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The authors demonstrate that antismoking advertisements are the most persuasive when the viewers' regulatory focus, the message's regulatory focus, and the message frame function synergistically. In two experiments, 1000 adolescents saw either antismoking advertising about smoking's social consequences or control advertising in a television show. The authors find that for promotion-focused adolescents, a promotion-focused positively framed antismoking message is the most effective at persuading them not to smoke; for prevention-focused adolescents, a prevention-focused negatively framed antismoking message is the most effective. The enhanced ad effectiveness is mediated by message accessibility and diagnosticity.

## The Impact of Regulatory Focus on Adolescents' Response to Antismoking Advertising Campaigns

Each year, smoking causes approximately 440,000 premature deaths in the United States and 5 million deaths worldwide (World Health Organization [WHO] 2006). Thus, in 2003, the WHO adopted the first global treaty on tobacco. This treaty mandates educational and public awareness programs on the health risks of smoking and the benefits of tobacco-free lifestyles (WHO 2003). In the United States, more than 20 states have initiated mass media advertising campaigns to dissuade adolescents from taking up smoking (Farrelly, Niederdeppe, and Yarsevich 2003). A half billion dollars was spent on tobacco use prevention and cessation campaigns in the United States in 2005, or approximately \$2 per capita (Campaign for Tobacco-Free Kids 2006). However, all antismoking advertisements may not be equally persuasive. Indeed, there is evidence that many antismoking advertisements do not sig-

nificantly reduce adolescents' intent to smoke compared with an unexposed control group (Pechmann et al. 2003). Thus, a critical question facing tobacco control officials and their advertising agencies is how to create effective antismoking advertisements, particularly for adolescents.

There is a dearth of research on how message and viewer characteristics might affect the persuasiveness of antismoking advertisements, and few guidelines are available for practitioners. Some researchers have explored the effects of message frame (positive versus negative), but the findings have been mixed (Schneider et al. 2001; Wilson, Wallston, and King 1990; Wong and McMurray 2002). Wong and McMurray (2002) find that a negative antismoking message was more effective than a positive antismoking message at boosting college students' perceived self-efficacy at quitting smoking; however, Schneider and colleagues (2001) report that a positive antismoking message was more persuasive for college students than a negative antismoking message. Researchers have also tried to tailor antismoking messages to specific segments of the population according to viewer characteristics, such as age, gender, or ethnicity (Farrelly, Niederdeppe, and Yarsevich 2003) or sensation seeking (Palmgreen et al. 2001). Edwards and colleagues (2004) find that an antismoking advertisement tailored to young women reduced intent to smoke among smokers compared with a control group. More work is needed to determine the most effective segmentation variables for antismoking advertising campaigns and the reasons an antismoking message works or does not work for a specific segment of the population.

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Regulatory focus theory (Higgins 1997) has emerged as a powerful new theory for predicting how advertising persuasion might depend on a viewer characteristic called "viewers' regulatory focus," which refers to the extent to which a viewer is motivated either to realize achievements or to avoid hazards. Building on regulatory focus theory, researchers have proposed that advertising persuasion might also depend on a message characteristic called "message's regulatory focus," which refers to the extent to which a message stresses that product use either leads to achievements or results in hazard reduction (Lee and Aaker 2004). Some recent findings indicate that it might be beneficial to ensure that the message's regulatory focus matches viewers' regulatory focus (e.g., Aaker and Lee 2001). That is, advertisements suggesting that product use leads to achievements should be created for achievement-oriented or "promotion-focused" viewers, whereas advertisements suggesting that product use results in hazard reduction should be created for hazard-oriented or "prevention-focused" viewers. However, viewers' regulatory focus has not been used as a segmentation variable in advertising campaigns, and its potential role in advertising is not clearly understood.

In this research, we test the hypothesis that the impact of antismoking advertising may be contingent on viewers' regulatory focus (promotion versus prevention), the message's regulatory focus (promotion versus prevention), and the message frame (positive versus negative) functioning synergistically. To our knowledge, no prior study has examined the interactive effects of these three factors in any persuasion context. We also study the underlying mechanisms that may explain why ad persuasion is enhanced when these three factors work together synergistically. We believe that our research has implications for antismoking advertising campaigns as well as other social marketing campaigns. The message's regulatory focus and the message frame are under advertisers' control, and it may be possible to influence viewers' regulatory focus through the choice of television programs as media vehicles.

## THEORETICAL BACKGROUND

### *Regulatory Focus and Adolescents*

Regulatory focus theory (Higgins 1997) suggests that there are two types of consumers with different motivational orientations: promotion-focused consumers and prevention-focused consumers. Consumers can be predisposed to be promotion focused or prevention focused; it is estimated that approximately half of consumers are chronically promotion focused, and the other half are prevention focused (Higgins 1987; Lee, Aaker, and Gardner 2000; Lockwood, Jordan, and Kunda 2002). Promotion-focused consumers are motivated by achievements and are sensitive to opportunities for advancement, whereas prevention-focused consumers are motivated to avoid threats to security and safety and are sensitive to occasions of hazard. It has been found that these two types of consumers demonstrate strikingly different behaviors in the marketplace. For example, relative to promotion-focused consumers, prevention-focused consumers have stronger preferences for the status quo (Chernev 2004), are less likely to repurchase a product after experiencing positive emotions (Louro, Pieters, and Zeelenberg 2005), and place greater

weight on the substance of an ad message than on their affective responses to the ad message (Pham and Avnet 2004).

Prior studies have examined adult consumers (Aaker and Lee 2001; Chernev 2004; Louro, Pieters, and Zeelenberg 2005; Pham and Avnet 2004). Regulatory focus theory predicts that adolescents should also have chronic predilections to be either prevention or promotion focused, but to our knowledge, no prior study of regulatory focus theory has examined adolescents. Higgins (1997) argues that a person's regulatory focus begins to develop from early childhood socialization experiences, such as caretaker-child interactions. For example, a promotion focus is instilled when caretakers repeatedly set up opportunities for the child to engage in rewarding activities, whereas a prevention focus is implanted when caretakers constantly train the child to be alert to potential dangers. Thus, regulatory focus may be rooted in early childhood development and then may develop further in adolescence. This is not the prevailing viewpoint of adolescence, however. Much research on adolescence has focused on it being a tumultuous period characterized by heightened negative affect and anxiety (Pechmann et al. 2005), which implies that prevention concerns may be paramount. Relatively little research on adolescence has stressed that it is also a time to realize achievements and demonstrate self-worth, indicating a promotion-focused orientation (Belk, Bahn, and Mayer 1982; May and Koester 1985).

Using regulatory focus theory, we propose that there are two segments of adolescents: promotion-focused adolescents, who are motivated to realize achievements and ensure that there are opportunities for advancement, and prevention-focused adolescents, who are motivated to avoid hazards and ensure that situations are safe and secure. Thus, the effectiveness of advertising campaigns for adolescents may be enhanced either by using two types of messages (prevention and promotion focused) or by priming one type of regulatory focus through the advertising vehicle.

### *Message Regulatory Focus and Persuasion*

In persuasion research, it has been found that viewers experience a natural fit when advertisements highlight behavior consequences that are relevant to viewers' regulatory focus, which is known as "regulatory relevance" (Aaker and Lee 2001, 2006). In turn, regulatory relevance can boost ad persuasiveness. This research implies that if a target market is heterogeneous with respect to regulatory focus (i.e., half are promotion focused, and the other half are prevention focused), it may be advantageous for marketers to use two types of messages to appeal to both segments of the market. A promotion-focused message can be used to address the promotion-focused segment's interest in advancement, and a prevention-focused message can be used to address the prevention-focused segment's concerns about safety and security.

Previously, researchers have created persuasive messages with different message foci by varying the featured product attributes. A promotion-focused message about Welch's grape juice was created by positioning the product as energy creating and rich in vitamin C and iron, and a prevention-focused message was created by positioning the product as disease fighting and rich in antioxidants (Aaker and Lee 2001). Although such a strategy can be highly

effective at increasing regulatory relevance or the fit to different viewers' regulatory foci, from a practice standpoint, it may be daunting or even unworkable for marketers to manage two sets of messages featuring different product attributes.

