation messages, respectively); for the interaction between message type and trial,  $F(1, 96) = 0.09$ , *ns*. The other measure of control yielded similar results; that is, participants in trial conditions reported similar lack of control regardless of the type of message they received ( $M = 2.03$ ,  $SD = 1.57$  vs.  $M = 1.97$ ,  $SD = 1.50$  for abstinence and moderation messages, respectively),  $F(1, 56) = 0.03$ , *ns*. Although the failure to reject the null is rarely conclusive, our results suggest that participants inferred their intentions on the basis of their behavior without making additional inferences about the controllability of their behavior.

Because our manipulation of product trial included a confederate who also was trying the product, we examined the possibility that seeing a peer drink following an abstinence recommendation might induce a more favorable norm concerning drinking than seeing a peer drink after a moderation message. Specifically, we analyzed participants' perceived social pressure to drink as a function of type of message. Findings indicated that recipients of the moderation message reported similar social pressure to drink as did recipients of the abstinence message ( $M = 2.29$ ,  $SD = 1.57$  vs.  $M = 2.43$ ,  $SD = 1.40$ ),  $F(1, 56) = 0.13$ , *ns*. Although absence of statistical differences is never conclusive, the present finding suggests that the differential effectiveness of the two messages was not due to the fact that recipients of the moderation message perceived lower normative pressure to drink than recipients of the abstinence message. If anything, the direction of the effect would suggest that recipients of moderation messages perceived greater normative pressure to drink than did recipients of the abstinence appeal.

## EXPERIMENT 2

Experiment 1 suggested, as hypothesized, that the effectiveness of a persuasive communication can be contingent on events (i.e., the behavior and its interpretation) that occur after the reception of the communication. Specifically, recipients of a persuasive message advocating abstinence from a given behavior who later engage in that behavior are more likely to ignore the message recommendation than are recipients of a moderation message. However, both messages are equally effective when recipients do not engage in the behavior the communication discourages.

Both cognitive dissonance and self-perception theories imply that people may evaluate a behavior more favorably when they previously received a forceful recommendation not to engage in it. For example, recipients may reason that if they performed the behavior despite receiving a strong recommendation to abstain from it, they must have a strong attraction to the behavior. Accordingly, forceful abstinence presentations to people who will nevertheless perform the behavior may "backfire," inducing greater resistance than more moderate appeals. In contrast, when recipients of a message advocating moderate use of the product try the product, their behavior is not necessarily in conflict with the recommendation of the persuasive message. Consequently, these recipients should be less inclined to adjust their behavioral intentions to justify message-inconsistent behavior.

We conducted Experiment 2 to obtain further evidence that inferential reasoning alone can produce the message-behavior interactions observed in Experiment 1. Bem (1965) suggested that people can act as observers of their own as well as others' actions and make inferences based on those behaviors. In that event, observers of the participants in Experiment 1 should estimate intentions in a similar fashion to those reported by the actors in each message condition. To test this hypothesis, participants in Experiment 2 received a narrative account of the events in Experiment 1. All participants were told that in an earlier study students received an abstinence or a moderation message. We told some of the participants in Experiment 2 that the earlier students tried the product after receiving the message. Participants in Experiment 2 then estimated the intentions of the (target) students in the earlier study.

### Method

#### PARTICIPANTS AND DESIGN

Participants in Experiment 2 were 52 male undergraduate students who received class credit in exchange for their participation. They were randomly assigned to one of four conditions. Half of the participants were told

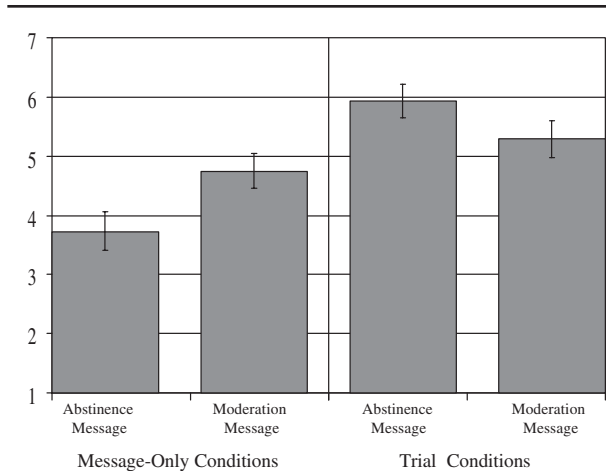
that participants in an earlier study received a message advocating abstinence from a simulated-alcohol product. The other half believed that participants in the earlier study received a message advocating moderation in the use of the product. In addition, half of the participants were told that participants in the earlier experiment tried the product, whereas the other half did not receive this information. So, as in Experiment 1, the design was a 2 (message: abstinence vs. moderation)  $\times$  2 (trial: trial vs. message only) factorial. We assigned between 11 and 15 participants to each of the four cells of this design.

