INVOLVEMENT AS A PREDICTOR OF BEHAVIORAL RESPONSE TO DISEASE PREVENTION AND CONTROL MESSAGES: A MULTI-DIMENSIONAL APPROACH

by

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A Dissertation Submitted to the Faculty of the

DEPARTMENT OF COMMUNICATION

In Partial Fulfillment of the Requirements
For the Degree of

DOCTOR OF PHILOSOPHY

In the Graduate College

THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

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entitled Involvement as a Predictor of Behavioral Response to Disease Prevention and Control Messages: A Multi-Dimensional Approach

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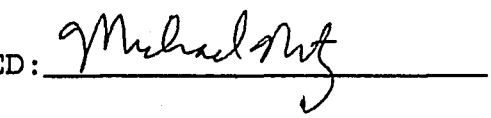
SIGNED: 

ACKNOWLEDGEMENTS

First and foremost, I have to thank Michael Burgoon for believing in me and for providing a climate in which good research and teaching can thrive. Your ability to challenge me to think harder was instrumental in my intellectual development. You have given me the confidence necessary to carry on. Your willingness to discuss intellectual and "non-intellectual" matters whenever your door was open was a constant reassurance that I had chosen the right advisor and the right program.

Hank Kenski's contribution to my graduate career was priceless. Your willingness to advise me on matters of coursework, research, and personal matters will always be remembered. You inspired my desire to continue in academic life by showing me that I can simultaneously be a quality researcher, quality researcher, and a good person.

David Buller was instrumental not only in my research life, but my teaching life as well. You showed me what a good teacher is like. You asked me the tough questions that needed answering so that I could become a better student and researcher. Thanks for putting so much trust in me.

Thanks to my minor committee members, Susan Heckler and Chris Puto. You both were so helpful and patient in teaching me about marketing, salsa, and life. Thanks for your confidence in me.

Thanks are also due to Sally Jackson--for your constant interest in my work and my life. Thanks to David Williams--for showing me that there are "fun" books to read. Thanks to Bill Bailey. Your willingness to engage me in discussions about theory, community, fascists, and the Blue River gives me hope that professors and students can participate in intellectual discussion. Finally, Michael Pfau-you started me on this road. Now that I am at the finish line, I want to say Thanks!

The years at Arizona would not have been possible without the persistent badgering, bulldogging, pecking, and hounding of the kangaroo court. Thanks Walid (Go Capuchins!), Alan (Ich wuensche dir Alles Gutes), and Tom (Topos) for being birds of a feather. Thanks also to Michelle (What are you going to do without Cliff in the office) and Sharon (Thanks for talking baseball and bratwurst), my favorite female officemates. Thanks to all the fellow graduate students along the way that offered me feedback on my work, words of support, and an occasional beer. Thanks to Patty, Ann, Pastor Jim, Pastor Paul and all the others at OSLC who were bulwarks of support and encouragement.

DEDICATION

This dissertation is dedicated to several people who have made my graduate career more bearable. First and foremost, I would like to thank the "wind beneath my wings"--my wife Jody. She encouraged me through the bad times, cheered me on through the good times, and never doubted my ability. Second, my parents should be honored. Their continual interest and concern about my work were constant beacons of hope for me. Thanks!!

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ABSTRACT

One of the fundamental problems in health campaigns is obtaining behavioral compliance. This dissertation proposed a multi-dimensional framework of involvement to help address this dilemma. Johnson and Eagly's tripartite framework of involvement was used. Involvement was comprised of outcome-relevance, value-relevance, and impression-relevance. Surveys were conducted using the topic of skin cancer. Results indicated that involvement significantly enhances subjects' intentions to comply, knowledge levels, and media usage. Demographic analyses revealed that gender and education, as well as skin complexion, can be good predictors of compliance. The implications of the proposed involvement-based theory and its correspondence with other models in both general persuasion theory and health communication are discussed.

CHAPTER 1

Introduction and Problem Area

Research on health communication campaigns has become increasingly prevalent in the last decade (Backer, Rogers, & Sopory, 1992). This is so, according to Backer et al., because these campaigns have been effective in initiating and changing health behaviors, health campaigns have been rising in quantity, and efforts to promote health and prevent disease have risen higher on the social agenda. This interest in health campaigns has been generated in both the social science and communication fields. Communication strategies can be used successfully to gain compliance and alter lifestyles in a variety of contexts, including disease prevention and control in the health arena (Burgoon & Burgoon, 1990).

This ability of communication to gain compliance is crucial since one of the key shortcomings of persuasive attempts in the arena of disease and prevention control is the failure to obtain behavioral compliance (Becker & Maiman, 1980; Dervin, Harlock, Atwood, & Garzona, 1980; Eraker, Kirscht, & Becker, 1984; Greenberg, 1989; Phillips & Jones, 1991). Noncompliance rates have soared as high as fifty percent in some cases (Lane, 1983). Even simple preventive measures such as exercising and breast self-examinations are met with high rates of nonadherence

(Meyerowitz & Chaiken, 1987). The problem is so bad that there is often no (or even a negative) association between medical view of risk and patient compliance (Rosenstock, 1974).