In the case of antismoking advertising, studies indicate that messages about disease-related consequences are simply not effective at dissuading adolescents from taking up smoking; such messages may even boomerang (Flynn, Worden, and Secker-Walker 1992; Hastings and MacFadyen 2002; Pechmann et al. 2003). Thus, how can antismoking messages that differ in terms of being either promotion or prevention focused be created without ever referring to disease-related consequences? Fortunately, previous research has shown that antismoking messages about social consequences are effective (Flynn, Worden, and Secker-Walker 1992; Pechmann et al. 2003). Thus, we explore the feasibility of creating antismoking messages that discuss only social consequences but, through wording and sequencing, address distinct regulatory foci.

One way to construct promotion-focused antismoking messages is to appeal to people who are motivated to realize achievements by showing how nonsmoking leads to social approval. In 1986, researchers in Vermont ran an antismoking advertisement that showed a teen girl who refused to smoke at a concert and was invited onstage. In contrast, prevention-focused antismoking messages can be constructed to appeal to those who are motivated to avoid hazards by showing how smoking results in social disapproval. In 1995, Massachusetts ran an antismoking advertisement that showed a male teen who walked down the street smoking and was rejected and laughed at by female peers.

Previous studies have suggested that social disapproval messages deter adolescents from smoking (Flynn, Worden, and Secker-Walker 1992; Pechmann et al. 2003). We argue that adolescents who are prevention focused through chronic prediction or priming may indeed find social disap-

proval or prevention-focused messages to be relevant and persuasive. However, adolescents who are promotion focused may instead find social approval or promotion-focused messages to be relevant and persuasive. In prior research, prevention-focused messages may have yielded significant effects because they worked well among prevention-focused adolescents, which masked null effects among promotion-focused adolescents (Pechmann et al. 2003). By studying both prevention- and promotion-focused messages and differentiating between prevention- and promotion-focused viewers, we expected to observe a two-way interaction effect consistent with prior findings regarding regulatory relevance in other contexts. However, unlike prior research, we kept the featured attribute constant, included a no-exposure control group, and manipulated the message frame to examine three-way interaction effects.

*Message Frame*

Beyond regulatory focus theory (Higgins 1997), it does not appear that all promotion- or prevention-focused messages are the same. Previous research on message framing (Lee and Aaker 2004; Levin, Schneider, and Gaeth 1998; Rothman and Salovey 1997) has suggested that promotion- and prevention-focused messages can be presented in either a positive or a negative frame (also known as gain versus loss frame in some streams of literature, e.g., Levin, Schneider, and Gaeth 1998). A positive message frame emphasizes the positive (i.e., favorable) behavioral outcomes of complying with the message advocacy, whereas a negative message frame emphasizes the negative (i.e., unfavorable) behavioral outcomes of noncompliance. Thus, in the current research, we examine the relative persuasiveness of four types of antismoking messages that can be created by crossing the message's regulatory focus (promotion versus prevention) with the message frame (positive versus negative) (see Figure 1; for a comparison of conceptual frameworks regarding message frames, see the Appendix).

Figure 1  
FOUR ANTISMOKING MESSAGES DIFFERENTIATED ALONG TWO DIMENSIONS

|                                   |                                       | <i>Message Frame</i>  |  |
|-----------------------------------|---------------------------------------|---|--|
|                                   |                                       | <i>Positive Frame:<br/>Favorable Outcome</i>  | <i>Negative Frame:<br/>Unfavorable Outcome</i>   |
| <i>Message's Regulatory Focus</i> | <i>Promotion: Social Approval</i>     | <p>Cell 1:<br/>Attain social approval (e.g., a teenager stops smoking and attains approving looks).</p>   | <p>Cell 2:<br/>Forgo social approval (e.g., a teenager starts smoking and forgoes approving looks).</p>      |
|                                   | <i>Prevention: Social Disapproval</i> | <p>Cell 3:<br/>Avoid social disapproval (e.g., teenager stops smoking and avoids disapproving looks).</p> | <p>Cell 4:<br/>Incur social disapproval (e.g., a teenager starts smoking and incurs disapproving looks).</p> |

A promotion-focused positively framed message emphasizes how not smoking leads to the attainment of social approval. In this research, our advertisement showed a smoker whose friends gave him approving looks when he put out a cigarette. A promotion-focused negatively framed message emphasizes how smoking leads to forgoing social approval. Our advertisement showed a smoker whose friends no longer gave him approving looks when he lit up a cigarette. A prevention-focused positively framed message emphasizes how not smoking leads to avoidance of social disapproval. Our advertisement showed a smoker whose friends no longer gave him disapproving looks when he put out a cigarette. Finally, a prevention-focused negatively framed message emphasizes how smoking leads to incurrance of social disapproval. Our advertisement showed a smoker whose friends gave him disapproving looks when he lit up a cigarette.

We determine whether the impact of antismoking advertisements can be enhanced when viewers' regulatory focus, the message's regulatory focus, and the message frame function synergistically. This three-way interaction effect has not been studied previously in any persuasion context (cf. Lee and Aaker 2004). We now formulate hypotheses about how adolescents with different regulatory foci might respond to the four different messages.

#### HYPOTHESES

We use Feldman and Lynch's (1988) accessibility-diagnostics model as our framework to make predictions about the relative impact of the four antismoking messages. According to the model, to be persuasive, a piece of information must first be accessible, that is, comprehensible or intelligible. The information must also be perceived as diagnostic, that is, useful or relevant to the particular consumer. Furthermore, accessibility is a prerequisite for diagnosticity. If information is inaccessible or incomprehensible, it has virtually no hope of being diagnostic or relevant.

The four antismoking messages seem to differ with respect to their accessibility, specifically, two of the messages seem to be more accessible, comprehensible, or intelligible. According to Lee and Aaker (2004), a positive frame is more compatible with a promotion-focused message, whereas a negative frame is more compatible with a prevention-focused message. That is, both a promotion-focused positively framed message and a prevention-focused negatively framed message seem to be more comprehensible or accessible and their persuasive content or meaning is more readily understood or grasped than either a promotion-focused negatively framed message or a prevention-focused positively framed message (Lee and Aaker 2004). According to Feldman and Lynch's (1988) model, these two accessible messages should have an advantage in terms of their persuasion potential (Janiszewski 1993).

Nevertheless, these two readily accessible messages will not necessarily be equally persuasive, because to be persuasive, a message must also be perceived as diagnostic (Feldman and Lynch 1988). The perceived diagnosticity of a message refers to the degree to which consumers perceive the information as potentially helpful to them in pursuing their personal goals (Pechmann and Ratneshwar 1992). Diagnosticity is typically operationalized in terms of the

perceived relevance and usefulness of the information (e.g., Ahluwalia, Unnava, and Burnkrant 2001; Kempf and Smith 1998).

Of the two messages that are accessible and have high persuasion potential, one is promotion focused, and the other is prevention focused. The promotion-focused positively framed message about attaining social approval addresses promotion-focused adolescents' main interest and should be perceived as highly relevant, useful, and helpful to them (i.e., diagnostic). The prevention-focused negatively framed message about incurring social disapproval addresses prevention-focused adolescents' prime concern and should be perceived as highly relevant, useful, and helpful to them (i.e., diagnostic). In turn, the perceived diagnosticity of the messages should affect persuasion because of their value or merit for judgment and decision making (Feldman and Lynch 1988; Pham and Avnet 2004). Indeed, research suggests that consumers selectively process and make use of highly diagnostic information at the expense of nondiagnostic information (Herr, Kardes, and Kim 1991; Pham 1996).

Building on these arguments, we predict the following for the four types of antismoking messages shown in Figure 1: Among audience members with a promotion focus, the accessible and well-fitting promotion-focused positively framed message will be more diagnostic and more persuasive than the poor-fitting prevention-focused negatively framed message, the two inaccessible messages (promotion-negative and prevention-positive), and the control message unrelated to smoking. The latter three messages will likely be no better than the control message. Among audience members with a prevention focus, the accessible and well-fitting prevention-focused negatively framed message will be more diagnostic and more persuasive than the poor-fitting promotion-focused positively framed message, the two inaccessible messages, and the control. The latter three messages will likely be no better than the control. Formally,

- H<sub>1</sub>: Antismoking advertisements are the most persuasive when viewers' regulatory focus, the message's regulatory focus, and the message frame function synergistically (i.e., a three-way interaction effect). Specifically,
- a. Among promotion-focused adolescents, a promotion-focused positively framed antismoking message will increase intention not to smoke more than a promotion-focused negatively framed message, a prevention-focused positively framed message, a prevention-focused negatively framed message, and a control message (unrelated to smoking); and
  - b. Among prevention-focused adolescents, a prevention-focused negatively framed antismoking message will increase intention not to smoke more than a prevention-focused positively framed message, a promotion-focused positively framed message, a promotion-focused negatively framed message, and a control message (unrelated to smoking).

