Antismoking Messages for the International Teenage Segment: The Effectiveness of Message Valence and Intensity Across Different Cultures

ABSTRACT

Based on an experiment among more than 2000 students in nine culturally diverse countries, this article investigates how the cultural characteristic of uncertainty avoidance moderates the impact of valence and intensity on the effectiveness of antismoking messages. The results show that adolescents with high uncertainty avoidance respond more favorably to loss-framed advertisements than to benefit-framed advertisements, whereas the opposite holds for those with low uncertainty avoidance.

It is widely accepted that smoking is a major cause of preventable disease and death. According to the World Health Organization (2005a), smoking is responsible for approximately 5 million deaths worldwide each year, and this number will double by 2020 if current trends are not reversed. Moreover, the high public health costs and the falling productivity due to increased sickness and premature death put a tremendous burden on many countries' economies (Andrews et al. 2004; Barnum 1994; Kang et al. 2003).

A particularly startling aspect of the tobacco epidemic is the role of youths. Most regular adult smokers started smoking before the age of 18 (Andrews et al. 2004; Choe et al. 2004; Pierce et al. 1996; World Health Organization 2005b). Furthermore, teenagers are shown to be more receptive to tobacco advertising than adults, a classic example being the popularity of Joe Camel among the young (Hastings and Aitken 1995; Pollay 1995; Pollay et al. 1996). Therefore, it should come as no surprise that a considerable part of the social marketing and public health literature addressing the impact of antismoking campaigns focuses on this age segment. Previous research has demonstrated that antitobacco advertisements targeting teenagers can decrease intent to smoke and smoking prevalence (e.g., Andrews et al. 2004; Fried and Levy 2002; Pechmann et al. 2003; Wakefield et al. 2003b), forestall the effects of cigarette advertising or smoking scenes in movies (Pechmann and Knight 2002; Pechmann and Shih 1999), and negatively affect youths' evaluations of peer smokers (Pechmann and Knight 2002; Pechmann and Ratneshwar 1994).

Despite the explosive growth of the antismoking advertising literature, most studies focus on sociological factors that

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affect the onset of smoking. Few studies systematically analyze how the various factors in the advertisements themselves affect teenagers' intent to smoke. Boddewyn (1993) calls for such research, an important call because several recent studies have found specific antismoking advertisements to be ineffective (see Wakefield et al. 2003a) or even counterproductive. For example, Philip Morris's "Think. Don't Smoke" advertisements were shown to *increase* 12–17-year-olds' intent to smoke significantly (Farrelly et al. 2002).

The scant research that addresses the role of antismoking ad characteristics has led to divergent results. In an extensive study, Pechmann and colleagues (2003) find that advertisements stressing the social disapproval risks of smoking are more effective at reducing youths' intentions to smoke than advertisements emphasizing the (long-term) health risks. Goldman and Glantz's (1998) results corroborate the inefficacy of stressing health effects. Biener and colleagues (2004) and Wakefield and colleagues (2003a) find that emphasis on health threats leads to higher ad appraisal than other message themes. One explanation for the inconsistencies is that these studies are confined to actual advertisements that ran on television, which may confound the effects of message themes as a result of executional characteristics (e.g., support of explicit, shocking images; use of humor; see Biener et al. 2004, p. 260). What is lacking is a research stream that experimentally analyzes the different dimensions of antismoking messages (Wakefield et al. 2003a).

Another, even more striking shortcoming of the extant literature on antismoking advertising is the paucity of international and cross-cultural studies. Because tobacco control is becoming more of a global concern (see the World Health Organization's [2003] international treaty for tobacco control), the question arises about the extent to which countries can benefit from one another's antismoking advertising experience. Wakefield and colleagues (2003a) find that youths in the relatively similar cultural environments of the United States, Britain, and Australia have fairly similar attitudes toward the antismoking campaigns in their respective countries. Laroche and colleagues (2001) report somewhat counterintuitive differences in attitude toward antismoking advertisements between Canadian and Chinese college students. It is clear that research involving more countries and greater cultural diversity is warranted; the more countries that are included, the more reliably inferences can be made that reach well beyond the scope of the sampled countries.

This article addresses the two aforementioned gaps by investigating (1) how various types of messages influence adolescents' intent to smoke and (2) how cultural differences moderate these effects. In particular, we assess the role of relative

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valence and intensity in antismoking messages. Both characteristics are of paramount importance in the design of public service announcements in general and antismoking messages in particular. Knowledge of valence effects aids the understanding of whether antitobacco advertising should stress the threats of smoking or the benefits of not smoking. Furthermore, insights into the role of intensity help policy makers decide on the severity or seriousness of the advertised threats/benefits. We use data from a large-scale experiment involving 2326 high school students in nine different countries. These countries are spread across the economic spectrum and show great cultural diversity. We operationalize the moderating impact of cultural difference with the cultural dimension of uncertainty avoidance (hereinafter, UA; see Hofstede 2001). Indeed, given that valence and intensity of an antismoking advertisement can be expected to influence risk perceptions, adolescents' UA is considered a particularly important cultural variable in the current context. We argue that the relative dominance of one valence or intensity level over another may be tempered and even reversed as a function of UA. As such, this study contributes not only to the antismoking literature but also to the more general message-framing and fear arousal literature.