#### PROCEDURES AND DEPENDENT MEASURES

Participants came to the lab in groups of 4 to 8. We told them that we were conducting research on the effects of a simulated-alcohol product and its potential introduction to the market. We explained that we were pretesting warning materials about the product and measuring the effects of product consumption on cognitive impairment. We further indicated that to detect the effects of the product, it was necessary to understand the perceptions of the participants in the research we conducted during the previous semester. We instructed participants to read about the events in an earlier study and to offer their opinions about the possible perceptions of the earlier participants. All efforts were made to represent the exact conditions in the earlier experiment. As in Experiment 1, participants could not interact during the presentation of the study materials.

Along with brief introductory materials, participants in Experiment 2 read all the information used for the condition to which they were assigned, including the informed consent form and the consumer-education persuasive messages. The presentation of all materials had the objective of ensuring that participants in Experiment 2 had the same information as participants in Experiment 1.

After the introduction to the study, participants read a narrative that described an experimental session in which the two participants read information that advocated either abstinence or moderation. They received a copy of all instructions and materials used by the participants in the earlier experiment, including either the moderation or the abstinence messages from Experiment 1. In trial conditions, we further explained that after reading these consumer education materials, participants in the earlier study tried a measured amount of the product and completed a postexperimental questionnaire on their opinions about the warning materials and the product. Participants in message-only conditions were told that participants in the earlier experiment read either the abstinence or the moderation mes-



**Figure 2** Effect of message recommendation and post-message behavior on estimated intentions to use the product in the future (estimated resistance): Experiment 2.

sage. However, these participants received no information about trial of the product.

After reading the introductory information and the persuasive messages used in Experiment 1, all participants were asked to assess the intentions of participants in Experiment 1 regarding the use of “simulated alcohol when it hits the market” and regular “use of the product at that time.” They provided their responses on a scale from 1 (*disagree*) to 7 (*agree*). We averaged these responses to form a global index of estimated intentions to use simulated alcohol.

#### Results and Discussion

The results of Experiment 2 are summarized in Figure 2 and were largely consistent with the patterns from Experiment 1. As can be seen from the figure, participants estimated that recipients of the abstinence message who tried the product had stronger intentions to use the product than recipients of the moderation message who tried the product,  $F(1, 48) = 4.66, p < .05$ . In contrast, participants estimated that earlier participants who read the messages but did not try the product had stronger drinking intentions when they received the moderation rather than the abstinence message,  $F(1, 48) = 5.55, p < .03$ . As in Experiment 1, the interaction between type of message and trial was statistically significant,  $F(1, 51) = 7.65, p < .008$ . The overall consistency of these results with those from Experiment 1 was confirmed by a nonsignificant interaction between type of message, trial, and experiment (1 vs. 2),  $F(1, 144) = 0.07, ns$ .<sup>3</sup> Furthermore, the similarity of the results over the two experiments strengthens the conclusion that post-message behavior influences intentions to resist the position advocated in the message.

## GENERAL DISCUSSION

Several decades of persuasion research have paid scarce attention to the impact of post-message behavior and its interaction with characteristics of a message presented earlier. However, our research has shown that this interaction may be as critical for the effectiveness of a persuasive message as heavily researched message design and communication variables. Over two experiments, participants' reactions to a communication were contingent not simply on the extremity or forcefulness of the message recommendation but on how recipients reconcile their behavior with the earlier message. For example, recipients were more likely to develop subsequent intentions to resist a prior communication when they acted in ways that conflicted with the message recommendation. Moreover, consistent with the self-perception hypothesis, observers predicted that people who act in ways that conflict with an earlier communication would resist the message more than people who act in ways that are congruent with the communication.

*Conceptual Implications*

The work we described indicated that presenting a message that collides with recipients' future actions increases resistance relative to less discordant persuasive strategies. Cognitive dissonance and self-perception theories can both support this prediction and it is not possible to decide which one produces the effect. One could argue, however, that if the conflict between the behavior and the message elicited arousal, participants may have attributed the arousal to the simulated alcohol they consumed or to the social pressure they experienced, reducing dissonance in that manner (Zanna & Cooper, 1974). More generally, although such motivational processes may play a role in determining the influence of post-message behavior on intentions to perform the behavior the message attempts to prevent, direct attributional reasoning is likely to be the primary causal factor. This is even more likely whenever pre-existing attitudes are uncertain (Bem, 1965) or when one's behavior produces no immediate aversive consequences (Cooper & Fazio, 1984).

The potentially critical nature of the interaction between message advocacy and subsequent behavior examined in this research suggests that persuasion researchers would be wise to anticipate recipients' behaviors when they design messages and investigate communication effects. Without this change in perspective, prior assumptions about the nature of communication effectiveness may be simplistic or even fatally flawed.<sup>4</sup>

*Applied Implications*

People often see the world through the prism of their own behavior. Indeed, much of the research in social psychology over the last half century has confirmed this fact and provided interpretations for it (see, e.g., Albarracín, 2002; Albarracín & Wyer, 2000; Bem, 1965; Cooper & Fazio, 1984; Festinger, 1957; Harmon-Jones & Mills, 1999; Jones & Davis, 1965; Kelley, 1967; Schwarz & Clore, 1996; Weiner, 1985). Despite attention to behavior in social psychology in general (see, e.g., Ajzen, 1991; Ajzen & Fishbein, 1980; Ajzen & Madden, 1986; Fazio, 1990; Ouellete & Wood, 1998), research on persuasion has typically focused on factors that coincide with or precede persuasive messages without considering the influence of post-message actions.