#### EXPERIMENT 1: REGULATORY FOCUS AS AN INDIVIDUAL TRAIT

In Experiment 1, the design was a 2 (viewers' regulatory focus: promotion versus prevention) × 2 (message's regulatory focus: promotion versus prevention) × 2 (message frame: positive versus negative) three-factor between-subjects randomized factorial. In addition, we included a

separate control group that saw a nonsmoking-related public service announcement rather than an antismoking advertisement in the television show. We measured viewers' regulatory focus and manipulated the message's regulatory focus and the message frame. The main dependent measure was intention not to smoke cigarettes.

### Method

**Participants.** Participants were 443 ninth graders from two local high schools. The students participated voluntarily with parental approval. Schools were paid \$1,000 honoraria. The schools were publicly funded, ethnically diverse, and located in middle- to lower-middle-class neighborhoods. Approximately half (48%) of the participants were girls; most (82%) were 14 or 15 years of age; and 65% were Caucasian and the remainder were Asian (11%), Hispanic (10%), or other. Thirty-two participants reported that they were past or current smokers, and we excluded them from analyses to minimize error variance and focus on smoking initiation. In addition, we did not include 69 control-condition participants in the omnibus analysis of variance (ANOVA), because the control condition was not fully crossed with other conditions. As a result, we included a total of 342 participants in the omnibus ANOVAs.

**Stimuli advertisements.** Four 30-second antismoking advertisements were created that corresponded to the four types of messages in Figure 1 (see Table 1 and Figure 2, Panels A–D). The advertisements depicted an indoor gathering of a group of young college students. To manipulate the message's regulatory focus, either social approval or disapproval was highlighted in the advertisement. To manipulate the message frame, either a positive or a negative outcome for the smoker was depicted. The control group watched a public service announcement that attempted to dissuade adolescents from dropping out of high school. (These television advertisements are available on request.)

**Procedure.** We randomly assigned participants to a message condition by asking them to choose a pen from a covered bag; the color of the pen designated their experimental cell. Students were instructed to move to a different classroom according to their pen color. Then, participants com-

pleted a brief questionnaire that asked them their age, ethnicity, gender, and smoking status. Next, participants took approximately 10 minutes to complete an 18-item scale of regulatory focus. Then, participants watched an episode of the television show *Friends*. The stimulus advertisement was shown three times in three separate commercial breaks to increase the strength of the manipulations. Filler advertisements for consumer products and services (e.g., a computer, shampoo, soda, pizza, fast-food restaurant) were included to enhance realism. The ordering of the stimulus advertisements and filler advertisements was determined at random and then kept constant across experiment conditions. After viewing the television show, participants completed the main questionnaire with the dependent measures, measures of mediational processes, manipulation checks, and ad evaluation measures. Each data collection session lasted approximately 50 minutes or one class period.

**Measures.** The main dependent measure was the intention not to smoke, which we assessed with a previously validated three-item scale: "In the future, I might smoke one puff or more of a cigarette"; "I might try out cigarette smoking for a while"; and "If one of my best friends were to offer me a cigarette, I would smoke it" (1 = "definitely no," and 5 = "definitely yes") (Pechmann et al. 2003). We averaged responses to these items ( $\alpha = .86$ ).

To assess the perceived diagnosticity of the ad message, participants were asked how helpful and how useful the information in the stimulus advertisement was in making up their minds about smoking (Kempf and Smith 1998; Pham and Avnet 2004). We used five-point scales (1 = "not helpful/useful at all," and 5 = "extremely helpful/useful") and averaged responses ( $\alpha = .77$ ). To assess message accessibility, participants were asked to rate the advertisement in terms of being easy or difficult to understand, easy or difficult to comprehend, and very clear or not clear at all using seven-point scales (Lee and Aaker 2004). We averaged the responses ( $\alpha = .89$ ).

The regulatory focus scale has been validated in previous research (Lockwood, Jordon, and Kunda 2002). The scale had 18 items, half of which measured promotion focus and the other half of which measured prevention focus. Using a scale with endpoints of 1 ("not at all true") and 9 ("very

Table 1  
STIMULUS ANTISMOKING MESSAGES

| Message  | Description of Antismoking Messages  | Tagline                                  |
|--|--|--|
| Promotion-focused positively framed message: Attain social approval    | College students are hanging out. A smoker lights up a cigarette. The other people stop talking. The smoker puts out the cigarette. The people are pleased, smile at the smoker, and give him approving looks. The smoker looks happy.                           | Don't smoke. Have a good time.           |
| Promotion-focused negatively framed message: Forgo social approval     | College students are hanging out. They are having a good time and are looking at each other approvingly. A smoker lights up a cigarette. The other people stop talking and look at the smoker, no longer approvingly. The smoker looks sad.                      | Don't smoke. Smoking spoils a good time. |
| Prevention-focused positively framed message: Avoid social disapproval | College students are hanging out. A smoker lights up a cigarette. The other people stop talking, get angry, and give the smoker disapproving looks. The smoker puts out the cigarette. The people stop giving him disapproving looks. The smoker looks relieved. | Don't smoke. Avoid being annoying.       |
| Prevention-focused negatively framed message: Incur social disapproval | College students are hanging out. A smoker lights up a cigarette. The other people stop talking, get angry, stare at the smoker, and give the smoker disapproving looks. The smoker looks nervous.   | Don't smoke. Smoking is annoying.        |