The bottom-line objective in health communication is behavioral compliance (Devine & Hirt, 1989; Flay, DiTecco, & Schlegel, 1980). One of the best predictors of compliance is one's intention to comply (Fishbein & Ajzen, 1981). It does no good if people know how to prevent skin cancer and recognize that their sun behavior puts them at risk of ill health if they are not taking corresponding behavioral measures to address the problem. Brehony, Fredriksen, and Solomon (1984) agree that most of the major remaining health problems are behaviorally based. According to the surgeon general (as cited in Brehony et al.), seven of the ten leading causes of death in the U.S. could be reduced if people at risk improved just five habits: dietary habits, smoking cessation, lack of exercise, alcohol abuse, and use of hypertensive medicine.

Unfortunately, persuasive health campaigns have been generally ineffective in achieving behavioral changes. This is due to several reasons. First, many campaigners work under the assumption that more information will lead to behavior (Wallack, 1989). People will tend toward healthy lifestyles if they are only given the requisite information

(Budd & McCron, 1981). However, information is not sufficient (Albert, 1981). Exclusive dependence on knowledge change is likely to lead to little behavior impact (Bandy & President, 1983; Buller & Buller, 1991). People want health and know what to do to get health, but do not act accordingly (Fox & Kotler, 1980). The crucial task, as Fox and Kotler envision it, is to move these people from intention to the action stage or as Cooper, Kehoe, and Murphy (1978) more eloquently put it.."persuading people to do things which most of them don't want to do but which they know that they ought to do in order to get what they do want...health" (p. 7). This study attempts to fulfill Cooper et al.'s assignment by increasing involvement.

Second, a person's knowledge about an illness does not guarantee they will feel threatened by that disease (Slater & Flora, 1991). Those relatively informed about an illness express no greater concern than those relatively uninformed about the illness. College students generally score high on knowledge measures about AIDS, but these knowledge scores are not strongly related to healthier behaviors (Brown, 1991). For example, Goff (1992) found students' HIV related knowledge to be insignificant in predicting condom use. Fisher (1984) discovered that teens' knowledge about birth control practices increased after a campaign, but actual birth control practices experienced no change.

Third, people underestimate their chances of falling ill (Mendelsohn, 1981). Boyd and Jackson (1988) state that four out of five of those people at risk underestimate their susceptibility to ill health. People will deny having risk factors or downplay the risk if they do admit to having the factors (Flay & Cook, 1989; Jemmott, Ditto, & Croyle, 1986; Zisook & Gammon, 1980). A risk may not be perceived due to differing criteria of what constitutes dangerous health behaviors (Dervin, 1989; Scherer & Juanillo, 1992). Greenberg (1989) notes that people have "health continuums" (p. 5). These continuums range from death to perfect health and include different types of health such as physical, mental, and spiritual. While many health educators desire weight loss, people may feel that being overweight is actually healthy because they enjoy the mental health associated with food and fellowship.

In sum, one is faced with motivating behavioral change among individuals who perceive themselves to be healthy and who have little interest in persuasive messages. An additional problem arises in motivating behavioral change in those who know alot about a disease and/or perceive themselves at risk of having a disease but are resisting change for various reasons.

Skin cancer

Skin cancer has been an increasingly hot topic of health research in the last decade, and for good reason (Banks, Silverman, Schwartz, & Tunnessen, 1992). Skin cancers are the most common cancers today (Buller & Buller, 1991). Approximately one in seven Americans will develop skin cancer during their lifetime (Academy of American Dermatologists, 1990). Currently, one of every three cancers diagnosed in the United States is skin cancer (Skolnick, 1991). Almost all of these cases will be sun-related. The lifetime risk of an individual developing skin cancer has increased dramatically in the last decade. Skolnick notes that the current rate of skin cancer is twice as high as it was a decade ago, even though the U.S. population has only increased eleven percent. Arizona is particularly prone to this disease since the state has over 300 days of sunshine a year. As a result, it has the highest rate of skin cancer in the United States. Skin cancer is the most frequently diagnosed cancer in Arizona.

Skin cancer has also been plagued with an increasing mortality rate (Skolnick, 1991). Melanoma claimed 6500 lives in 1991 according to the Skin Cancer Foundation and the Sloan-Kettering Cancer Center (p. 3217). Melanoma is increasing so rapidly, that by 2000, it could become one of the more common types of cancer malignancy (Weinstock &

Miller, 1994). This death toll is increasing at the rate of approximately seven percent a year, the most rapidly increasing rate for any cancer in the country. Skolnick suggests this reflects a true increase in incidence rather than better detection. Nonmelanoma skin cancers are increasing with more than 500,000 diagnoses annually (Schreiber, Moon, & Davidson, 1990).

The solution to this problem presents somewhat of a puzzle for health campaigners. Current evidence suggests that ninety-five percent of all skin cancers can be attributed to exposure to ultraviolet radiation. Unfortunately, sun worship is an important value for many people in society. A tanned skin is perceived as healthy and aesthetically ideal (Skolnick, 1991). More than a million people a day visit tanning parlors throughout the U. S. (Skolnick, 1991). While fewer Americans are sunbathing, the use of other protective measures such as wearing protective clothing and using sunscreen have not been widely reported (Academy of American Dermatologists, 1990). One half million adolescents used tanning booths regularly (Academy of American Dermatologists, 1988). This survey also reported that 50% purposefully worked on tans; 72% considered a tan healthy; only 37% used sunscreen, and only 33% knew that sun exposure can cause skin cancer.

