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Dr. George Gerbner
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Dear Dr. Gerbner:

Attached is my recent study on the effects of smoking in movies on young people. I look forward to meeting you and would appreciate any comments you may have on the paper.

Sincerely,

Connie Pechmann

Connie Pechmann

encl.

Smoking in Movies and Antismoking Ads Before Movies: Effects on Youth

Cornelia Pechmann
and
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DECEMBER 1997 DRAFT

PLEASE ATTAIN AUTHOR PERMISSION TO CIRCULATE

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Smoking in Movies and Antismoking Ads Before Movies:
Effects on Youth

Abstract

We conducted two studies on how depictions of cigarette smoking in Hollywood movies might impact youths. Our subjects were 800 9th graders who watched either movie scenes or entire movies, and either original footage with smoking or control footage in which the smoking had been edited out. In Study 1, we found that youths reacted emotionally to the smoking, finding it exciting and fun, which suggests they viewed the smoking as "forbidden fruit." Also, since the characters who smoked had attractive traits, they cultivated more favorable perceptions (expectations) regarding how smokers look to others and feel about themselves, consistent with Gerbner's Cultivation Theory. A rival theory was tested, Zillmann's Excitation Transfer Theory, which posits that pleasant smoking scenes will be offset by unpleasant scenes, but that theory was not supported. Study 2 found that showing an anti-smoking ad before a movie with smoking provided a negative frame of reference that altered youths' reactions to the smoking, consistent with the Law of Primacy. The results suggest the smoking became "tainted fruit" in that it no longer appeared exciting or fun and the smokers were criticized. Importantly, the anti-smoking ad precluded the movie from cultivating more positive perceptions of a smoker.

US public health officials consider cigarette smoking to be our country's leading health problem (US DHHS 1989, CDC 1996). Officials have urged marketers to apply social marketing principals to identify the causes of and solutions of the problem (Lynch and Bonnie 1994). Though the smoking rate among US adults has been declining by approximately 0.7 percentage points a year since the 1970s, 1 in 4 adult consumers still smoke (Fiore et al. 1989; Novotny et al. 1990; Pechmann, Dixon and Layne 1997; Pierce et al. 1989). Each year, 400,000 consumers die prematurely from smoking-related disease, or nearly 1 person per minute, making smoking the leading cause of death (US DHHS 1989). Taxpayers must shoulder the costs of disability insurance and indigent health care stemming from tobacco-related disease (CDC 1996b). Health care costs are up to 40% higher for smokers vs. nonsmokers of a given age (Barendregt, Bonneux and Van Der Maas 1997). Worldwide, the situation is even more dire in that the use of tobacco products is rising (Kaplan 1993). As a result, "tobacco is fast becoming a greater cause of death and disability than any single disease" (World Health Organization 1996). In 1990, an estimated 3 million people died worldwide from tobacco-related disease and, by 2020, that number is expected to rise to 8.4 million.

US health officials are especially concerned about the recent rise in the popularity of smoking among adolescents. Current (daily or occasional) smoking among high school students has increased from 27% in 1991 to 35% in 1995 (CDC 1996a). Further, students are smoking at younger ages; many start when just 12 or 13 years old, in grades 7 or 8 (US DHHS 1989). Seventy percent of underage smokers regret their decision to start smoking (Gallup 1992) but have difficulty quitting due to their nicotine addiction (Lynch and Bonnie 1994). The reasons why youngsters smoke are undoubtedly complex. There is mounting evidence that youths are influenced by tobacco marketing, including both cigarette advertisements and give-away promotions (Aitken and Eadie 1990; Aitken et al. 1991; Evans et al. 1995; Pechmann and Knight

1995; Pollay et al. 1996; Pollay and Lavack 1993). Peer pressure also plays a role in encouraging youths to smoke (Lynch and Bonnie 1994).

However, health officials and the public are focusing increasing attention on another possible instigator of underage smoking: the depiction of smoking in feature films (Busch 1990; Dutka 1996; Lipman 1989; Mangus 1985; Sixty Minutes 1996; Thomas 1996a,b; Wong 1997). There is a general perception that smoking in movies plays an important role in encouraging young people to smoke (Terre, Drabman and Speer 1991; Stockwell and Glantz 1997). Vice President Gore has attacked Hollywood for contributing to the "pediatric epidemic" of smoking, saying that "we know that popular culture has an enormous impact on our children's habits" and that "as more and more children start smoking … smoking in movies is way up as well" (Shogren 1997). First Lady Hillary Clinton likewise blames Hollywood for the increase in underage smoking, and has pointedly denounced films that "equate smoking with status, power, confidence and glamour" (Klein 1997). Gregory Connolly, director of the Massachusetts tobacco-control program, says "I'm far more concerned about the influence of Winona Ryder [smoking] than I am with camels or cowboys" (Parker-Pope 1997).

Concerns about depictions of smoking in feature films are fueled by several factors. First, cigarette smoking occurs in roughly 80% of movies, and the smokers are generally the lead characters (American Lung Association 1996; Dutka 1996; Hazan, Lipton and Glantz 1994; Hazan and Glantz 1995). Second, the depiction of smoking in movies is frequently unrealistic. For instance, 55% of the major characters who smoke on film are from the upper middle class while, in reality, only 14% of upper middle class individuals smoke (Stockwell and Glantz 1997). Third, movies rarely show or discuss the negative social or health consequences of smoking (Hazan and Glantz 1994; Stockwell and Glantz 1997). As Vice President Gore notes, movies rarely show the reality of people "drowning in the fluids that build up in their lungs" (Shogren 1997). Finally, movies appear to be a prime source of entertainment and information

for youth (O'Guinn and Shrum 1997). Youths are about three times as likely as adults to be frequent movie goers (Terre, Drabman and Speer 1991). Also, youngsters see approximately two feature movies a week on TV or videotape, and they go out to the movies about once a month (Veronis, Suhler and Associates Inc. 1996). Among youths and adults, here and abroad, movies comprise a major and growing source of entertainment. In 1995, US consumers spent $5.5 billion on movie theater tickets, and $31.4 billion on filmed entertainment, and the five-year compounded annual growth was 5.7% (Veronis, Suhler and Associates Inc. 1996).

The furor over smoking in the movies in many ways mirrors criticisms over the depiction of violence in movies and on television. However, concern over violence has a much longer history; research on that topic commenced back in the 1960s (Bandura 1973; Berkowitz 1993; Geen 1981; Geen and Stonner 1974; Gerbner 1996; Signorielli, Gerbner and Morgan 1995; Zillmann 1971). Concern about smoking in movies has just surfaced in the last few years and minimal research has been conducted. We have conducted what appears to be the first research into the causal impact of cigarette smoking in movies on youths. In two studies, we exposed 800 9th graders to movie scenes with smoking or to the same scenes with the smoking professionally edited out. Modeled our research after studies of movie violence, we asked four basic questions:

1. Do youths react to smoking in movies at an emotional level? Are they aroused by it?
2. Does smoking in movies change youngsters' perceptions or expectations regarding how smokers look to others or feel about themselves?
3. Is the impact of smoking in any way influenced by whether the smoking scenes are pleasant or unpleasant?
4. If an anti-smoking advertisement (public service announcement) is shown before a movie with smoking, can it counteract the influence of the smoking?

The need for research on this topic has never been greater. California State Senator John Burton recently held hearings on the problem (Wong 1997). Vice President Gore has appointed a task force to devise an action plan (Shogren 1997). The Los Angeles and Massachusetts Departments of Health have begun to run anti-smoking ads in movie theaters in the hopes of inoculating youths from the images of smoking (Parker-Pope 1997; Wong 1997). This paper seeks to inform these efforts, by using consumer behavior research to understand the impact of on-screen smoking on youths, and by using social marketing principles to seek solutions.