Figure 2  
EXAMPLES OF THE AD MESSAGES

A: *Promotion-Focused Positively Framed Message*

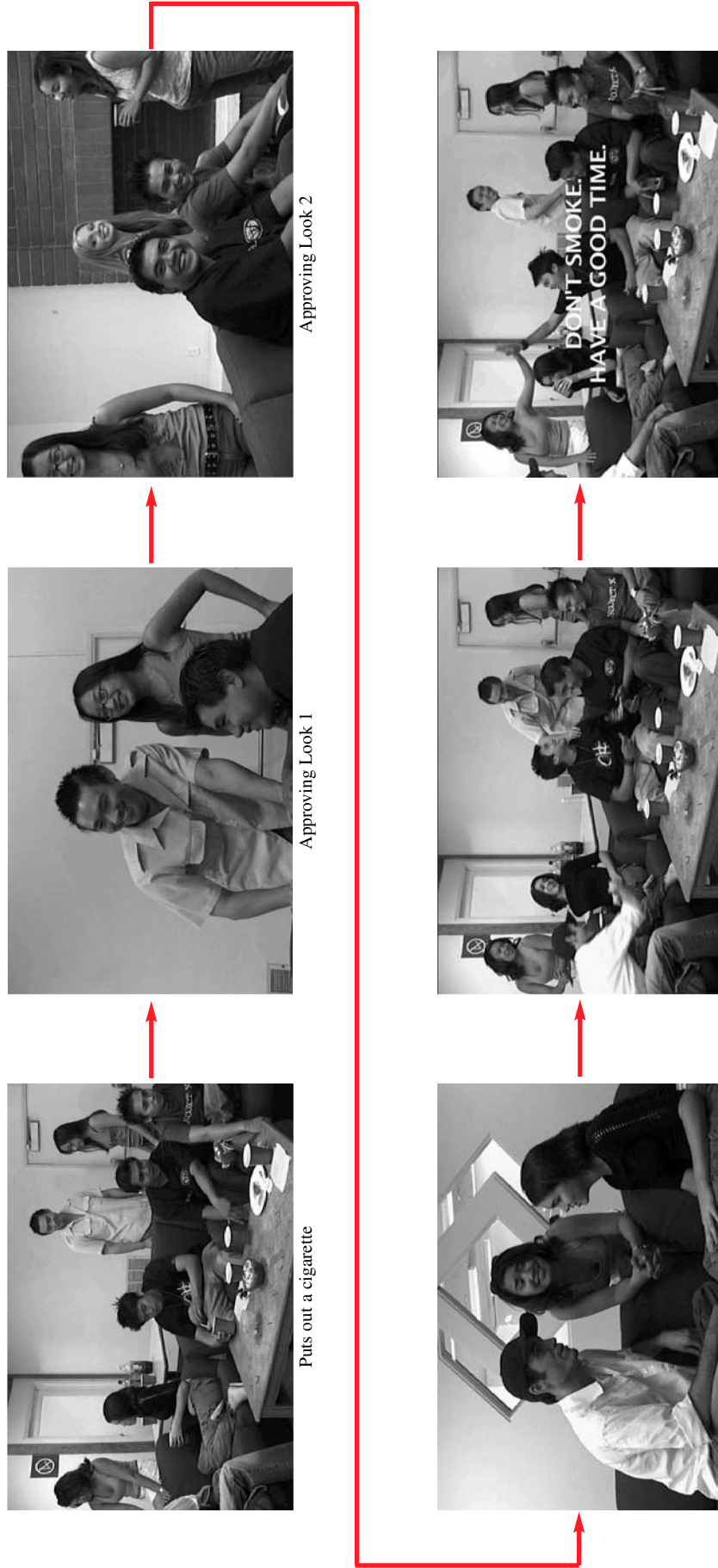


Figure 2  
CONTINUED

*B: Promotion-Focused Negatively Framed Message*



Approving Look 1



Approving Look 2



Approving Look 3



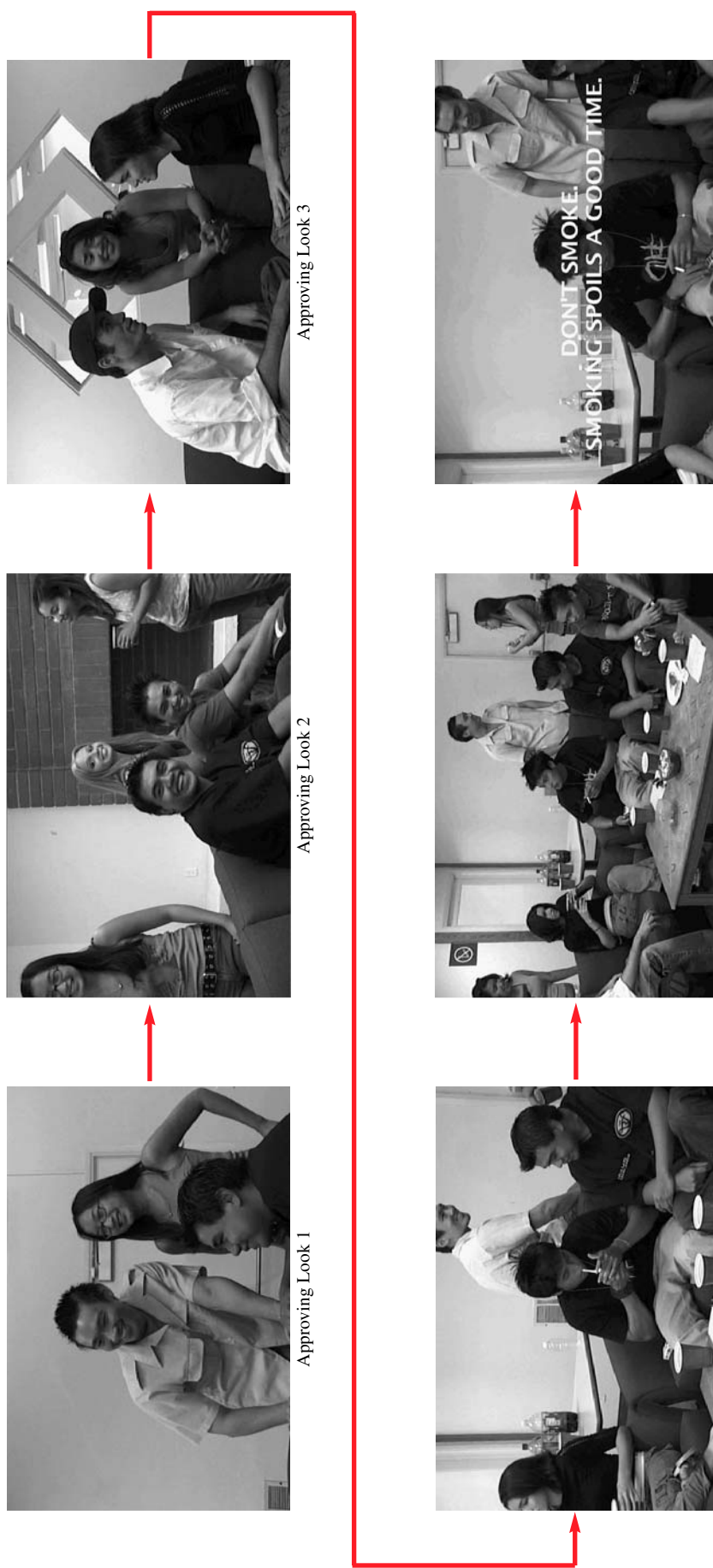
Lights up a cigarette



No fun any more



Smoking spoils a good time







true”), participants indicated the extent to which they endorsed items relevant to a promotion focus (e.g., “I frequently imagine how I will achieve my hopes and aspirations,” “I often think about the person I would ideally like to be in the future”) and items relevant to a prevention focus (e.g., “I frequently imagine how I can prevent failure in my life,” “I am anxious that I will fall short of my responsibilities and obligations”). We averaged responses ( $\alpha = .87$  for promotion focus, and  $\alpha = .82$  for prevention focus). Following previous research (e.g., Lockwood, Jordon, and Kunda 2002), we created a measure of dominant regulatory focus by subtracting the prevention focus score from the promotion focus score. That is, high scores reflected relative stronger promotion focus than prevention focus. We classified participants as either promotion focused or prevention focused on the basis of a median split ( $Mdn = .89$ ).

To check the success of manipulations regarding the message’s regulatory focus and the message frame, participants were asked to answer “yes” or “no” to each of four questions: whether the advertisement showed social approval (i.e., promotion-focused message), whether the advertisement showed social disapproval (i.e., prevention-focused message), whether the smoker was better off (i.e., positive frame), and whether the smoker was worse off (i.e., negative frame). We also included measures to check perceived ad effectiveness and uniqueness, as well as ad attitude (Edell and Burke 1987; Olney, Holbrook, and Batra 1991).

#### *Analyses and Results*

*Analyses.* We conducted three-way omnibus ANOVAs to test the effects of viewers’ regulatory focus, the message’s regulatory focus, and the message frame on each dependent measure. For the nominal dependent variables, we used three-factor omnibus logistic regressions rather than ANOVAs. If the three-way interaction was significant at  $p < .05$ , we conducted all possible pairwise comparisons among the four antismoking messages and the control message within each level of viewers’ regulatory focus using one-tailed Dunn-Sidak critical t-values to hold the Type I error rate at .05. We included participants’ age, gender, and ethnicity as covariates, but the covariate effects were nonsignificant, so we dropped them for parsimony. The antismoking messages did not differ significantly with respect to perceived effectiveness or uniqueness or ad attitude, so we do not discuss these variables.