Despite medical warnings about cancer, popularity of tanning products and willingness of many to lay under UV lamps for hours attests to cultural desirability of deep, dark tan. A tan may be considered a form of conspicuous waste. A tan is a souvenir of resources spent on leisure. "I have leisure time to lay out and tan" (Solomon, 1992).

Commercials extol the desirability of a healthy tan. Products such as sunscreen may actually induce longer exposure periods in the sun due to a false sense of security. The weather in places such as Arizona promotes and encourages outdoor lifestyles that increase sun exposure. Lifestyle changes, including migration to the "Sunbelt", greater leisure time spent outdoors, and less modest bathing suits are increasing sun exposure (and the incidence of melanoma).

The essential problem, then, is a lack of behavioral compliance. Most people know the necessary steps to prevent skin cancer, but usually do not believe they are personally affected by skin cancer. Even if one feels personally threatened by skin cancer, behavioral correspondence with such a belief or attitude is lacking (Thompson, Jolley, & Marks, 1993). This knowledge-behavior gap is a fundamental problem in the realm of skin cancer prevention (Buller & Buller, 1991).

However, the issue of skin cancer offers a fertile field for the development and testing of persuasive messages addressing this health behavior (Lemieux, Hale, & Mongeau, 1994). Lemieux et al. note that, like other preventive and diagnostic behaviors, skin cancer is easily detected, can incorporate self-examination, requires little personal sacrifice during self-examination and has relatively high survival rates when diagnosed early.

Involvement

Definition

Involvement can be generally defined as the extent to which the attitudinal issue under consideration is of personal importance or relevance (Petty & Cacioppo, 1979). Parallel conceptions characterize involvement in term of normative importance (connection of product class to values) (Lastovicka & Gardner, 1979; Meyers & Seibold, 1985) or as a goal-directed motivational state (MacInnis & Jaworski, 1989).

Rationale

Involvement is one of the three fundamental dimensions of any communicative act (Lievrouw & Finn, 1990). As such, it is a variable that has many useful applications in the communication field. Many scholars have asserted that involvement plays a central role in the dynamic of the persuasion process (Cundy, 1990; Greenwald, 1982; Krugman,

1965; Park & Mittal, 1985; Roser, 1990; Sereno, 1968; 1969; Street & Wiemann, 1987; Zaichowsky, 1986). The centrality of involvement to successful campaigns warrants its further examination by communication scholars.

Sereno (1969) posits that involvement could have theoretical significance since it could better account for the perplexing problem of explaining differing attitudinal responses among receivers. It helps explain the why of subjects' responses (Meyers & Seibold, 1985). Involvement also serves as a base for predicting a subject's response to alternative persuasive stimuli (Sereno, 1969; Sherif, Sherif, & Nebergall, 1965). Chaffee and Roser (1986) even go so far as to say that "involvement is **the** critical variable in determining how messages will be received" (p. 381). The concept of involvement has far-reaching heuristic potential for communication research and is particularly promising for predicting attitude and behavior change in health campaigns.

Involvement and health

Involvement is a concept that can be readily applied to health campaigns aimed at disease prevention and control in general, and those specifically advocating skin cancer prevention. Health campaigns provide a context in which involvement varies a great deal from one person to another (Rothschild, 1979; Salmon, 1986). When involvement is high,

one is more motivated to behave consistently with one's attitudes and knowledge (Chaffee & Roser, 1986; Seibold & Roper, 1979). Mendelsohn (1981) notes that the tendency to comply will be strongest among those people who believe themselves to be at maximal risk.

Chaffee & Roser (1986) found significant and separate effects for cognitive, affective, and behavioral involvement. They go on to argue that increasing involvement with a campaign topic, a major task of a health campaigner, has met with some success (Albert, 1981; Atkin, 1979; Reardon, 1989; Rosenstock, 1974; Vernon & D'Augelli, 1987). Health messages must be personally involving in order to be successful (Boyd & Jackson, 1988). The problem must be made salient in order to be effective (Backer et al., 1992). Dervin (1989) stresses the need for messages to have a personal reality that connects an individual to a campaign.

Unfortunately, involvement is rarely studied as a variable in health communication. Meyers and Seibold (1985) note the lack of research on involvement as a basis for utilizing health services is a glaring gap in the literature. This deficiency is unfortunate since involvement is a variable that enhances prediction and increases attitudinal-behavior correspondence, one of the fundamental problems not only of health research, but of

persuasion research in general (Eagly & Chaiken, 1993). Involvement, in the few times it has been used in health research, has been found to have an effect on compliance (Eraker et al., 1984; Flay et al., 1980; Greenfield, Kaplan, & Ware, 1985). The level of an individual's involvement is a superior basis for predicting health service utilization (Meyers & Seibold, 1985). Seibold and Roper (1979) note that it is an important identifier of the precursors to conation.

Health communication is an area that addresses what Dewis and Lee (1993) label intimate issues. Dewis and Lee equate intimate issues with "intimate relevance" which are issues of greater personal consequence, requiring more personal and tangible responses, resulting in more intense perceptions of personal relevance (p. 9). The application of these intimate issues would enhance the potency of the involvement construct by focusing on matters that depend directly on the attitudinal and behavioral responses of the subject.