Impact of Smoking in Movies on Youths: Theories and Research Propositions

Smoking and Emotional Response

First, we explore how youths might react to smoking scenes on an emotional level. We must consider smoking in today's social milieu. Smoking — particularly by young people — is increasingly viewed as taboo. Many scholars opine that smoking has become a quintessential "forbidden fruit" (Klein 1993, 1997). A forbidden fruit becomes a source of excitement (Bushman and Stack 1996; Cantor, Harrison and Nathanson 1997; Cantor and Harrison 1996; Christenson 1992; Stewart and Martin 1994). Richard Klein, author of *Cigarettes are Sublime*, writes that in today's society "tobacco use is eroticized and surrounded by the odor of what is reckless and tabooed," and thus "the moment of lighting up seems to spark the most energetic erotic excitement" (Klein 1997, p. 31). If smoking has become a forbidden fruit, smoking scenes in movies should elicit positive affect. By positive affect, we mean "high energy, full concentration and pleasurable engagement" (Watson, Clark and Tellegen 1988, p. 1063; also Eliashberg and Sawhney 1994; Watson and Tellegen 1985).

There is considerable evidence that youngsters who engage in cigarette smoking feel they are partaking of forbidden fruit. Studies have shown that adolescents link the behavior of

smoking with both physiological arousal and fun (Benthin et al. 1995; Iso-Ahola and Crowley 1991; Wood et al. 1995). Youngsters apparently associate smoking with thrill-seeking because, until they turn eighteen years old, smoking is illegal and risky. Past research has addressed how youths feel when actively engaged in smoking, not when passively watching movie characters smoke. But, we think it is quite possible that youths will empathize with the movie characters who smoke and find the smoking scenes to be exciting, as if they themselves were partaking of the forbidden fruit (Hirschman and Holbrook 1982; Holbrook and Hirschman 1982).

There is some anecdotal evidence that filmmakers include smoking with the explicit goal of making scenes more exciting and evocative (Darlin 1995; Dutka 1996; Fleming 1990; Maslin 1982; Nebenzahl and Secunda 1993). Larry Deutchman of the US Entertainment Industry Counsel opines that newer, independent directors are seeking an "edginess" in their films and are using more on-screen smoking to achieve that tone (Russell 1997; Wong 1997). In this regard, smoking may serve a similar function to violence and sex, which are often included in movies to titillate viewers (Bryant and Zillmann 1984; Cantor, Zillmann and Einsiedel 1978; Zillmann 1971, 1991; Zillmann and Bryant 1984). Our formal hypothesis is as follows:

> H1: Youths who are exposed to movie scenes with cigarette smoking (vs. nonsmoking control scenes) will report a higher level of positive affect while watching the scenes.

Smoking and Social Perceptions

Overview. The idea that smoking scenes may make a movie "edgy" (Russell 1997) or even possibly "erotic" (Klein 1997) may help to explain why smoking is so often depicted. However, it does not explain any possible impacts on youths' perceptions of a smoker or

expectations about what it might be like if they smoked.[1] We identified two rival hypotheses. One hypothesis is that, when youths see attractive movie characters smoke, they should attain more positive perceptions of what smokers are like. This prediction follows from Cultivation Theory (Gerbner et al. 1977). A competing hypothesis is that pleasant and unpleasant smoking scenes should offset each other, such that there may be no discernible effect on youths' expectations regarding what it might be like to smoke. This hypothesis is grounded in Excitation Transfer Theory (Zillmann 1971). Each theory will be discussed in turn.

Cultivation Theory. A large number of studies have found that mass media can play an important role in the construction of consumers' — and particularly youths' — social reality (Gerbner et al. 1977; O'Guinn and Shrum 1997). One of the most robust findings is that, since upper-middle-class individuals are overrepresented on television and in the movies, heavy (vs. light) viewers perceive the average citizen as being more affluent (O'Guinn and Shrum 1997; Potter 1991; Weimann 1984). Another consistent finding is that, since violent crime is ten times as common in the media vs. in reality, heavy (vs. light) viewers are more likely to overestimate the likelihood that they will become crime victims (Gerbner 1996). In yet another example, beautiful models create the impression that people in general are more attractive (Richins 1991).

Gerbner, a researcher at the University of Pennsylvania's Annenberg School, has studied this phenomenon for over thirty years. He has labeled it the Cultivation Effect (Gerbner et al. 1977; 1980; 1986). Formally, Cultivation Theory posits that mass media cultivates a view of reality that is biased toward the stylized "pseudoreality" that is depicted in entertainment and news programming. It is believed that television and movie viewers give credence to the images on the screen, because the images seem reasonably realistic, and because viewers are generally

[1] As in past studies (Burton et al. 1982 Chassin et al. 1981), we assume that subjects' perceptions of a smoker mirror their expectations or beliefs regarding what it might be like if they smoked. For instance, when subjects tell us a smoker looks cool, we assume they are expressing their belief or expectation that by smoking *they will look cool.*

in a relaxed, noncritical mental state (O'Guinn and Shrum 1997). A recent study by O'Guinn and Shrum (1997) has helped to document the mental processes underlying the Cultivation Effect. The findings suggest that, because mass media images are frequent, recent and vivid, the images are relatively accessible in viewers' memories. Thus, when viewers must make a social appraisal or judgment, they exhibit an availability bias. They infer prevalences and norms based on the ease with which they can generate relevant examples (Tversky and Kahneman 1973). For instance, viewers of crime shows remember the innumerable examples of crimes depicted on those shows, and create inflated estimates of crime rates in the real world (Gerbner 1996). Viewers of pornography recall the unusual sexual practices they have seen, and overstate the prevalence and acceptability of such practices (Zillmann and Bryant 1982).

Researchers have not yet examined whether cigarette smoking in movies can alter social perceptions. However, based on the Cultivation Effect, one would expect movies to cultivate a view of smoking that is consistent with the characterizations (personality and physical profiles) of the actors and actresses who smoke on screen. For example, if the smokers in the movie are rich and famous, viewers may think it more likely that the average smoker has those same traits. If smokers on film are sexy, viewers may conclude that, as a general rule, a smoker is sexy. As Glantz notes, "images of tobacco use in movies are generally associated with success, youthful vigor, power, good health, looks and professional acceptance (cited in Wong 1997, p. 2). Thus we hypothesize the following:

> H2: Youths who are exposed to an attractive movie character that smokes (vs. the same character as a nonsmoker) will perceive a "typical smoker" as more likely to have the same attractive traits.

Excitation Transfer Theory. A rival view is that cigarette smoking in movies is best understood as a type of a consumer "product placement." As such, its impact on viewers should be highly dependent on the nature of the scenes in which the cigarettes are placed. We define a

product placement as a planned and unobtrusive entry of a product (or service) into a movie or TV program that may influence audiences' perceptions of the product and user and their likelihood of purchasing and using the product (Balasubramanian 1994). Thanks to product placements, Ford Explorers ride through *Jurassic Park* (Darlin 1995) and *Teenage Mutant Ninja Turtles* order Domino's Pizza (Fleming 1990).

The tobacco industry has been placing its products in movies since the 1920's (Schudson 1984). The industry presumably stopped paying for such placements in 1990 due to public outcry and a congressional probe (Busch 1990; Lipman 1989). But clearly this has not stopped writers and directors from including cigarettes, both generic and branded, in their films. In reality, the vast majority of product placements in movies — cigarettes or otherwise — are unpaid (Fleming 1990; Reed 1989). Most commonly, filmmakers make autonomous decisions to include products they think are appropriate (Dutka 1996; Fleming 1990; McCarthy 1994; Seibel 1992). If filmmakers want to use a specific brand name, they will ask the marketer for a trademark release (Darlin 1995; Fleming 1990) and possibly for free products to be used as props (Bohn 1986; Maslin 1982; Teather 1995).