*Manipulation checks.* The message manipulations were successful. Logistic regressions revealed that the message’s regulatory focus affected whether participants agreed that the message showed social approval ( $-2LL = 125.03$ ,  $p < .01$ ) or social disapproval ( $-2LL = 136.87$ ,  $p < .01$ ). Likewise, the message frame affected whether participants agreed that the smoker was better off ( $-2LL = 236.44$ ,  $p < .01$ ) or worse off ( $-2LL = 260.12$ ,  $p < .01$ ). No other message effects were significant. On average, 90% of the participants who watched the promotion-focused messages agreed that they showed social approval, 93% of the participants who watched the prevention-focused messages agreed that they showed social disapproval, 96% of the participants who watched the positively framed messages agreed that the smoker was better off, and 90% of the participants who watched the negatively framed messages agreed that the smoker was worse off (for omnibus ANOVA and logistic

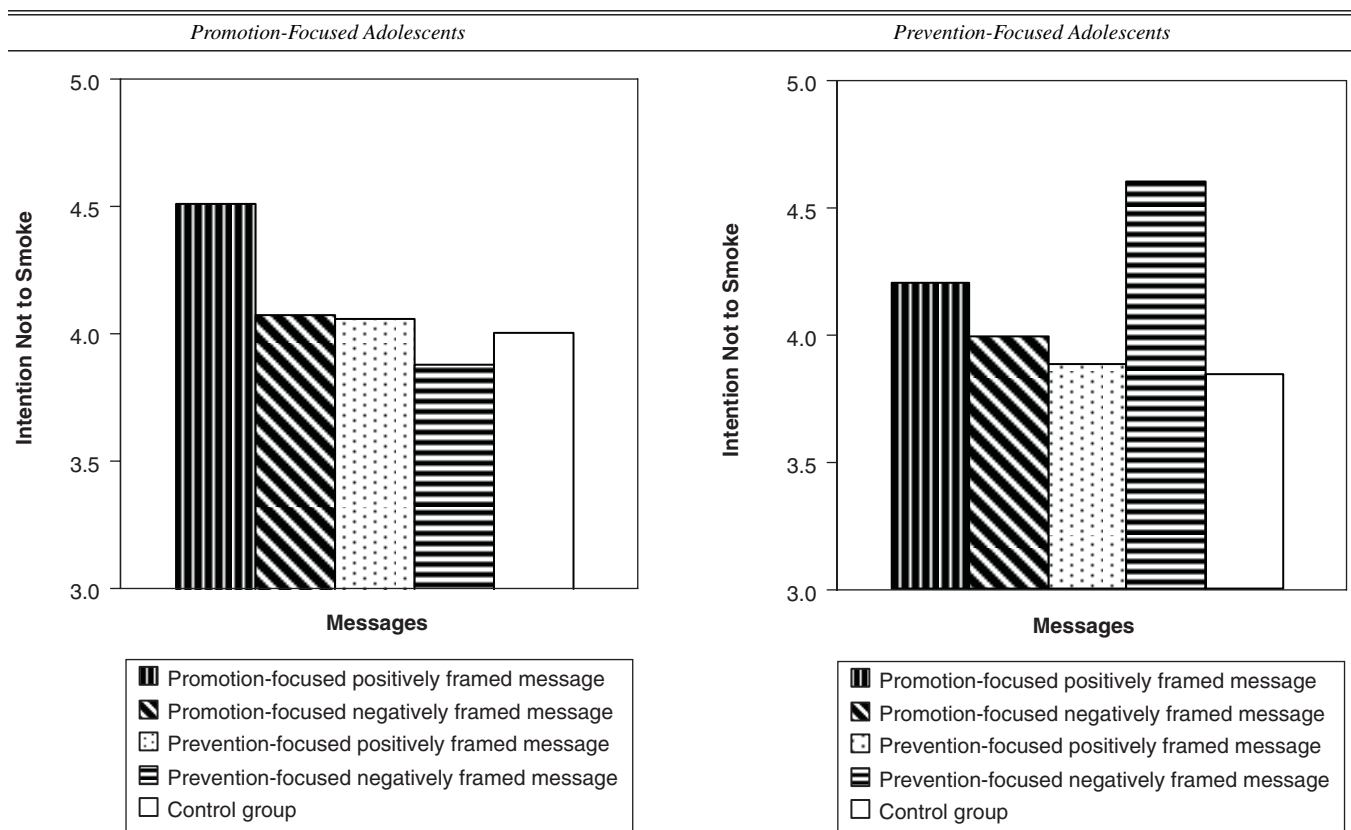
regression results, see Web Appendix A, and for cell means and standard deviations, see Web Appendix B; available at <http://www.marketingpower.com/content84060.php>).

*Tests of the hypotheses.* There was a significant three-way interaction effect among viewers’ regulatory focus, the message’s regulatory focus, and the message frame on intention not to smoke ( $F(1, 334) = 4.39$ ,  $p < .05$ ). Promotion-focused adolescents who watched the promotion-focused positively framed advertisement had a stronger intention not to smoke ( $M = 4.52$ ) than those who watched the promotion-focused negatively framed advertisement ( $M = 4.08$ ;  $t = 2.64$ ,  $p < .05$ ), the prevention-focused positively framed advertisement ( $M = 4.06$ ;  $t = 2.67$ ,  $p < .05$ ), the prevention-focused negatively framed advertisement ( $M = 3.88$ ;  $t = 3.65$ ,  $p < .01$ ), or the control advertisement ( $M = 4.01$ ;  $t = 2.71$ ,  $p < .05$ ). The latter four means did not differ significantly. Thus,  $H_{1a}$  was supported. In contrast, prevention-focused adolescents who watched the prevention-focused negatively framed advertisement ( $M = 4.61$ ) had a stronger intention not to smoke than those who watched the promotion-focused positively framed advertisement ( $M = 4.20$ ;  $t = 2.39$ ,  $p < .05$ ), the promotion-focused negatively framed advertisement ( $M = 3.99$ ;  $t = 3.70$ ,  $p < .01$ ), the prevention-focused positively framed advertisement ( $M = 3.88$ ;  $t = 4.50$ ,  $p < .01$ ), or the control advertisement ( $M = 3.83$ ;  $t = 4.32$ ,  $p < .01$ ). The latter four means did not differ significantly. Thus,  $H_{1b}$  was supported (see Figure 3).

*Supplemental analyses.* We conducted additional analyses to facilitate comparisons with previous findings. A two-way ANOVA of the message’s regulatory focus and the message frame on intention not to smoke revealed a two-way interaction ( $F(1, 338) = 13.77$ ,  $p < .01$ ). For promotion-focused messages, a positive frame bolstered intention not to smoke more than a negative frame ( $M = 4.40$  versus  $4.05$ ;  $t = 2.78$ ,  $p < .01$ ); for prevention-focused messages, a negative frame bolstered intention not to smoke more than a positive frame ( $M = 4.29$  versus  $3.96$ ;  $t = 2.48$ ,  $p < .05$ ). A different two-way ANOVA of viewers’ regulatory focus and the message’s regulatory focus on intention not to smoke revealed another two-way interaction ( $F(1, 338) = 5.83$ ,  $p < .05$ ). For promotion-focused adolescents, promotion-focused messages strengthened intention not to smoke more than prevention-focused messages ( $M = 4.29$  versus  $3.96$ ;  $t = 2.44$ ,  $p < .05$ ). For prevention-focused adolescents, prevention-focused messages did not differ from promotion-focused messages in terms of affecting intention ( $M = 4.23$  versus  $4.10$ ;  $t = .95$ ,  $p = .34$ ). These two-way interactions were qualified by the previously reported three-way interaction.

*Mediation analyses.* There was a two-way interaction between the message’s regulatory focus and the message frame on accessibility ( $F(1, 320) = 22.45$ ,  $p < .01$ ); the three-way interaction with viewers’ regulatory focus was not significant ( $F(1, 320) = .25$ ,  $p = .62$ ). Follow-up tests showed that, as we expected, the promotion-focused positively framed message ( $M = 6.09$ ) was more accessible than the promotion-focused negatively framed message ( $M = 5.46$ ;  $t = 3.44$ ,  $p < .01$ ); in addition, the prevention-focused negatively framed message ( $M = 6.04$ ) was more accessible than the prevention-focused positively framed message ( $M = 5.26$ ;  $t = 4.11$ ,  $p < .01$ ).

Figure 3  
EXPERIMENT 1: MEASUREMENT OF VIEWERS' REGULATORY FOCUS



Notes: Antismoking advertisements work the best when viewers' regulatory focus, the message's regulatory focus, and the message frame function synergistically.