In the remainder of the article, we first give an overview of the relevant literature and develop hypotheses. We then discuss the chosen methodology and present the results. In the final section, we discuss the implications for public health policy and tracks for further research.

This article examines how UA moderates the impact of message valence and intensity in the context of antismoking advertising. In this section, we examine the relevant concepts—UA, valence, and intensity—and propose hypotheses.

LITERATURE REVIEW AND HYPOTHESES

UA

Several articles have documented the role of cultural characteristics in advertising. However, most attention has been devoted to the relationship between cultural variables and the prevailing advertising *practice* (see, e.g., Albers-Miller and Gelb 1996; Caillat and Mueller 1996; Cheng and Schweitzer 1996; Han and Shavitt 1994; Zandpour et al. 1994). Only a limited number of studies address the impact of cultural values (see, e.g., Aaker and Williams 1998; Han and Shavitt 1994) or, specifically, UA (see, e.g., Aaker and Williams 1998; Hoeken et al. 2003) on advertising *effectiveness.*

Hofstede (2001, p. 161) defines UA as "the extent to which the members of a culture feel threatened by uncertain or unknown situations." The United States typically scores low on UA, whereas European and Asian countries are found at the top, in the middle, and at the bottom of the list (Hofstede

2001, p. 151). De Mooij's (1998) work indicates that people from higher-UA countries tend to buy less ice cream and confectionery and invest less in stocks. Instead, they buy more mineral water and fresh fruit and invest more in precious metals. As we argue subsequently, we expect that UA plays a particularly important role in the context of antismoking advertising.

Message Valence

Valence refers to whether the message stresses the gains of performing the promoted behavior (positive framing) or the losses of not doing so (negative framing). For example, a message advocating mammography could be framed either positively as "Mammography helps you detect breast cancer at an early stage" or negatively as "Women not using mammography may fail to detect breast cancer at an early stage" (Banks et al. 1995).

Research on the effects of valence has led to mixed results. Whereas Detweiler and colleagues (1999), Levin and Gaeth (1988), and Zhang and Buda (1999) report evidence that positively framed messages work better, Banks and colleagues (1995), Meyerowitz and Chaiken (1987), and Shiv, Edell, and Payne (1997) find empirical support for the opposite. In an attempt to solve these seemingly conflicting findings, researchers have tried to gain insight into the moderating impact of several variables.

Rothman and colleagues (1999) and Rothman and Salovey (1997) suggest that framing effects depend on the type of promoted behavior. Building on Tversky and Kahneman's (1981) prospect theory, these authors argue that negatively framed messages are more effective when the promoted behavior has an uncertain outcome and that positively framed messages are recommended when the outcome is certain. Given the relatively certain outcome of not smoking, this principle implies that benefit-framed antismoking messages should be more effective than loss-framed ones. However, Robberson and Rogers (1988) reveal a link between framing effects and the type of benefits/threats; specifically, they find that negative messages are superior to positive ones when appealing to health implications (e.g., "Aggressive driving kills") and that positive messages work better for appeals to self-esteem (e.g., "You're a gent if you drive safe"). Thus, because messages in our study stress health effects, loss-framed antismoking messages could be expected to generate the most response.

In other words, for antismoking advertising, there is no unambiguous support for one or the other framing format. However, we believe that valence effects are largely determined by the degree of UA. In particular, we argue that higher UA calls for greater assurance and therefore motivates

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people to process the information in the antismoking advertisement extensively. According to Maheswaran and Meyers-Levy (1990) and Shiv, Edell-Britton, and Payne (2004), negative (positive) framing works better than positive (negative) framing when people are highly (lowly) involved/motivated; thus, we posit the following:

H$_1$: For high-UA respondents, negative valence antismoking advertisements showing a threat of loss will be relatively more effective than positive valence advertisements.

H$_2$: For low-UA respondents, positive valence antismoking advertisements showing a benefit will be relatively more effective than negative valence advertisements.