It is generally agreed that the impact of a consumer product placement in a movie is contingent on the scenes in which the product is placed (Balasubramanian 1994). To the extent that a marketer can influence the placement decision, the overriding objective is to place the product or product user in an entertaining and suspenseful scene in order to develop favorable paired-associations (Maslin 1982; Miller 1990). When *Bullitt's* Steven McQueen raced a Ford Mustang through the windy streets of San Francisco on exciting adventures, McQueen reportedly built positive associations and enhanced purchase intent for the Ford Mustang model (McCarthy 1994). On the other hand, if a product is placed in a distasteful or depressing scene, it can create "a negative product association that can damage a product's image" (Balasubramanian 1994, p. 38). Much to the dismay of Coca-Cola, its flagship product appeared in an offensive murder

scene of *Natural Born Killers* (Ayer 1995). Thus "many placement sponsors ... exercise control over the message by imposing stringent guidelines on movie producers to avoid negative paired-association" (Balasubramanian 1994, p. 38).

Zillmann's Excitation Transfer Theory (Bryant and Zillmann 1984; Zillmann 1971, 1983, 1988, 1991; Zillmann, Mody and Cantor 1974) explains how product placements can alter viewers' evaluations of products and users. According to Excitation Transfer Theory, the emotions that are evoked by the movie scene can transfer over to a product or user that is present in the scene. It is believed that the transfer or "rub off" occurs because viewers misattribute the emotion generated by the scene to the product or user within the scene (also see Clore and Byrne 1974; Schachter and Singer 1962; Schwarz 1990; Schwarz and Clore 1983).[2] An important implication of this view is that the impact of the on-screen smoking should be contingent on the scene's emotional tone. Exciting and enjoyable smoking scenes should improve perceptions or expectations regarding smoking. An example might be the scene in *Basic Instinct* in which an ultra-sexy Sharon Stone smokes in a "no smoking" police depot, coyly deflecting officers' questions and flirting with Michael Douglas (Dutka 1996; also Hazan, Lipton and Glantz 1994; Schudson 1984; Seibel 1992; Mangus 1985; Thomas 1996a,b). But, distasteful or depressing smoking scenes should have an adverse impact on perceptions of how a smoker might look to others and/or feel about themselves. Finally, either neutral scenes or offsetting positive and negative scenes should have a null impact on audiences' views of smoking.

Some writers and directors say they purposefully include smoking in both pleasant and unpleasant scenes because they do not want to promote the behavior (Dutka 1996; Seibel 1992). For instance, the screenwriter of *Regarding Henry*, had concerns about casting the lead character

[2] A related theory is Classical Conditioning (Gorn 1982; Staats and Staats 1958). But, for classical conditioning, a product must be placed in many similar scenes within the same movie (Balasubramanian 1994). Marketers consider themselves fortunate if they can place their product in a single scene (Ayer 1995; Kalish 1988; McCarthy 1994).

(Harrison Ford) as a smoker, since the lead was a highly successful and powerful businessman. According to Cultivation Theory, this type of movie could help to create the impression that smokers in general tend to be rich and famous businesspeople. So, the writer included a scene in which the businessman is shot while buying a pack of cigarettes. The writer explained "I hate cigarette smoking and it was a very conscious decision to use it negatively" (Seibel 1992). The writer's views mirror the intuition underlying Excitation Transfer Theory, which is that filmmakers can offset pleasant scenes of smoking by inserting smoking into one or more unpleasant scenes. We therefore tested a rival prediction (H2-alternative) as stated below.

H2-alt: If the movie scenes are generally pleasant, youths who are exposed to an attractive movie character that smokes (vs. the same character as a nonsmoker) will perceive a "typical smoker" as more likely to have the same attractive traits. If the movie scenes are generally unpleasant, the above effects will not attain.

Study 1: Method

Design and Subjects

This study employed a 2 (smoking vs. nonsmoking scenes) X 2 (pleasant vs. unpleasant scenes) factorial design. Subjects were randomly assigned to one of the four conditions. Subjects either saw original movie footage with smoking or control footage with the smoking professionally edited out. Further, subjects saw movie footage that, based on pretests, was either relatively pleasant or unpleasant. Subjects were 607 9th graders from 3 middle-class high schools in Southern California who participated voluntarily with parental approval. The subjects were 14 and 15 years old and about half were female. Most were Caucasian (75%); most of the other subjects were either Hispanic or Asian.

Subjects' smoking behaviors and intentions were measured two weeks prior to the main study in a "health survey." The survey was distributed by teachers and returned in sealed envelopes to maintain confidentiality. Thirty youths were identified as smokers because they

had smoked 20+ days in the past month (Lynch and Bonnie 1994). These subjects were dropped to minimize error variance and focus on smoking initiation. To assess smoking intent, subjects were asked if they might smoke one puff or more of a cigarette within a year, or if dared by a friend (1=definitely yes; 4=definitely not; Evans et al.1995). Subjects who answered "definitely not" to both questions were classified as having no prior intent (43%); the remainder were classified as having prior intent. Prior intent was included as a factor in all of the analyses, but the findings were unaffected. Thus, for parsimony, the results are reported after collapsing across prior intent.

Stimulus Movies

The stimulus movies were *Reality Bites* and *Wild at Heart*. *Reality Bites* stars Winona Ryder and Ethan Hawke. It was released in 1994 by Universal Pictures, produced by Danny DeVito and Michael Shamberg, and directed by Ben Stiller. *Wild at Heart* stars Nicolas Cage and Laura Dern. It was released in 1990 by Samuel Goldwyn Company, produced by Monty Montgomery, and directed by David Lynch. These movies were chosen because they have youth-oriented themes about breaking free from parents and finding successful life paths. Also, the lead characters are young and attractive and they smoke cigarettes in a large number of scenes. Seven scenes from each movie were integrated into "movie previews" lasting 8 minutes. Each subject saw one preview per movie, or two previews in all, lasting a total of 16 minutes. Subjects were told they were viewing "previews" to minimize the likelihood that the editing we did would arouse suspicion. *Reality Bites* is rated PG-13 and *Wild at Heart* is rated R, but we only used PG-13 footage in our study (Valenti 1996).

Independent Variables

Smoking was included in just two of the seven scenes per preview, in an attempt to minimize suspicion about the study's true purpose. The characters who smoked were Winona Ryder and Nicolas Cage. They smoked for a total of 1 minute during the 16 minutes of footage, or 6% of the time. (In the original movies, smoking also comprised 6% of the total viewing time.) Professional editors created matched nonsmoking scenes. They removed all cigarettes and ash trays, and as much secondary smoke as possible, while preserving the length, dialog, music and nonsmoking visual content. For instance, whenever a cigarette appeared in the corner of the screen, that corner was cropped and the remaining part was enlarged to fill the screen.

The smoking scenes included in the previews were selected to be either primarily pleasant and unpleasant based on pretests ($n = 123$). In the pleasant scenes, the lead characters were shown engaged in fun and exciting activities. For instance, Winona Ryder was pictured driving in a convertible with a friend, singing exuberantly to an upbeat song on the radio. In unpleasant scenes, the lead characters were depicted in a depressed and downtrodden state. For example, Nicolas Cage was shown sitting silently in a cot in a tiny, dirty jail cell. Manipulation check data was collected in the main study. As expected, subjects' rated the manipulated scenes significantly different on emotional tone (see below for measures; scale: 1 = very low positive affect; 7 = very high positive affect, means = 4.03 vs. 2.61, $F(1,596) = 406.48$, $p < .01$).