Conceptualization of Involvement

Chaffee and Roser (1986) state that the conceptualization of involvement constitutes a central problem for future study in health communication research. Reasonable approaches in the research literature advocate a multi-faceted view of involvement (Chaiken & Stangor, 1987;

Eagly & Chaiken, 1993; Johnson & Eagly, 1989; 1990). Tyebjee (1979b) agrees, stating that the "multidimensionality of involvement makes it richer in its potential to guide advertising decisions..." (p. 108).

Johnson and Eagly's (1989; 1990) tripartite framework of involvement was utilized in this study. The operational definitions of involvement have varied widely across the field of social influence (Zaichowsky, 1985; 1986). This diversity is so prevalent that Johnson and Eagly assert that it requires the delineation of at least three types of involvement at the conceptual level. Their meta-analysis is the best attempt in the extant work on involvement to synthesize this diversity. Most, if not all, definitions of involvement can be subsumed into either outcome-relevant involvement, value-relevant involvement, or impression-relevant involvement.

Furthermore, Johnson and Eagly's framework fills a void in persuasion research. Contemporary treatments of involvement, and persuasion in general, typically emphasize the cognitive dimension of attitudes. More recently, however, recognition is being awarded to those scholars who have uncovered other motivations for attitude change (Eagly & Chaiken, 1993). The work of functional theorists in attitude research points to not only instrumental functions of attitudes, but also expressive and social-adjustive

functions as well (Eagly & Chaiken, 1984; 1993; Greenwald, 1982; Katz, 1960; Smith, Bruner, & White, 1956). Value-relevant involvement is consistent with Katz's value-expressive function which recognizes that people are motivated to maintain values. Impression-relevant involvement is consistent with Smith et al.'s social-adjustive function which states that people are concerned about evaluations by others and remaining in positive relationships. Johnson and Eagly have isolated three distinct definitions of involvement that are a reflection of three distinct bodies of persuasion research.

Outcome-relevant involvement

Outcome-relevant involvement is akin to Petty and Cacioppo's (1979) issue-involvement. Once again, Johnson and Eagly (1989; 1990) have renamed this construct because they feel that Petty and Cacioppo's manipulations (1981; 1984) make salient to message recipients the relevance of an issue to their currently important goals or outcomes" (Johnson & Eagly, 1989, p. 292). Outcome-relevant involvement also relates to the relevance or importance of a product class to receivers (Greenwald & Leavitt, 1984; Pfau, 1992; Zaichowsky, 1985). Outcome-relevant involvement has been examined under the rubric of issue salience in political communication. (Elkins, 1992; Mutz, 1994; Zaller,

1992). Voters are most likely to be active and knowledgeable on issues of personal relevance to them.

An example of outcome-relevant involvement would be if the person feels that skin cancer is personally relevant. In other words, do they feel they are at high risk of obtaining skin cancer? Has anyone in their immediate circle of family and friends contracted skin cancer? How important is the disease? This study defined high outcome-relevant involvement as a category comprising those subjects, who for one reason or another, felt personally impacted by skin cancer.

H1: Subjects high in outcome-relevant involvement will be more likely to comply with persuasive messages emphasizing the personal relevance of skin cancer than subjects low in outcome-relevant involvement.

This hypothesis is further supported by evidence that suggests that high involvement with skin cancer (operationalized as history of skin cancer) increases the likelihood of regular sunscreen use (Thompson et al., 1993).

Value-relevant involvement

Johnson and Eagly's first type of involvement, value-relevant, deals with attitudes based on a receiver's social and personal value system. It is a "psychological state created by the activation of attitudes that are linked to important values" (Johnson & Eagly, 1989, p. 290). These

values are assumed to be enduring and more salient since they become part of the self-concept. An issue high in value-relevant involvement for a person taps into his/her constellation of social and personal values. The subjective experience of certain products or issues substantially contributes to one's structuring of self-concept (Belk, Bahn, & Mayer, 1982; Belk, Wallendorf, & Sherry, 1989; Park & Young, 1985; Solomon, 1983; Wallendorf & Arnould, 1988).

An example of value-relevant involvement would be a subject's social and personal values on the importance of getting a tan or maintaining healthy skin. Outdoor lifestyles and a dark tan may be highly valued by individuals. Other values associated with tanning may include general overall health, longevity, and life satisfaction. This study will define high value-relevant involvement as subjects whose health values emphasize safe sun behavior. In other words, subjects high in value-relevant involvement will be those who do not value a tan and its alleged benefits.

H2: Subjects high in value-relevant involvement will be more likely to comply with persuasive messages emphasizing the value of safe sun behavior to overall health than subjects low in value-relevant involvement.

Impression-relevant involvement

Impression-relevant involvement is driven more by utilitarian motives. Johnson and Eagly (1989) have renamed this construct because it makes "salient to subjects the self-presentational consequences of their postmessage positions" (p. 292). High involved subjects are more concerned with the consequences of their responses and are more attentive to the instrumental meaning of their attitudes. Adopting a position that maximizes immediate situational rewards is more important than the issue itself (Petty, Cacioppo, & Schumann, 1983). Johnson and Eagly found that subjects high in impression-relevant involvement were slightly less persuaded than their low involved counterparts. Persuadability seemed to be a function of the topic used in a persuasive message. If the situational rewards of maintaining a particular impression were high, then resistance to persuasive messages trying to overcome that impression was stronger. Conversely, Johnson and Eagly's meta-analysis seems to indicate that if a persuader can create messages emphasizing situational rewards that the target audience values, persuasive success can occur.