The enhanced accessibility of the promotion-focused positively framed message and the prevention-focused negatively framed message, together with their relevance to viewers' regulatory focus, should have made these messages more diagnostic and more effective for promotion-focused and prevention-focused viewers, respectively. These predictions were supported by mediation analyses based on Baron and Kenny's (1986) approach. Mediation exists when three criteria are met: (1) The independent variables (viewers' regulatory focus, the message's regulatory focus, and the message frame) affect the mediator (perceived diagnosticity), (2) the mediator affects the dependent variable (intention not to smoke), and (3) the effects of the independent variables on the dependent variable are weakened when the mediator is included as a covariate (Baron and Kenny 1986). The first criterion was met by a significant three-way interaction effect among viewers' regulatory focus, the message's regulatory focus, and the message frame on perceived diagnosticity ( $F(1, 334) = 5.03, p < .05$ ). The second criterion was met by a significant main effect of perceived diagnosticity on intention not to smoke ( $F(1, 333) = 308.21, p < .01$ ). The third criterion was met by the nonsignificant three-way interaction effect among viewers' regulatory focus, the message's regulatory focus, and the message frame on intention not to smoke when we

included perceived diagnosticity as a covariate ( $F(1, 333) = .79, p = .38$ ).

In summary, the results indicate that antismoking advertisements work the best when viewers' regulatory focus, the message's regulatory focus, and the message frame function synergistically. However, we measured viewers' regulatory focus, so it is conceivable that the effects of this measured variable were confounded by factors that covaried with it. To rule this out, we manipulated viewers' regulatory focus in Experiment 2.

#### EXPERIMENT 2: PRIMING OF REGULATORY FOCUS

Following much previous research (Freitas, Liberman, and Higgins 2002; Lockwood, Jordon, and Kunda 2002; Pham and Avnet 2004; Wang and Lee 2006), we used a priming manipulation that was independent of the focal message. We asked participants to write a short essay about themselves that required them to focus on either prevention- or promotion-focused topics. Otherwise, the method was virtually identical to that of Experiment 1; thus, we highlight only the differences. Participants were 719 ninth graders from three additional high schools. Sixty-five participants reported that they were past or current smokers, and we excluded them from analyses. In addition, we did not include 120 participants in the control condition in the

omnibus ANOVAs, because the control condition was not fully crossed with other conditions. As a result, there were 534 participants in the omnibus ANOVAs.

### Method

At the beginning of the experiment, participants spent approximately ten minutes writing an essay to prime their regulatory focus. In the promotion-focused viewer condition, they were asked to think about and write down their past and current hopes, aspirations, and dreams. In the prevention-focused viewer conditions, they were asked to think about and write down their past and current duties, obligations, and responsibilities (Freitas, Liberman, and Higgins 2002; Lockwood, Jordon, and Kunda 2002; Pham and Avnet 2004; Wang and Lee 2006). We added emotional response measures to check the success of this manipulation. Participants were asked to rate on seven-point scales how they felt about two items: happy versus sad and relieved versus anxious. We then recoded participants' responses by subtracting each response from the scale midpoint of four, such that (1) a larger number on the happy/sad item indicated a stronger emotional feeling related to happy and sad, or an active promotion focus, and (2) a larger number on the anxious/relieved item indicated a stronger emotional feeling related to anxious and relieved, or an active prevention focus. This two-item measure was based on previous theoretical and empirical work indicating that promotion-focused people's emotional experiences tend to vary along the cheerfulness/dejection dimension (i.e., happy versus sad), whereas prevention-focused people's emotional experiences tend to vary along the quiescence/agitation dimension (i.e., anxious versus relieved) (Higgins 1997; Idson, Liberman, and Higgins 2000; Lee, Aaker, and Gardner 2000).

### Results

*Manipulation checks.* The emotional response measures showed that the manipulation of viewers' regulatory focus was successful. There was a significant main effect of viewers' primed regulatory focus on the happy/sad measure ( $F(1, 491) = 6.88, p < .01$ ). Adolescents who were primed to be promotion focused experienced stronger emotional feelings along the happy/sad dimension ( $M = 1.23$ ) than those who were primed to be prevention focused ( $M = .96; t = 2.65, p < .01$ ). There was also a significant main effect of viewers' primed regulatory focus on the anxious/relieved measure ( $F(1, 491) = 6.69, p < .01$ ). Prevention-primed adolescents experienced stronger emotional feelings along the anxious/relieved dimension ( $M = 1.22$ ) than promotion-primed adolescents ( $M = .95; t = 2.70, p < .01$ ). In addition, the message's regulatory focus had a main effect on the happy/sad measure ( $F(1, 491) = 4.14, p < .05$ ) and a marginally significant main effect on the anxious/relieved measure ( $F(1, 491) = 3.97, p = .05$ ) (for omnibus ANOVA and logistic regression results, see Web Appendix C, and for cell means and standard deviations, see Web Appendix D; available at <http://www.marketingpower.com/content/84060.php>).

*Test of hypotheses.* Again, our hypotheses were supported. We found a significant three-way interaction among viewers' regulatory focus, the message's regulatory focus,

and the message frame on intention not to smoke ( $F(1, 526) = 4.03, p < .05$ ). Among promotion-focused adolescents, those who saw the promotion-focused positively framed advertisement had a stronger intention not to smoke ( $M = 4.55$ ) than those who saw the promotion-focused negatively framed advertisement ( $M = 4.10; t = 3.44, p < .01$ ), the prevention-focused positively framed advertisement ( $M = 4.13; t = 3.20, p < .01$ ), the prevention-focused negatively framed advertisement ( $M = 4.06; t = 3.70, p < .01$ ), or the control advertisement ( $M = 3.98; t = 4.13, p < .01$ ). The latter four means did not differ significantly. In contrast, among prevention-focused adolescents, those who saw the prevention-focused negatively framed advertisement had a stronger intention not to smoke ( $M = 4.69$ ) than those who saw the promotion-focused positively framed advertisement ( $M = 4.14; t = 4.20, p < .01$ ), the promotion-focused negatively framed advertisement ( $M = 3.98; t = 5.33, p < .01$ ), the prevention-focused positively framed advertisement ( $M = 3.97; t = 5.42, p < .01$ ), or the control advertisement ( $M = 3.88; t = 5.99, p < .01$ ). The latter four means did not differ significantly (see Figure 4).