Each year, well-intentioned governmental agencies and private organizations spend considerable sums of money in the hope of designing messages that will induce avoidance or abstinence from risky behaviors. The majority of these efforts are directed at steering children and teenagers away from drugs, unsafe sex, cigarette smoking, risky dietary practices, or drunk driving. Yet the results from most campaigns have been quite disappointing (see, e.g., Burns, 1994; de Haes, 1987; DeJong & Winsten, 1998; Fishbein et al., 1992; Flay, 1987; Goldman & Glantz, 1998; Jacobs, 1989; Popham et al., 1993; Strasburger, 1989). Without a doubt, existing theory provides useful guidelines regarding message factors that influence beliefs, attitudes, and intentions (e.g., Chaiken, 1980; Eagly & Chaiken, 1993; Petty & Cacioppo, 1986; Petty & Wegener, 1999; Petty, Wegener, & Fabrigar, 1997; Wood, 2000). For example, in a comprehensive analysis of the critical factors that influence intentions and behavior, Fishbein et al. (1992) identified the perception of personal susceptibility to the identified hazard, beliefs about both negative and positive consequences of the advocated behavior (culminating in an attitude toward the behavior), social norms regarding the advocated behavior, and self-efficacy about performing the advocated behavior under difficult circumstances. Others have noted that "just say no" types of advocacies are likely to be ineffective (Perloff, 2001; Strasburger, 1989) and implicate lack of perceived efficacy and fear/danger avoidance processes (Witte, 1998) for such outcomes. However, there has been little systematic consideration of the interaction between characteristics of the message and readily foreseeable counterattitudinal behavior (e.g., experimentation, trial, sensation-seeking). In this context, our research suggests that prevention campaigns must anticipate recipients' future actions. Doing so is likely to lead to the design of improved messages to reduce risky behaviors.

Consider the hoped-for outcome of a "just say no" type of persuasive message concerning the dangers of

drinking alcohol for teenagers, who will likely try alcohol despite receiving the “just say no” message. In these situations, the recommendation the teens receive is bound to conflict with their own behavior after receiving the message. We can expect some type of conflict resolution mechanism that would lead one element to “gain the upper hand” (see Abelson, 1959). Behavioral commitment, generally speaking, anchors conflict resolution (see, e.g., Zanna, Fazio, & Ross, 1994; Zanna, Olson, & Fazio, 1981). Therefore, to prevent resistance to persuasion from occurring, those responsible for designing anti-drinking persuasive messages must either reduce the conflict that trial behavior is almost certain to create or somehow generate a message-based intention that is more self-relevant and diagnostic than intentions resulting from trial. The latter is likely to prove quite difficult. Instead, it seems advisable to reduce the likely cognitive conflict by designing persuasive messages that discourage alcohol use but do not conflict with readily foreseeable trial behavior. Given people’s (and especially adolescents’) propensity to engage in risky behavior, failure to place adequate weight on the interaction between message characteristics and relevant post-message behavior can lead to the design of ineffective persuasive communications as well as potentially harmful consequences.

#### NOTES

1. This follow-up measure was only obtained for participants in the critical trial conditions. As shall be seen, there was no effect of the persuasive message in message-only conditions, which further justifies the lack of follow-up measures in that case.

2. It is important to note that the patterns in Figure 1 held regardless of participants’ alcohol-consumption habits. Although preliminary analyses indicated that prior alcohol consumption and prior attendance to events where alcohol is served correlated positively with intentions to drink simulated alcohol ( $r = .22$  and  $.29$ ,  $p < .05$ , in both cases), including these variables as covariates did not change our results.

3. Estimated intentions in Experiment 2 were stronger than intentions in Experiment 1 ( $M = 4.93$ ,  $SD = 1.32$  vs.  $M = 3.29$ ,  $SD = 1.41$ ),  $F(1, 141) = 46.39$ ,  $p < .011$ . In addition, in Experiment 1, the abstinence message produced significantly greater resistance than the moderation message, but this pattern was not the case in Experiment 2,  $F(1, 141) = 4.02$ ,  $p < .05$ . Unlike in Experiment 1, in Experiment 2, estimated intentions were greater when participants were in trial conditions than when they were in message-only conditions,  $F(1, 141) = 3.99$ ,  $p < .05$ . None of effects, however, compromises the conclusions from our study.

4. One limitation of this research is the use of strictly counterattitudinal messages, and so our results may not extend to proattitudinal messages because these may fail to produce the relatively deep impression a counterattitudinal appeal can make. More research is needed to determine what effects occur when recipients of a proattitudinal communication subsequently engage in a counterattitudinal behavior. Similarly, our conclusions do not automatically generalize to conflict between a message advocating a behavior and the subsequent failure to engage in that behavior (see, e.g., Higgins, 1997). Although Zanna (1972) found that self-perception does take place when participants observe that they have failed to perform a behavior, future research should clarify the contingencies of a “non-behavior” in the persuasion domain.

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