Procedures for Data Collection and Analysis

The study was conducted in small groups of about twenty students. Each session lasted one class period (approximately 50 minutes). All sessions at a school were conducted on one day to minimize contamination. Subjects were released from class and reported to a room equipped with a large screen (50 inch) color television, stereo speakers, and videocassette player. Subjects were told that the study was designed to determine what teenagers think of movies,

characters in movies, and people in general. Subjects then watched movie excerpts on video. After each scene, the researcher paused the video so subjects could record their emotional reactions. After viewing both previews, subjects completed a written survey that measured their perceptions of a smoker. At the end of the survey, subjects were asked whether they had seen cigarette smoking in either or both of the movie previews (as a manipulation check) and what they thought the study was about (as a suspicion check). To minimize the likelihood that participation in the study had inadvertently encouraged some of the subjects to smoke, a month later, subjects attended an anti-smoking seminar conducted by a professional health educator. Data analysis proceeded as follows. Intervally-scaled data were analyzed using omnibus ANOVAs. Dichotomous data were analyzed using logistic regressions and the forward log likelihood estimation method (Hosmer and Lemeshow 1989).

Measure of Emotional Response

To test the first hypothesis (H1), we needed to assess subjects' emotional responses to the smoking scenes vs. matched nonsmoking scenes. If we focused subjects' attention on the manipulated scenes, though, we were concerned that subjects might guess the study goals. Thus we asked subjects to record their emotional reactions to all of the scenes. Subjects recorded how each scene made them feel on two semantic differential items: not exciting (1) - exciting (7), and unhappy (1) - happy (7). These items were later averaged to obtain a measure of overall positive affect or pleasantness (see Eliashberg and Sawhney 1994, Russell, Weiss and Mendelsohn 1989; Watson and Tellegen 1985; Watson, Clark and Tellegen 1988). In studies of college students, the scale endpoints have been labeled "pleasure" and "arousal," but we used the simpler terms happy and exciting to ensure that our 9th graders would be able to understand the meanings. We used a two-item scale to minimize the likelihood that the task would disrupt the

flow of the movie previews. It only took a few seconds for subjects to record their emotional reaction to each scene.

Measure of Social Perceptions

To test the second set of hypotheses (H2 and H2-alt), we needed to assess subjects' perceptions of a smoker. We used the past literature to develop an initial inventory of youths' positive and negative expectations about what it might be like to smoke, focusing on items that have been found to predict smoking uptake (Aitken et al. 1991; Aitken and Eadie 1990; Barton et al. 1982; Burton et al. 1989; Chassin et al. 1981, 1984; Collins et al. 1987; Gorden 1986; Grube et al. 1984; McAlister, Krosnick and Milburn 1984). We then conducted in-depth interviews to uncover additional beliefs that might be relevant.

The final measure assessed subjects' perceptions of a smoker on twelve traits, using two items per trait, or twenty-four items in all. Following past precedent (e.g., Barton et al. 1982; Chassin et al. 1981), we asked subjects to evaluate a "teenage" smoker to avoid eliciting information about adult smokers that might be less pertinent. The scales were nine-point semantic differentials with higher numbers indicating more positive perceptions or expectations. Subjects' responses to these items were later subjected to a factor (principal components) analysis to determine if their responses across items covaried, indicating the presence of higher-order factors. Five such factors were identified: Life Path (4 items: intelligent, smart, rich, successful), Physical State (6 items: healthy, well, fit, athletic, clean, good smelling), Weight (2 items: thin, slim), Social Desirability (6 items: sexy, desirable, good looking, cute, fun, well-liked) and Internal Welfare (6 items: contented, relaxed, confident, comfortable around others, own person, free to make decisions). The factor loadings ranged from .57 to .92 with a mode of .78. While our measures are similar to those used in past studies (e.g., Barton et al. 1982; Chassin et al. 1981), we included more items and grouped them higher-order factors.

Consistent with Chassin et al. (1981), we worded the basic question or stem two different ways. We asked subjects how a smoker is viewed by his or her reference group, a construct Schlenker (1980) refers to as the "social identity." Our wording was: How does a teenager who smokes cigarettes *look* to you? We also asked subjects how a smoker perceives himself or herself when engaged in an introspective evaluation, a construct Schlenker (1980) refers to as the "self concept." Our wording was: If you were to smoke a cigarette, how do you think it would make you *feel*?[3] According to Schlenker, the social identity is more malleable but, as it changes, eventually more fundamental changes ensue to the self concept. Thus, we expected that subjects were most likely to acquire more positive beliefs about how a smoker looks to others, but might also attain more positive beliefs about how a smoker feels inside.

Study 1: Results

Scale Reliabilities

The measure to assess subjects' emotional response (positive affect) had an inter-item reliability of .82. The subscales measuring subjects' perceptions of a smoker's social identity and self concept had inter-rater reliabilities ranging from .91 to .97. Subjects' responses to the suspicion check were coded by two judges and their inter-rater reliability was 92%. Thus, all measures appear to have been reliable.

Tests of Hypotheses

Consistent with H1, subjects reported more positive affective reactions to the smoking vs. nonsmoking scenes (means = 3.43 vs. 3.19, $F(1,596) = 10.06$, $p < .01$). Also, as reported

[3] In pretests, we asked subjects how "smokers feel." Subjects had some difficulty answering, so we reworded it to ask how smoking "would make you feel." Chassin et al. (1981) asked subjects to rate "the kind of boy/girl who smokes" and "the kind of person I would like to be like." The former question assessed the smoker's social identity, while the discrepancy between the former and latter ratings assessed the smoker's self concept. We preferred to use completely separate (orthogonal) measures of these two constructs.

above, subjects' affective reactions were influenced by whether they saw pleasant vs. unpleasant scenes ($p < .01$). However, the two independent variables (smoking vs. nonsmoking scenes and pleasant vs. unpleasant scenes) did not interact to impact subjects' affective reactions ($p > .40$). The results are supportive of H2 as well. Two-way ANOVAs revealed that subjects' perceptions of a smoker were affected by whether they saw smoking vs. nonsmoking previews (p's < .05). The findings were not supportive of H2-alt. That is, subjects' perceptions of a smoker were not impacted by exposure to pleasant vs. unpleasant scenes (p's > .10), or by the interaction between the two independent variables (p's > .15). The smoking (vs. nonsmoking) excerpts enhanced subjects' perceptions of a smoker's social identity on three traits: Life Path (means = 3.58 vs. 3.13, $F(1, 601) = 7.49$, $p < .01$), Physical State (means = 3.16 vs. 2.76, $F(1, 601) = 4.86$, $p < .05$), and Weight (means = 4.78 vs. 4.42, $F(1,601) = 3.82$, $p = .05$). In addition, smoking (vs. nonsmoking) enhanced ratings of a smoker's self concept on the Life Path trait (means = 3.63 vs. 3.27, $F(1,601) = 5.85$, $p < .05$). All other effects were nonsignificant (p's > .10).

[INSERT TABLE 1 HERE]

Manipulation and Suspicion Checks

In the smoke condition, 60% of subjects accurately recalled having seen smoking in both previews, and 99% accurately recalled having seen it in at least one preview. In the nonsmoking condition, 6% of the subjects mistakenly recalled having seen smoking in both previews and 42% mistakenly recalled having seen it in at least one preview. A logistic regression showed that smoke condition was a significant predictor of subjects' recall of smoking ($p < .01$) and no other effects were significant (p's > .20). Subjects were more likely to report having seen smoking in *Reality Bites* vs. *Wild at Heart*. The reason appears to be that *Reality Bites* previews contained second-hand smoke, which helped to accentuate the smoking, but also made it more difficult for the editor to remove the smoking.