An example of impression relevant involvement would be a person's concern over how they appear to others, especially significant others or potentially significant others. Does having a tan produce immediate situational

rewards, or not? Does a potentially significant other think you look good with a tan? Or does brown, leathery skin make you repulsive to others? Concepts such as social acceptance, relational success, and personal appearance become important here. This study defined high impression-relevant involvement as a category comprising those subjects who are concerned about others' opinions about themselves and their appearances. This concern, however, does not include having a tan. These subjects believe that a healthy skin is more attractive to others than the potential of tanned skin with cancerous lesions. Consequently, these subjects would report participating in behaviors that would maintain this healthy skin and produce situational rewards of receiving positive health evaluations from others.

H3: Subjects high in impression-relevant involvement will be more likely to comply with persuasive messages emphasizing situational rewards of practicing safe sun behavior than subjects low in impression-relevant involvement.

One final question of interest concerns the relative impact of each of these types of involvement. Differing types of involvement can produce different outcomes (Chaiken & Stangor, 1987; Eagly & Chaiken, 1993; Greenwald, 1982). Subjects high in value-relevant involvement may only be persuaded by value-involvement inducing messages. Or they

may be just as easily persuaded by messages composed of other types of involvement.

RQ1: Which type of involvement-enhancing message, value, impression, or outcome, produces the most persuasive impact?

Media and Involvement

The mass media, with their obvious power to reach large numbers of the population with relevant information and persuasive appeals, would appear to be a natural partner of those attempting to influence health related behavior. Television, in particular, has come to play an increasingly important role in the implementation of most contemporary health campaigns, especially through the use of Public Service Announcements (Backer et al., 1992; Rogers & Storey, 1987; Paisley, 1981; Wallack, 1989). Other media channels such as radio, newspapers, magazines, and the like can be important channels of use in many campaigns.

People believe by a wide margin that television provides the most intelligent, complete, and impartial coverage of public affairs (Iyengar & Kinder, 1987). This high credibility carries over to health issues as well (Alcalay & Taplin, 1989; Leathar, Hastings, & Davies, 1981). Moreover, television is an important, if not the most important, source of information for many people about a

wide range of health issues (Wallack & Dorfman, 1991; Wallack, Grube, Madden, & Breed, 1990).

An intermediate objective of many mass media campaigns is to stimulate the public so that they search for additional information on the health issue (Atkin & Wallack, 1991; Backer et al., 1992; Freimuth, 1994). Freimuth notes that this objective is particularly appropriate with complex health issues such as cancer. The media attempt to increase one's involvement with an issue to the extent that they are motivated to seek out cancer information in a variety of channels. Ettema, Brown, and Luepker (1983) found that following a health campaign, motivation was a strong predictor of health knowledge. A person diagnosed with a disease will often seek out information on ways to cure it by reading brochures, watching television or reading newspaper stories relevant to that particular disease.

Research in mass media tends to indicate that people who are highly involved with a health topic seek out a variety of media channels for information (Chaffee & Roser, 1986; DePietro & Clark, 1984; Heath & Douglas, 1990; Johnson & Meischke, 1991; 1993; Meyers & Seibold, 1985). Ettema et al. (1983) argue that nearly all audiences, regardless of their demographics, can be reached if health issues are communicated and perceived to be relevant. Thus, a health message perceived to as relevant to the needs of the

receiver will motivate him or her to more closely attend to the message and to seek further information than if the message was perceived as irrelevant. The frequency of attending to media messages about health is determined primarily by the level of one's concern or interest in one's health (Yows, Salmon, Hawkins, & Love, 1991). Therefore:

H4: Subjects high in involvement will use a wider variety of media sources to obtain information about skin cancer than subjects low in involvement.

However, little research has examined how **different types of involvement** impact media usage. In addition, little previous research has examined the relationship between specific involvement types and subjects' evaluations of various media channels. The following research questions attempted to address these issues.

RQ2: What is the relationship between involvement type and media usage?

RQ3: What is the relationship between involvement type and evaluation of various media channels?

Knowledge

Knowledge is commonly used as an independent variable in persuasion research (Eagly & Chaiken, 1993; O'Keefe, 1990). This is because many health campaigns operate under the assumption that knowledge or information is necessary

for subsequent success in a health campaign. Many scholars point to a widening knowledge gap (Ettema et al., 1983; Viswanath, Finnegan, Hannan, & Luepker, 1991; Yows et al., 1991). The people greatest at risk are often the least informed as information is not getting to the right people in the right way (Backer et al., 1992; Costello & Pettegrew, 1979). When information **does** reach people, it is often distorted (Horn, 1976; Johnson & Meischke, 1991; Kline & Pavlik, 1981; Phillips & Jones, 1991). Such distortion can have negative results. Freimuth (1987) noted an appalling level of misperception of cancer. Over one half of people in a National Cancer Institute survey felt that **everything** causes cancer and there was not much a person could do to prevent it.

Unfortunately, many health campaigns are slightly misguided in how they focus on knowledge. Most campaigns focus on increasing knowledge levels with the hope that this will lead to behavior change. However, exclusive dependence on knowledge change is likely to lead to little behavior impact (Bandy & President, 1983; Buller & Buller, 1991; Cialdini, 1989; Dervin, 1981; Wallack, 1980). What is necessary is a focus on what **causes** knowledge acquisition.