Message Intensity

Intensity refers to the seriousness of the consequences that are linked to the advertised behavior and is usually defined in relative terms. Thus, a low-intensity message would be one in which smoking is linked to illness, whereas a high-intensity message would associate smoking with death. Intensity has typically been studied in combination with fear arousal. Researchers in this tradition have investigated whether advertisements with threats of higher intensity translate into higher fear levels and whether higher fear arousal, in turn, boosts ad effectiveness (see, e.g., King and Reid 1989). Although several moderating forces have been identified, there seems to be general agreement on the positive correlation between fear arousal and ad effectiveness in terms of behavioral intent (Boster and Mongeau 1984; Hale and Dillard 1995; Laroche et al. 2001).

However, the relationship between threat intensity and fear arousal appears to be more equivocal (Rotfeld 1988, p. 24). Indeed, although no one will dispute that death is a more serious threat than a minor injury, there may be less unanimity as to which is the more dreaded outcome. Building on Rogers's (1983) protection motivation theory, Tanner, Hunt, and Eppright (1991) and Hale and Dillard (1995) argue that for a message to entail fear, it should convey (1) the severity of the threat and (2) the audience's vulnerability to the threat (see also Neuwirth, Dunwoody, and Griffin 2000).[1] For example, Smith and Stutts (2003) find that male students are more susceptible to antitobacco messages that stress the less drastic short-term effects of smoking than to messages that stress the more dramatic long-term effects. The most plausible explanation is that these people feel relatively less vulnerable to remote health effects because they are perceived as too far in the future (Hale and Dillard 1995; Tanner, Hunt, and Eppright 1991).

Although we subscribe to the principles of protection motivation theory in the context of antismoking advertising, we argue that the careful assessment of vulnerability to the mentioned threats is more likely among (the more motivated) high-UA people than among low-UA people. Instead, low-UA people will be influenced more by the mere semantics of the message and, thus, by the general severity of the advertised consequences of smoking. For the low-UA group, raising the intensity of the message will be necessary to increase the effectiveness of the antismoking advertisement. Therefore, we suggest the following:

H_3: For high-UA respondents, low-intensity antismoking messages will be relatively more effective than high-intensity messages.

H_4: For low-UA respondents, high-intensity antismoking messages will be relatively more effective than low-intensity messages.

Although the extant literature has studied the role of intensity in the context of negatively framed messages that explicitly mention the threat, we expect that our hypotheses also hold for benefit-framed messages. We believe that more positive outcomes can raise emotional arousal more than relatively less desirable outcomes. Thus, we argue that positive messages may also have low and high intensity levels that elicit different responses.

METHODOLOGY

Sample

We collected data from 2326 currently enrolled high school students between the ages of 14 and 17 years in the midwestern United States and metropolitan areas in eight additional countries: Austria, Belgium, Finland, Italy, Kazakhstan, Russia, Slovenia, and Uzbekistan. The literature indicates that high school students are the most relevant age group for antismoking advertisements (Andrews et al. 2004; Pechmann et al. 2003; Wakefield et al. 2003b). We chose classes in local schools according to their availability. Details of the sample appear in Table 1.

We selected the countries used in the study on the basis of two criteria: (1) The country should exhibit great variance across economic, political, and cultural measures, and (2) reliable partners/research assistants should be available. The latter criterion was important to ensure systematic execution of the research instruments' translation/adaptation and the actual data collection in local high schools. Our data indicate that the selected countries span a wide range of UA (see also Hofstede 2001, p. 151) and income levels. In addition, the countries represent five language groups (Germanic, Romance, Turkish, Slavic, and Urgo-Finnish) and at least two divergent religious groups (Christian and Muslim) from

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Table 1.
Sample Characteristics

Country	Number of Participants	Mean Age	Percentage Male	Gross National Income per Capita ($)[a]	UA Hofstede's Score	UA Mean UA Factor Score/Adjusted to Hofstede's Scale
Austria	325	14.6	52	28,200	70	.06/66
Belgium	211	14.3	45	28,100	94	–.20/91
Finland	303	14.5	50	25,400	59	.09/63
Italy	264	14.5	55	25,300	75	–.09/80
Kazakhstan	248	15.2	47	5,500	N.A.	–.02/73
Russia	222	14.6	46	7,800	95	.09/62
Slovenia	192	15.5	43	17,700	88	–.09/80
United States	369	15.7	46	35,100	46	.27/45
Uzbekistan	192	14.3	42	1,590	N.A.	–.21/91

[a]See World Development Indicators, figures for 2002, purchasing power parity basis (World Bank 2003).
Notes: N.A. = not applicable.

three continents. A summary of country characteristics appears in Table 1.