When subjects were asked what the study was about, most listed at least two possibilities. Consistent with the cover story, 52% said the study was about teenagers and 43% said it was about movies. Twenty-one percent guessed the study was about beer, 21% reported miscellaneous ideas, and 5% left the question blank. Fifty-eight percent of subjects suspected the research pertained to smoking, which is probably attributable to the fact that most of the survey questions mentioned smoking. To determine whether suspicious subjects had responded differently to the questions, three-way ANOVAs were conducted with suspicion of smoking as a third factor. There were no significant effects for suspicion (p's > .10) and the results reported above were unaffected.

Summary of Results

Subjects reacted to the smoking as if it were "forbidden fruit." They found the smoking to be exciting and arousing. Smoking seemed to be titillating in the same way that sex and violence are titillating. It could be argued that this particular outcome is relatively innocuous. In fact, the writers and directors of the films we studied (*Reality Bites* and *Wild at Heart*) may even be pleased to learn that, by casting the lead characters as smokers, they made their movies more interesting and evocative. However, the smoking scenes produced some undesirable outcomes as well. Consistent with Cultivation Theory (Gerbner et al. 1977; 1980; 1986), the smoking scenes cultivated more positive perceptions of a smoker. Since the movie characters who smoked had attractive traits, subjects inferred that the average smoker was more likely to have such traits. Specifically, subjects concluded that the average smoker looked smarter, more successful, healthier and thinner, and felt smarter and more successful.

We also tested a rival theory, Excitation Transfer Theory (Zillmann 1971, 1983, 1988, 1991), but it was not supported. According to the rival theory, while pleasant smoking scenes should have enhanced perceptions of a smoker, unpleasant smoking scenes should have had

offsetting (null or negative) effects. We succeeded in finding movie scenes that were either very pleasant or very unpleasant but this variable had no apparent impact on subjects' responses. Regardless of the scene's emotional tone, the presence (vs. absence) of smoking enhanced subjects' perceptions of a smoker. A possible limitation of this study is that many subjects guessed that the research pertained to smoking. Also, the smoking manipulation was imperfect due to difficulties in editing out second-hand smoke. Hence, a second study was conducted to retest the main research predictions. Study 2 was designed in such a way that very few subjects guessed the study dealt with smoking. Also, a more sophisticated approach was used for editing out the secondhand smoke to create nonsmoking (control) movie scenes. Study 2 also extended Study 1 in two ways. Subjects watched a full-length movie with smoking, rather than selected movie scenes. Also, an anti-smoking ad was shown before the movie as a possible remedy.

Anti-smoking Ads Before Movies: Theories and Research Propositions

From a public health perspective, it is disquieting that depictions of smoking in movies enhanced subjects' perceptions of a smoker. Studies have shown that the more favorable (less negative) youngsters' perceptions of a smoker, the greater the likelihood that the youngsters will start smoking themselves (Barton et al. 1982; Chassin et al. 1981; Collins et al. 1987; Gorden 1986; Grube et al. 1984; McAlister, Krosnick and Milburn 1984). Hence, we decided to test a "social marketing solution," that is, to apply the logic of marketing to the societal goal of discouraging smoking (Kotler and Zaltman 1971). Since the depiction of smoking in movies seems to have effects similar to cigarette advertising (Aitken and Eadie 1990; Pechmann and Ratneshwar 1994; Pollay et al. 1996; Pollay and Lavack 1993), we applied the logic of advertising, which is to counteradvertise (Grewal et al. 1997; Pechmann and Ratneshwar 1994;

Pechmann and Stewart 1990). Specifically, we placed an anti-smoking ad before a movie that showed attractive characters smoking, to see if the ad could nullify the effects of the smoking.

There are many types of anti-smoking ads, ranging from traditional health messages to condemnations of tobacco marketers (Bauman et al. 1988; Worden et al. 1988; Pechmann 1997). We used a type of ad that attempts to shift norms by suggesting that the majority of teens regard smoking as uncool and socially unacceptable. We felt this ad type might be particularly effective at changing the status of on-screen smoking from "forbidden fruit" to "tainted fruit" (Bushman and Stack 1996; Cantor, Harrison and Nathanson 1997; Cantor and Harrison 1996; Christenson 1992; Stewart and Martin 1994). Recent work by Bushman and Stack (1996) and Christenson (1992) indicates that a forbidden fruit is attractive and exciting on account of the fact that is prohibited for vague or forgotten reasons. A tainted fruit, by contrast, lacks allure because it has tangible and credible liabilities. An anti-smoking ad that portrays smoking as socially unacceptable would appear to identify a palpable liability. Most adolescents feel it is of utmost importance to attain acceptance and respect from their peers (Havighurst 1951; Solomon 1983; Spranger 1955). Formally, then, we predicted the following:

H3. If a suitable anti-smoking ad is shown prior to a movie, smoking (vs. nonsmoking) scenes in that movie will no longer elicit positive affect among youths.

Showing an anti-smoking ad before a movie that depicts smoking may also prevent the movie from enhancing youths' perceptions of a smoker. In other words, the anti-smoking ad may guard against the otherwise ubiquitous Cultivation Effect (Gerbner et al. 1977; 1980; 1986; O'Guinn and Shrum 1997). Past studies have tested the efficacy of anti-violence ads, and some have found those ads to be of dubious value (Gerbner 1995; Koplovitz 1994; Russell 1994). But those ads were designed to discourage gangs and others from committing violent crimes; they were not intended to inoculate viewers from depictions of violence in the mass media. In this research, we focus on a rather novel type of public service message — a message that would be

shown prior to objectionable movies, containing images that are diametrically opposed to those in the movies.

We believed that an anti-smoking ad that precedes and parodies the attractive images of smoking in a movie could have a discernible effect on viewers. Our belief was based on an established principal called the Law of Primacy (Haugtvedt and Wegener 1994; Knower 1936; Lund 1925.) The Law of Primacy predicts what a group representing the prevailing view (e.g., the anti-smoking view) should do when threatened by a competitor with an opposing view (e.g., the pro-smoking view). The group with popular support should make its position known before the competitor can present the alternative perspective. In other words, the initially favored group should set the agenda or establish the frame of reference. If they do so, according to the Law of Primacy, their view will continue to prevail. Once people are reminded of their initial opinion, they will spontaneously generate counterarguments to the second and opposing message.

An anti-smoking message would appear to represent the majority view. Most youths and adults in this country choose not to smoke, consider it a serious health risk, and in general do not look upon it favorably (Mizerski 1995; Pechmann and Ratneshwar 1994). Also, most youngsters who smoke wished they had never started and want to quit (Gallup 1992). Hence, we felt that when an anti-smoking ad is shown before a movie with smoking, the Law of Primacy should hold. The anti-smoking ad should remind viewers of the drawbacks of smoking. Later, when viewers watch the movie, they should generate counterarguments (negative thoughts or criticisms) about the smokers. In other words, the anti-smoking ad should function as an "inoculation" and lower youths' susceptibility to the smoking in the movie. Our formal hypothesis is as follows:

H4. If a suitable anti-smoking ad is shown prior to a movie, smoking (vs. nonsmoking) scenes in that movie will no longer enhance youths' perceptions of a smoker. In fact, youths will produce negative thoughts (counterarguments) about the smoking.