This paper forwarded the notion that involvement is a key variable in this regard. Individuals who acquire knowledge as a result of increased involvement should be

more willing to comply with health campaign messages. Information gained through such a process should be more relevant and behavior-provoking. Involvement has been found to be a good predictor of knowledge-attitude-behavior consistency (Chaffee & Roser, 1986; Roser, 1990). If involvement increases, one may be more likely to learn information and respond to this learning by changing attitudes and behavior in a corresponding fashion.

Many studies of health messages utilize knowledge as a dependent variable that is impacted by involvement. Hughey (1987) notes that individuals who are personally affected by a disease have more knowledge about the disease. Involvement is a psychological motivator for the acquisition of information about heart disease (Pavlik, Finnegan, Strickland, Salmon, Viswanath, & Wackman, 1990), breast cancer (Johnson & Meischke, 1991; 1993) and health information in general (Chaffee & Roser, 1986; DePietro & Clark, 1984; Salmon, 1986). An individual diagnosed with a health condition (or at risk for a health condition) may pay more attention to media messages relating to that condition. Motivation is a strong predictor of health knowledge (Ettema et al., 1983). Sears (1991) claims that direct experience with an issue provides more information about the issue, makes attitudes about the issue more salient and elicits more behavioral responses. Therefore:

H5: Subjects with high levels of involvement will have higher levels of knowledge than subjects with low levels of involvement.

Since little research has been conducted analyzing the relationship between the various types of involvement and motivation to acquire knowledge, the following question will be asked.

RQ4: What is the relationship between one's involvement type and knowledge about skin cancer?

Demographical Analyses

Gender. It is possible that a gender effect exists for attitudes about tanning and skin cancer. Solomon (1992) notes that marketers often target women more than men in terms of skin beauty products. Consequently, messages promoting tanning products for an attractive appearance could have more effect on women. In other words, skin cancer could be a more involving issue for women since they could be more conscious of skin appearance due to a higher incidence of skin cancer and skin beauty topics in media channels geared primarily towards women.

RQ5: What is the relationship between gender and involvement with skin cancer?

Education. Many health campaigns measure success by increased knowledge levels. The relationship between knowledge and education is well-proven in the persuasion

literature (Eagly & Chaiken, 1993). However, a high level of education or knowledge does not necessarily guarantee attitude and behavior change (Buller & Buller, 1991). Lemieux et al. (1994) report that educating adolescents about skin cancer appears to have a minimal effect on subsequent at-risk behavior. This study attempted to examine education level separately from knowledge in order to determine the relationship between education level itself and involvement with the topic of skin cancer.

RQ6: What is the relationship between education and involvement?

Susceptibility and complexion. These variables were grouped together due to their similarity. Both are strongly entrenched in the outcome-relevant dimension. A person with a fair complexion or who sunburns easily should definitely have a vested interest or feel personal relevance in the topic of safe sun behavior. However, this study wanted to explore whether strong personal involvement extended to other dimensions such as the development of values about sun behavior and the creation a desire to look good for others.

RQ7: What is the relationship between one's susceptibility to sunburn and involvement with skin cancer?

RQ8: What is the relationship between one's skin complexion and involvement with skin cancer?

CHAPTER 2

Method

Independent and Dependent Variables

This study utilized involvement as the independent variable. Involvement was composed of three separate types: impression-relevant, outcome-relevant, and value-relevant. The dependent variables were intention to comply with safe sun behavior, media usage and general knowledge about skin cancer and safe sun behavior.

The study was broken into two separate experiments. In both studies, subjects were told they would be completing a questionnaire on general health issues.

Study 1

The first study was concerned with developing a measurement model to obtain a scale of involvement to be used in Study two. Adults filled out a battery of questions tapping value-relevant, impression-relevant, and outcome-relevant involvement (see Appendix A).

Subjects. Subjects (N=760) in this investigation were drawn from the jury pool for the Superior Court of Pima County in Arizona. Prospective jurors were obtained from lists of registered voters or residents who have a current driver's license and reside in the county. Thus, people responding to a summons for jury duty tend to be highly representative of the local population. After completing

the requisite forms for jury duty, subjects were given experimental stimuli to complete while they waited in an assembly room to be called.

Methods/Item Generation. The development of the scale of involvement for this study began by identification of statements that might capture value-relevant, outcome-relevant, and impression-relevant involvement. This was done by perusing literature in communication, marketing, psychology, and by consulting previous scale development work in this area (Bloch, Sherrell, & Ridgeway, 1986; Higie & Feick, 1988; Lastovicka & Gardner, 1979; Laurent & Kapferer, 1985; McQuarrie & Munson, 1986; Zaichowsky, 1985; 1986). The result was a 100 item questionnaire that incorporated an equal number of items tapping outcome-relevant, value-relevant, and impression-relevant involvement.

Reliability analyses were conducted to confirm the scale's usefulness. An overall Cronbach alpha was computed for each dimension. Item analyses for each involvement factor with each item deleted were computed for each of the three involvement factors. Reliabilities for each type were good: $\underline{r}$=.86 for outcome, $\underline{r}$=.93 for value, and $\underline{r}$=.92 for impression. The resulting scales were then utilized in Study 2.