The UA values in the final column are based on a multi-item scale incorporated in our survey (for scale items, see Table 2). We performed a simple exploratory factor analysis on only the UA scale, and we recorded the mean factor score for each country. In addition, we converted the mean factor scores to the same scale as Hofstede's (2001) by using the predicted scores from simple regression analysis ($R^2 = .947$ without Russia, Kazakhstan, or Uzbekistan), thus allowing the gen-

Table 2.
Measures

Construct/Items	α
Attitude Toward the Ad (Aad)	.830
How would you best describe the advertisement?	
Good/Bad	
Like/Dislike	
Interesting/Boring	
Appealing/Unappealing	
Attitude Toward Smoking (Asmoke) ("Strongly Disagree/Strongly Agree")	.825
Smoking cigarettes is:	
Good/Bad	
Appealing/Unappealing	
Pleasant/Unpleasant	
Positive/Negative	
(Source: Adapted from Mitchell and Olson 1981)	
Intent to Smoke (Intent) ("Definitely No/Definitely Yes")	.925
In the future, you might smoke one puff or more of a cigarette.	
You might try out cigarette smoking for a while.	
If one of your best friends were to offer you a cigarette, you would smoke it.	
(Source: Pierce et al. 1996)	
Uncertainty Avoidance ("Strongly Disagree/Strongly Agree")	.722
I'm the kind of person who would try anything at least once.	
I am cautious about trying new and different things.	
I enjoy taking chances in doing unfamiliar activities, just for variety.	
United States	.743
Belgium	.774
Slovenia	.738
Austria	.727
Italy	.785
Kazakhstan	.725
Russia	.657
Finland	.757
Uzbekistan	.736

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eration of comparative scores to Hofstede's study (see the last column of Table 1). With the exception of Russia, these scores parallel those of Hofstede very well. The differences in the Russian scores are not surprising given the continual changes in that environment. The exploratory factor scores are for descriptive purposes; thus, we do not use them further.

We presented each participant with one of four advertisements. There were two valence levels (positively versus negatively framed messages) and two levels of outcome intensity (high versus low). "Keep smoking, get sick" was the negatively framed, low-intensity message, and "Keep smoking and die!" was the negatively framed, high-intensity message. "Stop smoking, live healthier" was the positively framed, low-intensity version, and "Stop smoking, live longer!" was the positively framed, high-intensity version. This represents a 2×2 experimental design.

We developed copy for each advertisement and asked several colleagues to review it. Furthermore, we contracted two artists to draw black-and-white cartoon figures in support of the advertisements' headlines. Visuals were judged on consistency of execution between advertisements and representation of each ad headline. We deemed the set of visuals developed by one of the artists to be superior across all advertisements; thus, we adopted these for the study.

After the advertisements were completed, we checked the manipulation of intensity using two seven-point semantic differential scales ("weak/powerful," and "plain/vivid") and a sample of 92 students. Using simple t-tests, we found that higher-intensity advertisements rated significantly higher on both scales. This held true for both the positive pair of advertisements ($p < .002$) and the negative pair of advertisements ($p < .001$).

We combined the advertisements with a news story from a business newspaper to simulate ad positioning as it would appear in print media, following the format of a business journal page. Each advertisement was approximately 15 column inches. The remainder of the page consisted of a recent story from a business newspaper, the subject of which was a news event in a foreign country. We edited all readings to be approximately the same length. The complexity of the reading task was comparable across all stories, and no stories bore any relation to the advertisements present.

In the process of translation and cross-cultural adaptation of the research stimuli and questionnaire (scale items), we followed the guidelines for conducting international consumer research that Craig and Douglas (1999) and Douglas and

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Nijssen (2003) suggest. The stimuli and the initial study instrument were translated into local languages and then back-translated into English independently by bilingual natives in a double-blind process. We (along with our research partners) evaluated the back-translated material for its relevance and equivalence in each country and context. On the basis of this and personal interviews with local teenagers, we carefully adapted survey items to incorporate idiosyncratic aspects of the local language and culture. As a final developmental step, we pretested the questionnaires on a convenience sample of students in the same age group as the respondents in the actual study. The pretests focused on comprehensibility, clarity of instructions, and length, after which we incorporated further modifications.

In the data collection process in local high schools, we (and the research partners) first provided thorough instructions (oral and in writing) on how to respond to instrument scales and items in the questionnaire. Students were then asked to provide their sincere opinions about all questions. They were assured anonymity. Students were instructed to read the story but were given no other instructions. Each class had ten minutes to complete the readings in a traditional class-room setting. Pretests indicated that nearly all students would finish reading the story in approximately seven minutes. This allowed participants approximately three minutes to examine the advertisement. After the completion of this ten-minute period, the reading assignments were collected, and the survey was distributed. Each survey first asked the students to recall the name of the country that was high-lighted in the story they read. This was used to identify which version of the advertisement they had seen. The survey then reminded the students of the existence of an advertisement on the page and asked their opinion of it.

Measures

We measured three constructs to determine the effectiveness of the advertisement's message: attitude toward the ad (Aad), attitude toward the act (Asmoke), and intent to smoke (Intent). Given the divergence in time, geography, and audience characteristics between Hofstede's last update of his UA score and our study, we developed a three-item UA scale (see Table 1).