Study 2: Method

Design and Subjects

Study 2 utilized a 2 (smoking vs. nonsmoking scenes) X 2 (anti-smoking ad vs. control ad) factorial design and subjects were randomly assigned to one of the four conditions. Subjects watched either the original version of a movie with smoking or an edited (control) version with no smoking. Also, before the movie, subjects saw one of two health messages: an anti-smoking ad or an anti-AIDS (control) ad. Subjects were 232 ninth graders from five Southern California high schools who volunteered to participate and had parental permission. The subjects were similar to those in Study 1 except fewer were Caucasian; roughly 50% were either Hispanic or Asian. As before, all were nonsmokers (53 smokers were excluded). Fifty-eight percent of the subjects expressed no prior intent to smoke; the rest expressed some possible interest. But, when prior intent was included as an added factor in the analyses, the findings did not change.

Stimulus Movie

The stimulus movie was *Reality Bites*. As noted earlier, it is rated PG-13 and its young and attractive leads, Winona Ryder and Ethan Hawke, are repeatedly shown smoking cigarettes. Also, both leads are portrayed as smart, ambitious and successful. Both are college graduates. Ryder is the class valedictorian, she drives a BMW and she is a gifted documentary film maker. Hawke is a talented singer in a popular rock band. Thus *Reality Bites* seemed particularly likely to impact youths' perceptions of a smoker's life path. We identified subjects who had seen *Reality Bites* and dropped them from the study to reduce error variance and minimize suspicion

over the editing. We investigated whether subjects who had seen (vs. not seen) *Reality Bites* were different with regard to their gender or intent to smoke. A logistic regression showed that neither variable was a significant predictor of whether subjects had seen *Reality Bites* (-2 Log Likelihood Ratio = 371.101, p's > .09). Hence, dropping subjects who had seen *Reality Bites* should not impact the generalizability of the results.

Independent Variables

The movie with smoking was the original 99-minute version of *Reality Bites*. It contains 5 minutes of smoking, across 12 (30%) of its 40 scenes. (A scene is defined as a break in action to change location; see Spottiswoode et al. 1969.) The movie without smoking was a professionally edited version of *Reality Bites*. The editors cut out all traces of smoking, cigarettes and ash trays and also managed to eliminate virtually all of the second-hand smoke. The length, storyline, music and dialog were all fully preserved. The anti-smoking ad was an offbeat 30-second color television spot from the California Department of Health Services. It performed the best in a pretest involving 10 ads and 88 9th graders. In the ad, a male high school student talks about how he dumped his girlfriend when she started smoking. The ex-girlfriend appears with a cigarette dangling from her mouth, looking aged, overweight, unattractive and insecure. She begs for a date and is rejected. She looks so ridiculous that the spot manages to be funny and evoke laughter. The control ad was also an offbeat, funny 30-second color television spot featuring a teenage couple. The youths wake up after a night of drunkenness, worried about having contracted AIDs from unprotected sex.

Procedure and Dependent Variables

The method and measures mirrored those used in Study 1, with the following exceptions. This study lasted two hours, because subjects watched *Reality Bites* in its entirety. Also, subjects

reported their emotional reactions to the 40 scenes; as before, their responses were then averaged across the manipulated scenes. The measurement of affect apparently was not disruptive, since it only took subjects a few seconds to record their reactions to each scene. In any case, we needed an on-line measure to ascertain if the smoking seemed to be viewed as forbidden fruit vs. tainted fruit. Other common measures of affective response are more intrusive (e.g., Stayman and Aaker 1993). Relative to Study 1, the survey contained more distracter questions about movies and movie stars. Also, subjects recorded their answers on Scantron forms to facilitate data entry.

After the movie ended, subjects were asked to evaluate it. The items came from surveys used to pretest Hollywood movies (Sawhney 1994), and a factor analysis identified two higher-order factors: Action (entertaining, funny, action packed, exciting, happy, positive, my kind of movie) and Storyline (good characters, well acted, good story, good taste, imaginative, not confusing, not offensive, not corny, not stupid). The scales were nine-point semantic differentials with higher numbers indicating more positive ratings. Subjects were also asked if they would recommend the movie to a friend (1 = definitely not; 4 = definitely yes). In addition, subjects were asked to write down their thoughts about the lead characters, Troy (Hawke) and Lalaina (Ryder). They were told to list one thought per line, and to note if each thought was positive, negative or neutral. When classifying thoughts, it is standard practice to use these three valence categories (Bohner, Crow and Erb 1992; Haugtvedt and Wegener 1994; Petty and Cacioppo 1986). At the very end of the survey, as a manipulation check, subjects were asked about the ad before the movie. They were asked if they remembered seeing an ad and, if so, did it deal with AIDS, glue sniffing, gang violence, anti-smoking, other, or don't remember?

Study 2: Results

Scale Reliabilities

The measure of emotional response (positive affect) had an inter-item reliability of .85. The measures used to assess perceptions of a smoker had inter-item reliabilities ranging from .91 to .96. The movie liking subscales, Action and Storyline, had reliabilities of .90 and .94 respectively. The judges that coded subjects' answers to the suspicion probe attained an inter-rater reliability of .96. Thus, all measures had acceptable reliabilities.

Manipulation and Suspicion Checks

The results indicate that the smoking manipulation was successful. A logistic regression showed that smoke condition significantly affected recall of smoking (-2 Log Likelihood Ratio = 157.36, $p < .01$) and all other factors were nonsignificant (p's > .10). Ninety-two percent of the subjects who saw the movie with smoking correctly recalled seeing the smoking. Only 8% of subjects who saw the movie with no smoking erroneously thought they saw smoking. The ad type manipulation succeeded as well. The logistic regression showed that ad condition affected subjects' recall of the anti-smoking ad (-2 Log Likelihood Ratio = 145.38, $p < .01$) and no other effects were significant (p's >.40). Ninety-five percent of subjects who saw the anti-smoking ad correctly recalled having seen it. Only 5% of the subjects who saw the control ad mistakenly thought they had seen an anti-smoking ad.

Consistent with the cover story, 32% and 20% of the subjects said the study was about teens and movies, respectively. Fifteen percent mentioned topics related to succeeding in life, such as finding a job. Twenty-two percent gave miscellaneous responses (e.g., alcohol, sex). Twenty-eight percent guessed that the study might be about smoking. No one guessed the research might be about anti-smoking ads or public service announcements. (The percentages do not add up to one hundred because some subjects gave multiple responses.) A logistic regression

showed that suspicion was affected by smoke condition (-2 Log Likelihood Ratio = 133.68, $p < .01$): 38% of subjects in the smoke condition vs. 18% in the nosmoke condition guessed the study might be about smoking. No other factors impacted suspicion (p's > .40). When suspicion was included as an added factor in the design, the effects reported below were unaffected.[4]

Tests of Hypotheses

The results are supportive of H3. The smoke and ad manipulations interacted to impact subjects' emotional reaction to the movie ($F(1, 227) = 6.91$, $p < .01$). In the control ad condition, the movie with smoking (vs. no smoking) generated more positive affect (means = 4.35 vs. 4.03; $t = 2.19$, $p < .05$). In the anti-smoking ad condition, smoking had no such influence ($p > .05$). The results are also consistent with H4. An ANOVA revealed that the ad and smoke conditions interacted to influence subjects' perceptions of a smoker's social identity ($F(1,228) = 4.82$, $p < .05$) and self concept ($F(1,228) = 4.88$, $p < .05$) on the Life Path trait. T-tests were used to examine the interactions. In the control ad condition, smoking (vs. nonsmoking) enhanced subjects' perceptions of a smoker's life path (for social identity: means = 3.91 vs. 3.13, $t = 2.33$, $p < .05$; for self concept: means = 3.80 vs. 2.96, $t = 2.32$, $p < .05$). In the anti-smoking ad condition, smoking produced no such effects (p's > .10). Also, no other effects attained statistical significance (p's > .07).