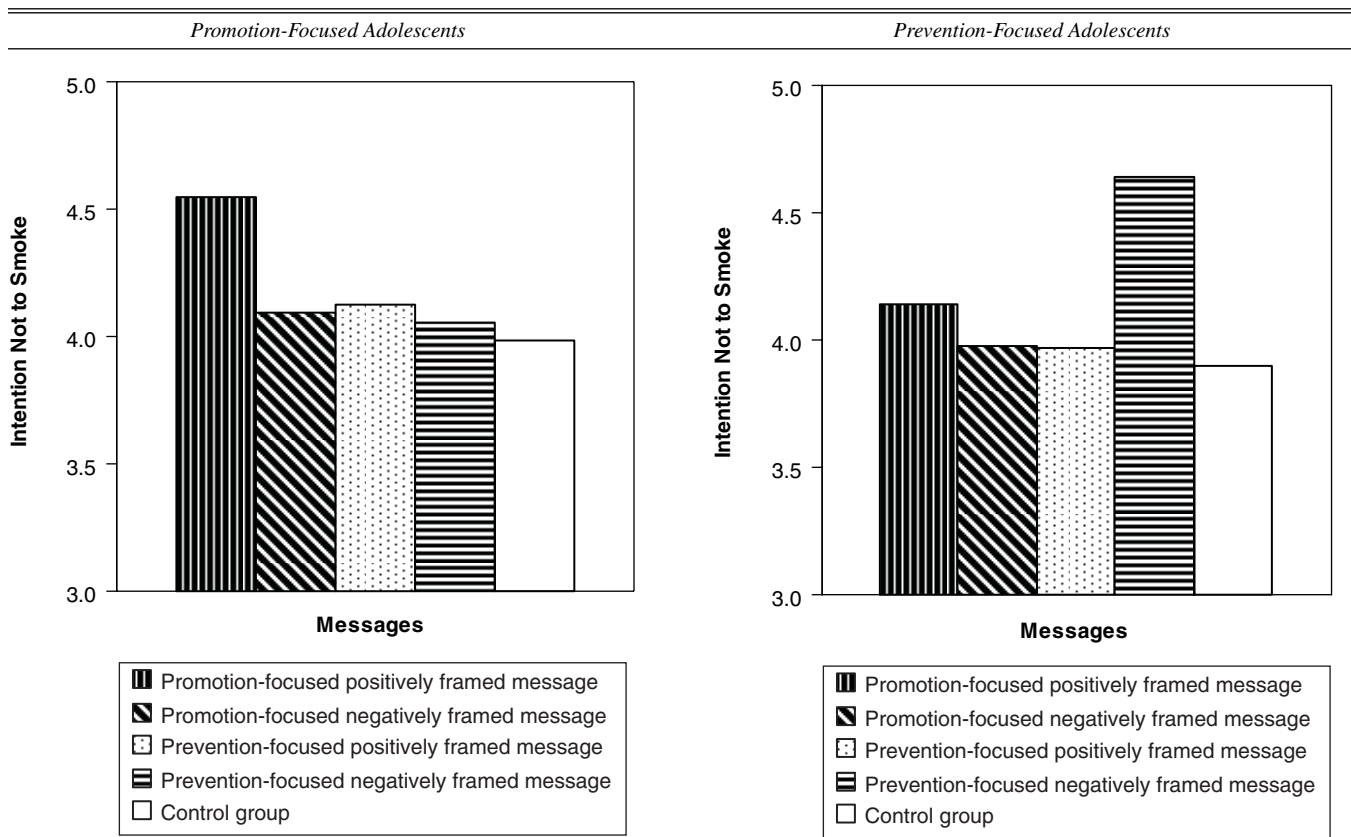
*Supplemental analyses.* Again, we conducted supplemental analyses to facilitate comparisons with prior findings. A two-way ANOVA of the message's regulatory focus and the message frame on intention not to smoke revealed a two-way interaction ( $F(1, 528) = 25.56, p < .01$ ). For promotion-focused messages, a positive frame increased intention not to smoke more than a negative frame ( $M = 4.35$  versus  $4.04; t = 3.57, p < .01$ ), whereas for prevention-focused messages, a negative frame bolstered intention not to smoke more than a positive frame ( $M = 4.37$  versus  $4.05; t = 3.61, p < .01$ ). We also found a two-way interaction between viewers' regulatory focus and the message's regulatory focus ( $F(1, 528) = 12.65, p < .01$ ). For promotion-focused adolescents, promotion-focused messages enhanced non-smoking intentions more than prevention-focused messages ( $M = 4.33$  versus  $4.08; t = 2.40, p < .05$ ), whereas for prevention-focused adolescents, prevention-focused messages strengthened nonsmoking intentions more than promotion-focused messages ( $M = 4.34$  versus  $4.06; t = 2.65, p < .01$ ). These two-way interactions were qualified by the previously reported three-way interaction.

*Mediational analyses.* We conducted the same mediational analyses as in Experiment 1 and observed the same pattern of results. (The results are available on request.)

### GENERAL DISCUSSION

In two experiments, we examined the impact of four anti-smoking messages differentiated along two dimensions: the message's regulatory focus (promotion versus prevention) and the message frame (positive versus negative). We found that antismoking advertisements had null effects on adolescents' intentions not to smoke unless adolescents' regulatory focus was aligned with the message's regulatory focus and the message frame. According to regulatory focus theory (Higgins 1997), people can be differentiated into two groups: promotion focused and prevention focused. We demonstrated that, indeed, there are two distinct groups of adolescents. Promotion-focused adolescents are motivated to realize achievements and are sensitive to opportunities for advancement, whereas prevention-focused adolescents

Figure 4  
EXPERIMENT 2: MANIPULATION OF VIEWERS' REGULATORY FOCUS



Notes: Antismoking advertisements work the best when viewers' regulatory focus, the message's regulatory focus, and the message frame function synergistically.

are motivated to avoid threats to security and safety and are sensitive to occasions of hazard. Furthermore, we found that the impact of antismoking advertisements can be enhanced by aligning the message's regulatory focus and the message frame to viewers' regulatory focus. For promotion-focused adolescents, a promotion-focused positively framed antismoking advertisement about attaining social approval was effective at persuading them not to smoke. For prevention-focused adolescents, a prevention-focused negatively framed antismoking advertisement about incurring social disapproval was effective at persuading them not to smoke. The other messages were ineffectual relative to a control condition.

We did not observe any boomerang effect; that is, no antismoking advertisement inadvertently encouraged adolescents to smoke cigarettes. As our mediation analysis showed, the persuasiveness of certain ad messages was largely due to the messages' perceived relevance and usefulness (i.e., diagnosticity). In other words, ad messages not matching viewers' regulatory focus were perceived as irrelevant and subsequently ignored without further processing. Thus, we did not expect a boomerang effect in the context of our study. Nevertheless, in other contexts, exposure to brand information that is incompatible with view-

ers' regulatory focus might actually reduce consumers' brand evaluations, as Labroo and Lee (2006) show. Further studies are needed to examine the conditions under which exposure to information that is incompatible with viewers' regulatory focus might boomerang and adversely affect product judgments.

In replicating the work of Aaker and Lee (2001), we found that a match between viewers' regulatory focus and the message's regulatory focus enhanced message persuasion. In addition, in replicating the work of Lee and Aaker (2004) with viewers' regulatory focus being measured and manipulated in two separate experiments, we found that a promotion-focused positively framed message was more persuasive than a promotion-focused negatively framed message, whereas a prevention-focused negatively framed message was more persuasive than a prevention-focused positively framed message. However, we extend both Aaker and Lee's and Lee and Aaker's findings by studying a three-way interaction effect among viewers' regulatory focus, the message's regulatory focus, and the message frame. We show that the effects of both two-way interactions that they documented (and that we replicated) were qualified by the three-way interaction we discussed. Lee and Aaker find a different three-way interaction effect among the message

frame, the message's regulatory focus, and viewers' perceptions of the riskiness of the advocated behavior. In our research, we also measured perceived risk as a potential moderator, but our participants perceived the risk of the advocated behavior (not smoking) as low, and thus perceived risk had no significant effects.

Previous research has obtained mixed findings about how the message frame might affect the persuasiveness of anti-smoking advertisements (Schneider et al. 2001; Wilson, Wallston, and King 1990; Wong and McMurray 2002). Our results might be helpful for explaining the mixed findings. Consistent with the findings of Schneider and colleagues (2001), positive antismoking advertisements may be more persuasive than negative advertisements when the advertisements are promotion focused, especially when the advertisements are targeted at promotion-focused viewers. However, consistent with the findings of Wong and McMurray (2002), negative antismoking advertisements may be more persuasive than positive advertisements when the advertisements are prevention focused, especially when the advertisements are targeted at prevention-focused viewers.

In other related research, Rothman and Salovey (1997) propose that for preventive health behaviors, such as using sunscreen to prevent skin cancer, a positive message frame is more persuasive than a negative message frame, whereas for detection health behaviors, such as having mammograms to detect breast cancer, a negative message frame is more persuasive than a positive message frame. These propositions were only partially supported in our research. We studied adolescents' choices to refrain from smoking cigarettes, which is a preventive health behavior. We found that for promotion-focused adolescents, a positive message (specifically, a promotion-focused positively framed message) was more persuasive than any other message type or the control. However, for prevention-focused adolescents, a negative message (specifically, a prevention-focused negatively framed message) was more persuasive than any other message type or the control. Thus, our findings indicate that it may be beneficial to augment Rothman and Salovey's framework to include audience characteristics, such as viewers' regulatory focus, and stimulus characteristics, such as the message's regulatory focus, in addition to task or situation factors, such as detection versus preventive health behaviors.

#### *Antismoking Campaigns*

Our research shows that adolescents manifest two distinct regulatory foci: a promotion focus and a prevention focus. Thus, regulatory focus may be a useful segmentation variable for marketing to adolescents. Currently, most anti-smoking advertisements emphasize how smoking leads to aversive consequences; that is, the advertisements are negatively framed and prevention focused. We found that this type of advertisement was effective for prevention-focused viewers but was ineffective for promotion-focused viewers. Thus, it may be necessary to create two types of antismoking advertisements for adolescents: prevention-focused negatively framed advertisements and promotion-focused positively framed advertisements.