We calculated reliability using Cronbach's alpha (see Table 2). We tested the scales with a confirmatory factor analysis (CFA) using LISREL 8 (Jöreskog and Sörbom 1993). The results indicate a good fit of the CFA model (root mean square error of approximation [RMSEA] = .046, and goodness-of-fit index [GFI] = .97). We tested discriminant validity by setting the individual paths of the phi matrix to one and testing the resultant model against the original (Gerbing and Anderson 1988), using the D-square statistic

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(Jöreskog and Sörbom 1993). From the final model, we tested convergent validity by examining the t-values of the lambda-X matrix (Bagozzi 1981).

We tested measure invariance with CFA using multigroup analysis in LISREL 8. Configural invariance is established by the consistent pattern of significant loadings between countries and the fit of the CFA (RMSEA = .046, and GFI = .97). We did not establish full metric invariance, nor did we expect to in a model of this magnitude (Steenkamp and Baumgartner 1998). As Horn (1991, p. 125) suggests, metric invariance is "a condition to be striven for, not one expected to be fully realized" (see also Steenkamp and Baumgartner 1998). Horn, Ardle, and Mason (1983) and Steenkamp and Baumgartner (1998) consider metric invariance scientifically unrealistic. In academic research, the inability to specify full metric invariance occurs even in relatively limited two- and three-country groups (Laroche et al. 2004; Mavondo, Gabbott, and Tsarenko 2003). Because the object of this research is not to compare means of measures across countries, we did not assess scalar invariance (Steenkamp and Baumgartner 1998, p. 80). Finally, because we do not make any direct cross-country comparison of absolute ad effectiveness, the relevance of differences in stylistic responding (e.g., acquiescence or socially desirable answers; see Baumgartner and Steenkamp 2001) or in accumulated exposure to antismoking campaigns is not really an issue here.

Model

The purpose of this research is to test the relative effectiveness of valence and intensity of advertisements in cultures with different UA levels. We use three measures of ad effectiveness: Ad effectiveness is first reflected in Aad, which, by means of Asmoke, affects Intent.

To test the two-way moderating effect of the ad manipulations and UA on Aad, we estimated a group structural equation model (SEM), with each of the four groups representing a single cell in the 2×2 design (for a discussion of testing interactive effects using SEM, see Jöreskog et al. 2001, Ch. 3.7). This is conceptually analogous to a multivariate analysis of variance in which UA represents a covariate and the SEM groups represent the experimental manipulation variables. However, unlike multivariate analysis of variance, which is less appropriate for a path model with latent variables, we do not test the direct effects of the manipulated variables in this specification (nor do we hypothesize them). Instead, we test the hypothesized interactive terms between experimental manipulations and UA by constraining the appropriate UA–Aad paths to be equal between groups and examining the difference in chi-square between the base and constrained models.

As we expected given the sample size and model complexity, the overall chi-square statistic was significant. However, the rest of the overall model fit measures show a good conformance of the data to the model (see Table 3).

The RMSEA was well below the .08 cutoff that Browne and Cudeck (1993) suggest. In addition, both the overall and the individual group GFIs and comparative fit indexes were above the commonly recommended .90 limit (Lichtenstein, Ridgway, and Netemeyer 1992).
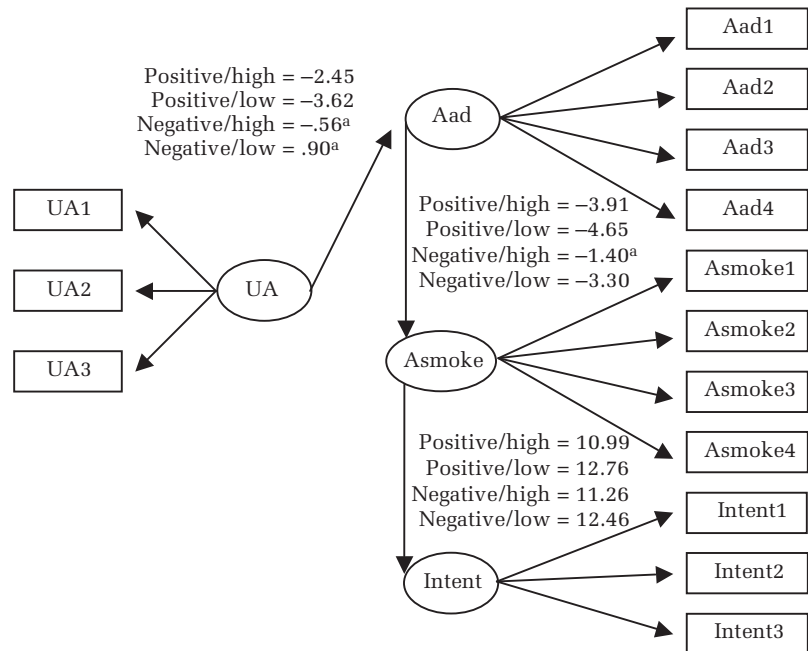
Hypotheses Testing