[INSERT TABLE 2 HERE]

Thoughts and Movie Ratings

As predicted by H4, an ANOVA revealed that the smoke and ad conditions interacted to affect the number of negative thoughts generated about the lead characters ($F(1,188) = 6.98$, $p <$

[4] We asked the suspicion question after subjects had completed all smoking-related questions, to obtain the highest possible estimate. If we had asked the suspicion question first, self-reported suspicion may have been lower.

.01). When subjects saw the anti-smoking ad, the movie with smoking present (vs. absent) resulted in more negative thoughts (means = 2.37 vs. 1.31, $t = 2.70$, $p < .01$). When subjects saw the control ad, this effect did not attain ($p > .20$). Also, the movie with smoking (vs. no smoking) led to fewer neutral thoughts (means = 0.81 vs. 1.30, $F(1,188) = 5.50$, $p < .01$). No other effects involving thoughts were significant (p's > .20). Regarding the movie ratings, editing out the smoking did not impact subjects' liking of the movie (p's > .60). Showing the anti-smoking (vs. control) ad before the movie enhanced subjects' liking of the Storyline (means = 5.98 vs. 5.50 , $F(1,228) = 3.99$, $p < .05$). No other effects involving movie ratings were significant (p's > .10).

Summary of Results

Study 2 replicated the major findings from Study 1 and lends further support to both the Forbidden Fruit Hypothesis (Klein 1993, 1997; Bushman and Stack 1996; Cantor, Harrison and Nathanson 1997) and Cultivation Theory (Gerbner et al. 1977; 1980; 1986). The full-length movie in Study 2 elicited similar effects as the smoking scenes in Study 1. Subjects found the smoking to be titillating, suggesting they viewed it as forbidden fruit. Also, since the characters that smoked were smart and successful, they cultivated a perception of smokers as being smarter and more successful.

Study 2 then tested a social marketing solution to the problem: counteradvertising. The idea was to immediately set forth an anti-smoking point of view. Once viewers had this negative frame of reference, we hoped they would look unfavorably upon the smoking, consistent with the Law of Primacy (Haugtvedt and Wegener 1994; Knower 1936; Lund 1925). We used a humorous anti-smoking ad that depicted smokers in an unflattering light, diametrically opposed to how they would be portrayed in the movie. As predicted, the ad appeared to remind youths that smoking is a social liability and, as such, constitutes tainted fruit rather than forbidden fruit.

Youths no longer found the smoking in the movie to be exciting and fun; in fact, they rebuked the smokers. Correspondingly, youths were no longer susceptible to influence by the attractive on-screen images of smokers; their overall perceptions of smokers remained unchanged. Two other findings are noteworthy. Editing out the smoking from the movie did not diminish subjects' liking of the movie. (Gerbner has reported similar results for movie violence; see Gerbner 1996). Likewise, the anti-smoking ad did not cause subjects to dislike the movie that contained smoking.

CONCLUSIONS AND IMPLICATIONS

Synopsis of the Problem

This research indicates that typical depictions of cigarette smoking in PG movies may promote more favorable views of smoking and encourage youngsters to take up the habit. This finding is particularly disturbing in the light of the fact that there appears to be an increase in the number of movies in which the lead characters are smokers (Terre, Drabman and Speer 1991; Stockwell and Glantz 1997). Many people are optimistic that the US Food and Drug Administration's 1996 regulations on tobacco will finally reduce underage smoking, which has remained stubbornly high for 25 years and has even begun to rise (CDC 1996a). Others hope for federal legislation with stronger provisions to discourage smoking by adolescents than those in the proposed tobacco settlement between tobacco firms and several US State Attorney Generals (Meier 1997). However, the issue of smoking in Hollywood movies is not addressed in the US Food and Drug Administration's tobacco regulations. The proposed deal with the US Attorney Generals simply codifies the tobacco industry's voluntary agreement not to pay for cigarette placements in movies (Busch 1990; Colford 1990; Lipman 1989). Thus, it seems that new initiatives are needed to address the problem.

Some Recommended Solutions

Based on the present findings, it may be beneficial to show anti-smoking ads before movies in theaters, TV movies and movies on videotapes. Anti-smoking ads are already playing in theaters in Massachusetts and Los Angeles (Parker-Pope 1997; Wong 1997). In fact, the Australia Central Coast Area Health Service claims to have successfully combated underage smoking through anti-smoking ads in cinemas and reduced youth access (Schwartz 1997). Is it really feasible to run anti-smoking ads in movie theaters on a widespread basis? We think so. Theaters already show advertising, primarily for upcoming movies (previews), but also for drinks and snacks sold at their concession stands. Some US theaters also run ads for consumer products, a practice that is ubiquitous in other countries such as Great Britain (Parker-Pope 1997). One obstacle in the US is that the Warner Brothers and Disney studios have policies that essentially preclude ads from being shown before their movies (Parker-Pope 1997), but it is conceivable that these studios can be persuaded to make an exception for anti-smoking ads. Based on the current results, there is no indication that the anti-smoking ads will diminish viewers' liking for the feature film presentations.

When running anti-smoking ads in movie theaters, it is probably wise to avoid using ads that have already appeared on local television and may be worn out. But, this does not imply that new ads must be created from scratch; it may be possible to "borrow" suitable ads that have run in other parts of the country. It seems very important to use humorous ads, because movie-going audiences expect to be entertained (Unsworth 1997). Traditional health messages may generate complaints or a backlash. While slides are commonly shown in movie theaters to entertain audiences before the feature presentations begin, slides are likely to be less impactful. It is preferable to use ads that mirror the format, quality and sound volume of movie previews.

What would be the incentive for theater owners to show anti-smoking ads in their establishments? One incentive could be financial. An increasing number of states and counties

have sizeable tobacco-control budgets and can presumably pay theater owners to run anti-smoking ads (Pechmann 1997). It should be fairly easy to justify such expenditures, since most tobacco-control programs have a focus on tobacco-use prevention. From a cost-effectiveness standpoint alone, it makes sense to run prevention ads in movie theaters since teenagers comprise a large share of the audience (Veronis, Suhler and Associates Inc 1996) . Also, the costs of running ads in theaters are often considerably less, per person reached, than running ads on television (Hochberg 1997). It is also possible that some theater chains will run some anti-smoking ads free of charge. A few years ago, the United Artists theater chain, one of the largest chains in the USA, agreed to run anti-smoking ads for an entire month at the request of one chapter of the American Heart Association (Pechmann 1997). The public is increasingly incensed by the amount of smoking in movies, and theaters may garner good will by running anti-smoking ads before movies.

On a practical matter, it seems easiest to ask movie theaters to show anti-smoking ads before all movies for a certain time period. While the ads seem to work best when shown before movies that depict smoking, that amounts to approximately 80% of movies. Also, selective placement of ads before certain movies seems to be logistically difficult for theaters. It might be argued that anti-smoking ads that are designed to prevent children from smoking should only appear before PG and G movies, which constitute about 33% of all movies (Cantor 1998). But placing the ads before all movies, including R-rated movies, should help to promulgate a smoke-free norm. This approach appears to be preferable to suggesting that smoking is okay for adults but not for kids. Focusing strictly on the problem of underage smoking may have the unfortunate side effect of making smoking an alluring forbidden fruit (Klein 1993, 1997).