However, we also showed that viewers' regulatory focus can be altered temporarily by the situation (Higgins 1997). Thus, rather than creating two types of advertisements to

appeal to the two adolescent segments, social marketers may be able to make salient or prime a single regulatory focus through their choice of advertising vehicles. For example, the television show *24*, which is about domestic terrorism, may tend to activate a prevention focus, whereas the television show *American Idol*, which is about becoming a professional singer, may tend to activate a promotion focus. Thus, it may be possible to create advertisements that are either prevention or promotion focused and to run the advertisements on a certain television show or shows and prime the desired regulatory focus. For example, prevention-focused negatively framed advertisements can be aired on *24*, and promotion-focused positively framed advertisements can be aired on *American Idol*.

The literature suggests that a viewer's regulatory focus as an individual trait is closely related to the person's self-view (Aaker and Lee 2001). People with an independent self-view that is defined by unique attributes and characteristics that distinguish themselves from others tend to have a promotion focus, whereas people with an interdependent self-view that is defined by others rather than distinguished from others tend to have a prevention focus. Furthermore, such different self-views are nurtured in different cultures and countries. In individualist countries (e.g., the United States, Canada, Britain), a promotion focus is nurtured, whereas in collectivist countries (e.g., China, Japan, the Philippines), a prevention focus is nurtured. The implication is that it might be useful to tailor antismoking messages to different cultures and countries. Promotion-focused positively framed advertisements might be more effective in individualist countries, whereas prevention-focused negatively framed advertisements might be more effective in collectivist countries. Research should be conducted on this issue, particularly because many countries will soon join the United States in implementing new tobacco control programs (WHO 2003).

#### *Other Public Service Campaigns*

Many social marketers who work on public service campaigns are guided by expectancy-value theories, such as Fishbein and Ajzen's (1975) theory of reasoned action (see also Hornik 2002; Sheppard, Hartwick, and Warshaw 1988). Regulatory focus theory (Higgins 1997) and our related findings seem to extend such theories. The theory of reasoned action posits that a person's value for the expected consequence of a focal act affects his or her attitude toward the act, intention, and behavior. Regulatory focus theory extends the expectancy concept by positing that through chronic predilection or situational priming, some people are promotion focused and value accomplishment, whereas other people are prevention focused and value security. In other words, in many cases, the value of an expected consequence will not be constant but rather contingent on the decision maker's regulatory focus. Furthermore, the theory of reasoned action posits that a person's expectation that the focal act will lead to the consequence also affects his or her attitude toward the act, intention, and behavior. Our findings extend the expectancy concept by indicating how expectations may be formed. Specifically, an alignment between a message's regulatory focus and the message frame may facilitate message comprehension or accessibility and thus aid in expectation formation.

Overall, our findings may assist social marketers. First, it is important to determine whether the audience is heterogeneous with respect to regulatory focus. If so, it may be useful to develop both prevention- and promotion-focused messages or to select media vehicles that match a message’s regulatory focus. Second, it is important to determine whether the audience comprehends the message and perhaps to adjust the message frame to facilitate comprehension. A promotion-focused message seems to be more comprehensible if it is conveyed using a positive frame, whereas a prevention-focused message seems to be more comprehensible if it is conveyed using a negative frame. In summary, small changes in how a message is worded and/or sequenced may make a large difference.

**APPENDIX: COMPARISON OF MESSAGE FRAME CONCEPTUAL FRAMEWORKS**

Message frame or valence (positive or gain versus negative or loss) has been a prominent dimension to distinguish persuasive messages. However, researchers have disagreed about how positive (gain) message frames differ from negative (loss) message frames. Two seemingly distinct frameworks have been proposed. In Rothman and Salovey’s (1997, p. 7) framework, the two key dimensions to consider are the type of outcome highlighted (desirable versus undesirable) and the action (not attain versus attain), which leads to two gain and two loss frames (see Figure A1, Panel A). In Levin, Schneider, and Gaeth’s (1998, p. 173) framework, the two key dimensions are the behavior (x versus not x) and what they call the “frame” (approach versus avoid),

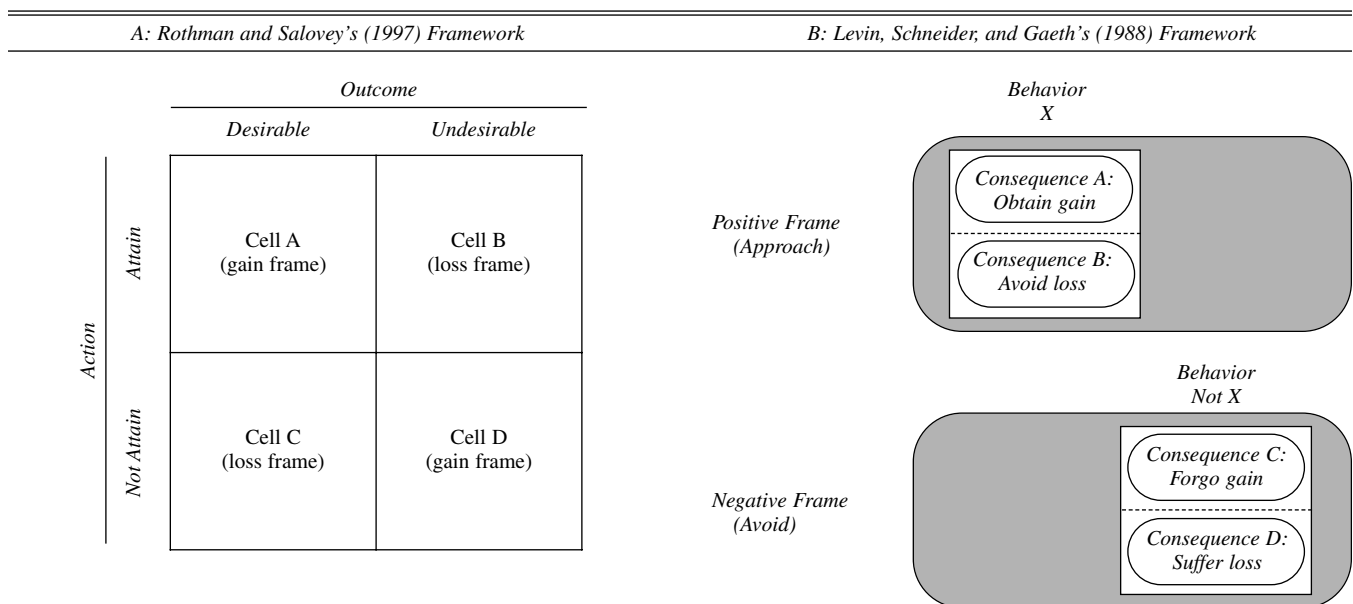
which leads to four consequences, two of which involve gains and two of which involve losses (see Figure A1, Panel B).

In the light of regulatory focus theory, the two desirable outcomes in Rothman and Salovey’s (1997) framework and the two consequences involving gains in Levin, Schneider, and Gaeth’s (1998) framework are promotion focused, whereas the two undesirable outcomes in Rothman and Salovey’s framework and the two consequence involving losses in Levin, Schneider, and Gaeth’s framework are prevention focused. Thus, two seemingly different frameworks can be united through regulatory focus theory. Our framework is a result of crossing the message’s regulatory focus with the message frame (Figure 1). Our goal is to categorize the different types of messages according to regulatory focus theory. The goal of Rothman and Salovey’s and Levin, Schneider, and Gaeth’s frameworks was to lay out specific ways to construct different positive (gain) and negative (loss) framed messages.

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**Figure A1**  
**A COMPARISON OF MESSAGE FRAME CONCEPTUAL FRAMEWORKS**



Notes: In Figure 1, our Cell 1 corresponds to Rothman and Salovey’s Cell A and Levin, Schneider, and Gaeth’s Consequence A; our Cell 2 corresponds to Rothman and Salovey’s Cell C and Levin, Schneider, and Gaeth’s Consequence C; our Cell 3 corresponds to Rothman and Salovey’s Cell D and Levin, Schneider, and Gaeth’s Consequence B; and our Cell 4 corresponds to Rothman and Salovey’s Cell B and Levin, Schneider, and Gaeth’s Consequence D. (The figure in Panel A was reprinted with permission from the authors, and the figure in Panel B was reprinted with permission from Elsevier.)

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