The SEM results of the model appear in Figure 1. The notations on the paths represent the ad manipulation cells/groups (positive/high, positive/low, negative/high, and negative/low). The path t-values also appear in Figure 1. The relatively low negative coefficients (UA → Aad) on positive ad groups (–.19 and –.26 for high- and low-intensity advertisements, respectively) as opposed to the negative ad groups

Table 3. Overall Model Fit

χ^2	843.55
RMSEA	.059
CFI	.97
NFI	.96
RFI	.95

Notes: CFI = comparative fit index, NFI = normed fit index, and RFI = relative fit index.

Figure 1. Results: Main Model

[a]Path is not significant.

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(–.04 and .07 for high- and low-intensity advertisements, respectively) indicate that higher-UA respondents view positive advertisements more negatively than lower-UA respondents, and vice versa.

More formally, we constrained the model gamma paths between groups (positive/high = negative/high, and positive/low = negative/low) for examination of the first set of hypotheses (positive/negative valence). A comparison of the constrained model with the unconstrained model resulted in an 11.68 chi-square difference, in support of H_1 and H_2. The second constrained model (positive/high = positive/low, and negative/high = negative/low) examining H_3 and H_4 (high/low intensity) resulted in a chi-square difference of 1.11, which is statistically not significant.

Thus, we find support for H_1 and H_2. In general, negative advertisements work relatively better with higher-UA respondents, whereas the opposite is true for lower-UA respondents. Although the results for H_3 and H_4 are suggestive, they are not significant. Directionally, higher-UA respondents liked low-intensity advertisements, as we predicted. Specifically, high-UA respondents preferred low-intensity, negative advertisements. That is, for high-UA people, the advertisements did not require a great deal of threat severity to achieve compliance. Conversely, low-UA people require high-intensity threats before reacting. We predicted these findings, but the results were not significant.

Post Hoc Examination

As we discussed in the "Methodology" section, the model testing the hypotheses does not allow examination of *direct* effects of valence and intensity, either overall or segmented by country. To examine our results further, we analyzed a model with exogenous dummy variables representing the experimental manipulations per country. This model appears in Figure 2. Given the complexity of the model, we reduced the Aad and Asmoke constructs to three items each, and we allowed error correlations to be estimated as necessary. The results for each country appear in Table 4.

Although the post hoc model does not allow us to test the hypotheses, the results confirm what we found in out first model; that is, negatively framed messages are preferable in countries with high UA, whereas the opposite holds in low-UA countries. For ad intensity, however, the role of UA is not convincing.

DISCUSSION

Although not always true for specific advertising campaigns, it is well established in the literature, at both the theoretical and the empirical level, that antismoking advertisements have an effect in reducing adolescents' intent to smoke and their attitude toward cigarette use (see Pechmann et al.

Figure 2.
Post Hoc Analysis
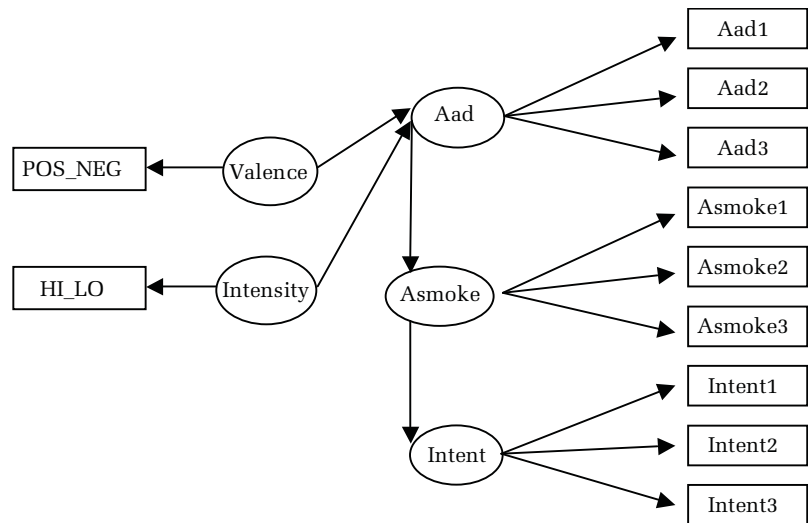
2003). This study expands these findings in an examination of which type (i.e., message framing) of advertisements work relatively better in different cultural contexts. Thus, the contribution of this research is twofold: First, we examine the relative effectiveness of the valence and intensity of anti-smoking advertisements. Second, we examine these findings across several different cultures in an attempt to explain how culture affects teenagers' responses to message framing.