Discussion. The high Cronbach alphas confirm the existence of three separate sub-scales of involvement. Each scale was composed of items that cleaved together both theoretically and empirically. The results are also consistent with work (Chaffee & Roser, 1986; Chaiken & Stangor, 1987; Eagly & Chaiken, 1993; Greenwald, 1982) that argues for not the existence of not one, but several dimensions of involvement.

Study 2

Design. The second study consisted of three phases and utilized a posttest-only design. The design compared three different types of involvement upon subjects' intentions to comply with messages advocating safe sun behavior. Each phase focused on a different type of involvement. First, subjects were given a message advocating safe sun behavior. Second, subjects (N=863) answered the involvement scale created in Study 1. A median split was used to divide subjects' scores on this scale into high and low involvement levels. This scale served as the operationalization of the independent variable of involvement. Third, subjects completed a manipulation check on the persuasiveness, credibility, and involvingness of the message. Finally, subjects completed dependent measures on likelihood of compliance, knowledge, media usage, and demographics.

Subjects. Subjects were from the same population (jury pool) as Study 1, yet comprised a different sample (N=863).

Experimental Materials. First, subjects read a message advocating safe sun behavior. There were three separate messages, each emphasizing a particular form of involvement (see Appendices B, C, and D). Each involvement message was constructed in such a way as to match each other as closely as possible in terms of the writing style and overall comprehensibility. Particular attention was paid to the total length, average sentence length, and modifiers that could have affected the involvement-enhancing qualities of the message. The Index of Contingency, developed by Becker, Bavelas, and Braden (1961), was used to evaluate the comprehensibility and equivalence of the three messages. The total word counts and the Index of Contingency ratings of the three involvement messages were similar as Table 1 indicates.

Insert Table 1 about here

In the first phase, outcome-relevant involvement was utilized (N=281). This message stressed that the subject is susceptible to skin cancer. The message attempted to show that skin cancer is personally important and relevant to the

subject. It stressed the genuine risk of unsafe sun behavior for the subject.

In the second phase of the study, the message focused on increasing one's value-relevant involvement (N=288) in order to increase intentions to comply with advocated safe sun behaviors. This message stated that safe sun behavior should be part of one's constellation of social and personal values. It stressed that a tan is not an ideal to uphold.

In the third phase of the study, impression-relevant involvement was emphasized (N=291). This message stated that safe sun behavior is attractive and socially acceptable to potential significant evaluators of the subject's behavior. It stressed that one can get immediate, situational rewards by practicing safe sun behavior.

This procedure split subjects into three separate samples (conducted at three separate time points). Consequently, each message targeted subjects with high and low levels of that particular form of involvement. For example, subjects reading the value-relevant involvement message broke down into high and low levels of value-relevant involvement based on the initial involvement scale filled out in the first part of Study 2. Thus, there was a match between the type of involvement in the message stimulus and the individual subject's type of involvement for approximately 1/3 of the subjects. The remaining 2/3

were high/low in the other two types of involvement. This pattern held true for all phases of the study.

Dependent Measures. First, subjects completed a involvement scale that matched up with the message they just read. These scales were derived from the measurement model created in Study 1 (see Appendices E, F, and G). Second, subjects were tested on their knowledge levels about skin cancers (see Appendix H). The reliability for this scale was satisfactory (r=.78). Third, subjects answered questions about their media usage (see Appendix I). The reliabilities for these scales were .74 and .76 respectively. Fourth, subjects' behavioral intentions were elicited by asking them their likelihood of complying with the safe sun recommendations advocated in the message (see Appendix J). The reliability for this compliance scale was .90. Items for dependent measures were derived by consulting the skin cancer literature and handbooks of scales. Subjects also completed demographic questions (see Appendix K).

CHAPTER 3

Results

Hypotheses

The first hypothesis predicted that subjects high in outcome-relevant involvement would be more compliant with the persuasive message than subjects low in outcome-relevant involvement. This hypothesis was strongly supported on both the likelihood of compliance scale (t=10.62, $p < .001$, eta^2=.28) the 0-100 compliance measure (t=6.39, $p < .001$, eta^2=.06).

The second hypothesis posited that subjects high in value-relevant involvement would be more compliant with the persuasive message than subjects low in value-relevant involvement. This hypothesis was also confirmed on both the likelihood of compliance scale (t=5.37, $p < .001$, eta^2=.08) and the 0-100 compliance measure (t=3.20, $p < .01$, eta^2=.03).

The third hypothesis posited that subjects high in impression-relevant involvement would be more compliant with the persuasive message than subjects low in impression-relevant involvement. This hypothesis was confirmed for the likelihood of compliance scale (t=3.20, $p < .01$, eta^2=.04), but not for the 0-100 compliance measure (t=1.55). However, the mean (M=69.95) for the high involvement group was higher than the mean (M=64.72) for the low involvement group.

The means for the three hypotheses are in Table 2.

Insert Table 2 about here

Supplementary analyses

Supplementary analyses were conducted to confirm that the stimulus messages were perceived to be more credible and persuasive by the high-involved groups than by the low-involved groups (see Appendices L and M). Planned comparisons were computed to assess the difference between high and low involved groups on the means of the persuasiveness and credibility scales. These scales had reliabilities of .93 and .92 respectively. Results confirmed that subjects high in outcome-relevant involvement found the messages more persuasive ($F(1,276)=107.86$, $p < .001$; $t = 10.49$, $p < .001$) and credible ($F(1,272)=9.90$, $p < .01$; $t = 3.14$, $p < .01$) than subjects low in outcome-relevant involvement. The results were similar for value-relevant involvement for both persuasion ($F(1,284)=5.46$, $p < .05$; $t = 2.34$, $p < .05$) and credibility ($F(1,281)=4.09$, $p < .05$; $t=2.03$, $p < .05$). Unfortunately, there was no significant difference between high and low-involved subjects in impression-relevant involvement. The means for these analyses can be found in Table 3.