Another potential solution is to urge the movie industry to include less cigarette smoking in their movies. In response to pressure from Vice President Gore, the Entertainment Industries Council has promised to distribute 1500 copies of "depiction suggestions" regarding tobacco

(Deutchman 1997). One suggestion reads: "Unless a character's tobacco use truly reveals something important about the character, consider [using] other unique behaviors that might convey the same information." Such guidelines have played a major role in ensuring that primetime network television programming contains minimal smoking. Smoking generally occurs only in the background, and a viewer must watch about two hours of programming to see just one smoking act (Cruz and Wallack 1986; Dutka 1996; also Hazan and Glantz 1995). Certain smoke-free scenarios may not be realistic, such as a smoke-free prison, particularly if the movie is set in the past. But it is conceivable that viewers will not notice or care. Writers and actors may be reluctant to forgo using cigarettes as a prop to project a character's personality (Seibel 1992; Wong 1997). But, in the old Westerns, it seemed imperative for heroes to wear white hats and villains to wear black hats, and today such props seem crude and unsophisticated. Perhaps some day cigarettes will also be viewed as clumsy and unnecessary props.

Other Possible Solutions

The Motion Picture Association of America might want to consider cigarette smoking when assigning its movie ratings. Currently, smoking is not a factor in the movie rating scheme (Valenti 1996). By comparison, a sexually derived swear word in a sexual context, or a depiction of illicit drug use, will cause a movie to receive an R rating (under the age of 17 not admitted without parent or guardian). Australia has a rule that PG films "should not promote or encourage drug use" and may decide to extend that rule to tobacco; in the past only illicit drugs were included (Schwartz 1997). The idea of basing ratings, in part, on on-screen smoking might work if the ratings are properly worded and tested with youths to avoid the forbidden fruit effect. If the ratings are poorly worded and communicate the massage "you are too young to see this movie," youths may want to see the movie even more (Bushman and Stack 1996; Cantor, Harrison and Nathanson 1997; Cantor and Harrison 1996; Stewart and Martin 1994). Recent

studies suggest it may be possible to avoid a boomerang effect by using matter-of-fact, descriptive content codes (Bushman and Stack 1996), but further work is needed.

Perhaps the most touted solution is to encourage filmmakers to depict smoking "realistically" (Deutchman 1997; Wong 1997). This may not be the ideal solution, however. It would be realistic to portray smokers as "marginalized" adolescents who are doing poorly in school, have poor attendance records and no college aspirations (Lynch and Bonnie 1994). Also, this type of depiction could be a turn-off to teens who are doing well in school and college-bound. Troubled teens, though, may identify with the marginalized characters, aspire to be like them and be encouraged to start smoking. Thus, most health groups want movies to show the realities of the *health consequences of smoking*, that "tobacco use inflicts harm on its viewers and people affected by secondhand smoke" (Wong 1997). We also advocate that movies reflect the changes in social norms regarding smoking, such as that most people no longer want to be around smokers due to the secondhand smoke, and most smokers regret their decision to start (Lynch and Bonnie 1994).

Possible Implications for Nontobacco Product Placements

This research also has some implications for nontobacco product placements in movies. The findings indicate that one type of placement in particular can benefit both studios and marketers, namely, placements involving fun and exciting products such as high-end sports cars, high-fashion clothing and high-tech products. Including such products in movies may enhance viewer enjoyment and also promote product sales. In fact, products of this type seem to largely account for the anecdotal evidence that product placements in movies can increase sales. Examples include a Porsche and Ford Mustang (McCarthy 1994), a Pontiac Trans Am (Fleming 1990), Ray-Ban sunglasses (Leinster 1987; Reed 1989), and the US air force (Fleming 1990). While it is often noted that *E.T.* caused a 65% jump in sales of *Reeses Pieces* (Reed 1989;

Winski 1982), that candy was barely visible in the movie. Experts attribute the increase in sales not to the placement but to Hershey's linked promotion (Fleming 1990; McCarthy 1994).

Marketers also spend considerable sums placing relatively mundane products in movies. Marketers frequently make cash payments, hire placement consultants, fund movie promotions and/or provide free product samples for use as props (Balasubramanian, 1994; Fleming 1990; Reed 1989). In this research, we found no evidence that the positive excitement or affect from movie scenes can rub off to products placed in those scenes. However, we only studied cigarette placements. Research is needed to determine if the results are generalized to other products. Researchers should also examine if product placements can increase sales just by increasing consumers' awareness of products (Balasubramanian 1994; Steortz 1987) or by implying a high prevalence of product use (O'Guinn and Shrum 1997). Overall, more research is needed on how Hollywood movies might impact consumers' attitudes and behaviors, both in the USA and abroad. While the public considers movies to be a powerful force, marketers have a limited understanding of that force and how to utilize it to their advantage.

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Table 1.
Study 1 Means by Experimental Condition

	Pleasant Smoking Scenes		Unpleasant Smoking Scenes	
	Smoking Present (n=155)	Smoking Absent (n=150)	Smoking Present (n=149)	Smoking Absent (n=153)
Perceptions of Teenage Smoker's Social Identity				
Life Path	3.56 **a**	3.34	3.60 **a**	2.93
Physical State	3.23 **a**	2.92	3.09 **a**	2.60
Weight	4.78 **a**	4.50	4.77 **a**	4.33
Social Desirability	3.45	3.34	3.41	3.07
Internal Welfare	3.91	3.85	3.95	3.54
Perceptions of Teenage Smoker's Self Concept				
Life Path	3.66 **a**	3.48	3.59 **a**	3.06
Physical State	2.80	2.75	2.89	2.51
Weight	4.75	4.66	4.58	4.19
Social Desirability	3.41	3.68	3.42	3.29
Internal Welfare	4.05	4.25	4.05	3.77
Level of Positive Affect	4.11 **a**	3.94	2.75 **a**	2.47

Notes:
(1) a indicates the main effect for smoking is significant at $p \leq .05$.
(2) Scale ranges: Perceptions of Teenage Smoker: 1 (unfavorable) to 9 (favorable); Level of Positive Affect: 1 (very low) to 7 (very high).

Table 2.
Study 2 Means by Experimental Condition

	Control Ad		Anti-smoking Ad	
	Smoking Present *(n=59)*	**Smoking Absent** *(n=54)*	**Smoking Present** *(n=60)*	**Smoking Absent** *(n=59)*
Perceptions of Teenage Smoker's Social Identity				
Life Path	3.91 **a**	3.13	3.30	3.54
Physical State	3.34	2.54	3.04	3.22
Weight	4.78	4.47	5.15	4.90
Social Desirability	3.66	3.07	3.35	3.47
Internal Welfare	3.81	3.47	4.08	4.06
Perceptions of Teenage Smoker's Self Concept				
Life Path	3.80 **a**	2.96	3.08	3.37
Physical State	3.28	2.70	2.98	2.86
Weight	4.54	4.04	4.10	4.11
Social Desirability	3.74	3.03	3.48	3.44
Internal Welfare	3.85	3.32	3.64	3.38
Level of Positive Affect	4.35 **a**	4.03	4.02	4.25
Thoughts About Lead Characters in Movie				
Total # Negative Thoughts	1.53	2.50	2.37 **a**	1.31
Total # Neutral Thoughts	0.51	1.32	1.06	1.29
Total # Positive Thoughts	2.58	2.68	2.85	2.62
Ratings of Movie				
Action	4.76	4.52	4.89	5.12
Storyline	5.60	5.40	5.98	5.98
Recommend to Friend	2.73	2.65	2.71	2.93

Notes:
(1) **a** indicates the smoke by ad interaction and smoke vs. nonsmoke contrast are significant at $p \leq .05$.
(2) Scale Ranges: Perceptions of Teenage Smoker: 1 (unfavorable) to 9 (favorable);
Level of Positive Affect: 1 (very low) to 7 (very high).
(3) Ratings of Movie: Action and Storyline: 1 (unfavorable) to 9 (favorable);
Recommend to Friend: 1 (definitely not) to 4 (definitely yes).