Theoretical Implications

This research represents an initial foray into the use of cultural variables to develop effective advertising messages. Although it is often suggested that there is a global teenage segment, this study shows that culture is an important moderator of teens' advertisement processing. The tendency to avoid or embrace uncertainty indeed varies among teens in different countries; they are not monolithic in their perceived invulnerability. This variance in UA across cultures moderates the effectiveness of various ad executions.

The question of which valence (positive/negative framed advertisements) to use in antismoking advertisements appears clear. Positive (negative) advertisements show relatively greater effectiveness than negative (positive) advertisements in low-UA (high-UA) countries. Low-UA people are less responsive to threats than to benefits; in short, it may be more difficult to scare people who are unconcerned about uncertainty, whereas the opposite is true in high-UA countries. Several studies have tried to infer an overall optimal valence level. Instead, we go beyond general prescriptions and show more specifically when positive/negative advertisements will be most useful.

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Country	Mean UA Factor Score/ Adjusted to Hofstede's Scale[a]	Group GFI	Valence (Positive/Negative)		Ad Intensity (High/Low)	
			Most Effective	Path Estimate/t-Value	Most Effective	Path Estimate/t-Value
Belgium	−.20/91	.95	Negative	−.10/−3.43[b]	High	−.10/−3.43[b]
Uzbekistan	−.21/91	.95	Negative	−.47/5.29[b]	Low	−.47/5.29[b]
Slovenia	−.09/80	.95	Negative	−.03/2.08[b]	Low	−.03/2.08[b]
Italy	−.09/80	.95	Negative	−.29/2.99	n.s.	−.29/2.99
Kazakhstan	−.02/73	.96	Negative	−1.04/9.67	High	−1.04/9.67
Austria	.06/66	.96	Negative	−.22/2.35	Low	−.22/2.35
Finland	.09/63	.93	n.s.	−.12/1.27	Low	−.12/1.27
Russia	.09/62	.94	Positive	.25/2.61	High	.25/2.61
United States	.27/45	.92	Positive	.21/2.12	Low	.21/2.12

[a]We adjusted the second number in the UA scores to scale with Hofstede's scores (see Table 1).
[b]We show the total effect on Asmoke; the total effect on intent to smoke is not significant.
Notes: n.s. = not significant.

The effect of advertising intensity appears to be less straightforward. In five of the nine sampled countries, low-intensity advertisements are more effective than high-intensity advertisements. The three countries that responded significantly better to high-intensity advertisements (Belgium, Kazakhstan, and Russia) were positioned in the middle and at opposite ends of the UA scale.

That a moderating impact of UA on intensity did not prove significant is perhaps not surprising given previous empirical results. In a major study that tested different levels of message intensity, intensity differences were not significant (Schoenbachler and Whittler 1996), and the inclusion of UA as a moderator did not change this finding. Although the possibility exists that ad intensity has no effect on Aad, this seems somewhat counterintuitive, both logically and in practice. Rather, we suspect that the effect may be more complex than initially hypothesized. As we indicate subsequently, this is an area that seems ripe for further research.

Public Policy Implications

Most antismoking campaigns stress negative outcomes. For example, both the current and the new antismoking campaigns in the European Union (EU) tend to focus on fear appeals; the new campaign is set to include graphic pictures (European Commission 2004). Table 5 gives an overview of health warnings in the EU and the United States. In practice, the required label warnings fall into the categories indicated in Table 5 (anything short of death is defined as relatively low intensity).

Table 5 indicates that only one warning in each area has a positive valence. Even these positive valence advertisements suggest the lack of threat rather than a genuine benefit. Our research indicates that this common practice of negative messages (Pechmann et al. 2003) does not always pay off. The EU's uniform rules pertaining to antismoking advertisements will not be as effective as they would be if cultural differences were taken into account. Although negatively framed advertisements are likely to have an effect in some EU countries, the universal requirement to include such negative advertisements on cigarette packaging may yield no results in other countries. Specifically, positive advertisements may be more effective in low-UA European countries, such as Denmark, the United Kingdom, Ireland, and Sweden. In the United States, the use of negative advertisements should be replaced with positively framed ones.

It is becoming well established in the literature that uniform, global advertising may not be as effective as once implied (Levitt 1983). The findings of this research agree with those of De Mooij and Hofstede (2002), who suggest that converging technology and a lowering of the income gap across

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Warnings	Positive/ Negative Valence	High/ Low Intensity
EU		
Smokers die younger.	Negative	High
Smoking causes heart disease and strokes.	Negative	Low
Smoking causes cancer.	Negative	Low
Smoking when pregnant harms your baby.	Negative	Low
Passive smoking harms those around you, especially children.	Negative	Low
Your doctor can help you stop smoking.	N.A.	N.A.
Smoking is addictive.	Negative	Low
Stopping smoking reduces the risk of serious disease.	Positive	Low
Smoking kills half a million persons each year in the EU.	Negative	High
If you smoke, you are killing yourself.	Negative	High
Get help to stop smoking.	N.A.	N.A.
Smoking kills/can kill.	Negative	High
Smoking causes male sexual impotence.	Negative	Low
United States		
Smoking causes lung cancer, heart disease, and emphysema and may complicate pregnancy.	Negative	Low
Quitting smoking now greatly reduces serious risks to your health.	Positive	Low
Smoking by pregnant women may result in fetal injury, premature birth, and low birth weight.	Negative	Low
Cigarette smoke contains carbon monoxide.	N.A.	N.A.
Totals	12 negative	4 high
	2 positive	10 low

Notes: N.A. = not applicable.

Table 5.
Label Warnings in the EU and the United States

countries will not lead to homogenization of consumer behavior because of cultural differences, especially in the context of response to advertising messages. Thus, public policy officials need to be cognizant of cultural differences when they design and execute public health advertisements. In short, one size does not fit all in advertising.

As with any research, our work is not free of limitations, some of which open avenues for further research. Given the focus of antismoking advertisements on adolescents, this research pertains particularly to this population. Therefore, the results are valid only for this population and should not be extended to society in general. In addition, there is perhaps an issue of whether teens who have mandatory high school education, as in the United States, differ from teens in countries in which high school is optional. Unfortunately,

Study Limitations

this sociological issue was overlooked in this study, but it would be worthy of investigation in the future.

Another extension would be to compare a sample of smokers with nonsmokers. Although a primary goal of antismoking messages is to prevent new smokers from adopting the habit, an equally worthy goal would be to determine whether existing smokers can be persuaded to quit and what types of messages would be effective in pursuing that end.

This study represents an initial foray into the domain of culture and its effects on responses to ad framing. As such, the hypotheses are somewhat intuitive from a theoretical standpoint. Such intuitiveness should imply adoption by industry and public policy, but this is not the case. However, as with any research, more needs to be done to examine the complexities behind these effects. Specifically, the moderating process by which culture affects ad effectiveness needs to be examined further. In addition, the effect of ad intensity on reception of the message needs further examination, both the direct effect and cultural moderation. Logic suggests that differential intensity levels should have some impact on how the advertisement is viewed. Indeed, there is evidence that culture (in the form of UA in the current context) should moderate this effect. To date, however, no such effect has been convincingly established; thus, it represents a fruitful avenue for further research.

We examined measure equivalence (Jöreskog and Sörbom 1993) for the model. Although theoretically desirable, a model of this size, (14 items and four constructs across nine countries) rarely adheres to such constraints (Horn 1991, p. 125; Horn et al. 1983; Steenkamp and Baumgartner 1998, p. 81). In this instance, although the CFA exhibited acceptable configural invariance, the measures were not perfectly metric invariant. Thus, there is some concern that the measures may not be precisely equivalent across countries. However, other evidence (content validity, CFA, loadings) suggests that, overall, the measures indeed reflect what they purport to measure.

The use of single exposures and the immediate measures are also limitations of this research. We found that a single exposure to an antismoking advertisement had a measurable effect. The question remains for future longitudinal studies to determine whether people follow through on their stated reactions. Single exposures are not normal practice in industry, especially for public health advertisements. Although the method was effective for the purpose of this study, researchers and public policy officials need to be cognizant of the potential for "wear out" and other intervening effects for an actual campaign.

We also note that in this study, the UA scores for teens in foreign countries in a few cases do not correspond to Hofstede's (2001) results. We caution future researchers to check their measures for the target group under study and not use measures from different participant pools.

Finally, the antismoking literature has other message types that we did not test here but that have been shown to have a significant effect on behavior. For example, Pechmann and colleagues (2003) investigate messages that refer to the consequences of smoking for others rather than oneself. The inclusion of such variables would enhance the breadth of knowledge about the effect of UA on both common types of antismoking messages.

NOTE

1. In addition to threat severity and vulnerability to the threat, protection motivation theory involves two other cognitive variables: the audience's perceived self-efficacy at performing the promoted threat-reducing behavior and the perceived response efficacy of the promoted behavior. These variables do not affect fear arousal itself but rather influence the likelihood that the aroused fear will actually lead to the adoption of the advocated fear-reducing behavior (see Tanner, Hunt, and Eppright 1991). In this study, we expected self-efficacy at not smoking and response efficacy of not smoking (in terms of threat reduction) to remain invariable across the studied antismoking messages; thus, we do not discuss these issues further.

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