Insert Table 3 about here

The fourth hypothesis dealt with media issues. It postulated that high involved subjects would use a wider variety of media sources than low involved subjects. The dependent variable of media usage was created by summing subjects' scores on the media usage scale (r=.76). In addition, a media evaluation scale was created by taking the means of subjects' ratings of the quality of various media channels and then combining them across all media types (r=.97). T-tests were conducted to compare the means of high and low involved subjects on these media scales.

Subjects high in outcome-relevant involvement reported a higher variety of media usage than subjects low in outcome-relevant involvement (t=2.73, p < .01, eta^2=.06). These subjects also tended to evaluate the media more highly than low involved subjects (t=2.22, p < .05, eta^2=.08). There was also a significant difference between high and low-involved subjects for the media sub-scales of television (t=2.16, p < .05), newspaper (t=2.37, p < .05), and magazines (t=2.05, p < .05).

Value-relevant involvement produced mixed results. There was a significant difference between high and low-involved subjects for the media usage scale (t=1.81, p <

.05, eta^2=.05), but not for the media evaluation scale and media evaluation sub-scales.

Unfortunately, no significance difference was found between high and low-involved subjects on the impression relevant dimension, except for one result on the radio sub-scale. High involved subjects used the radio more than low-involved subjects (t=1.93, p < .05).

The means for media usage and evaluation can be found in Table 4. Only the significant means are listed.

Insert Table 4 about here

The fifth hypothesis stated that subjects high in involvement would have more knowledge than low-involved subjects across all three involvement types. This hypothesis was confirmed across all three involvement types. There was a strong difference between high and low-involved subjects on the outcome-relevant dimension (t=6.44, p < .001, eta^2=.09) and the value-relevant dimension (t=3.17, p < .01, eta^2=.06), but not for the impression-relevant dimension. Correlations were also conducted in an attempt at further confirmation. Results indicated that subjects' knowledge levels increased as levels of outcome-relevant (r=.44, p < .01), value-relevant (r=.10, p < .01), and

impression-relevant (r=.13, p < .05) involvement increased. The significant means for knowledge are listed in Table 5.

Insert Table 5 about here

Research Questions

Group Impact. The first research question explored the relative impact of each type of involvement. Oneway ANOVAs were conducted on the dependent variables of media use, knowledge, and compliance. Planned comparisons were then conducted that compared: 1) high involved vs low involved subjects across all three involvement types, 2) high involved subjects in one involvement type vs high involved subjects in another involvement type, 3) high involved vs low involved subjects within each involvement type, and 4) involvement types with each other. The means for the six groups created from this process are listed in Table 6.

Insert Table 6 about here

Compliance. The oneway ANOVA demonstrated a significant impact of a subject's group membership on their likelihood of complying with the message advocating safe sun behavior ($F(5,847)=26.60$, p < .001). Results of planned comparisons produced more significant outcomes. There was a

significant difference between high and low involved subjects across all involvement types (t=10.75, p < .001). Additionally, high and low-involved subjects differed on outcome-relevant (t=9.52, p < .001), value-relevant (t=5.52, p < .001), and impression-relevant (t=3.39, p < .001) involvement. More importantly, however, subjects high in outcome-relevant involvement differed significantly from subjects high in value-relevant involvement (t=2.09, p < .05) and from subjects high in impression-relevant involvement (t=3.66, p < .001).

Media usage. Group membership also had a significant impact on subjects' media usage ($F(5,803) = 2.79$, p < .05). There was no significant difference between high and low-involved subjects across involvement types. However, there was a significant difference between subjects high and low in outcome-relevant involvement (t=2.78, p < .01). Moreover, the type of involvement made a difference as planned comparisons revealed significant differences between subjects high in outcome-relevant involvement and those subjects high in value-relevant involvement (t=3.36, p < .01). Subjects high in outcome-relevant involvement also differed from subjects high in impression-relevant involvement (t=2.73, p < .05).

Knowledge. A oneway ANOVA indicated a significant impact for a subject's group membership on their knowledge

levels about skin cancer ($F(5,854)=8.92$, $p < .001$). Planned comparisons demonstrated that, overall, subjects high in involvement differed from subjects low in involvement in terms of their knowledge levels about skin cancer ($t=5.73$, $p < .001$). Finally, there was a significant difference between high and low involved subjects on outcome-relevant involvement ($t=6.44$, $p < .001$) and value-relevant involvement ($t=3.17$, $p < .01$).

The following research questions addressed the potential effects of gender, education, susceptibility to sunburn, and skin complexion on the dependent variables of knowledge, compliance and media usage. Only the significant results for demographic variables are reported.

Gender. 2 X 2 ANOVAs were performed for each type of involvement using compliance, knowledge, and media usage as dependent variables. Results on the compliance scale indicated a significant main effect for gender ($F(3,271)=5.49$, $p < .05$). Similar results were obtained for the knowledge scale, with a significant main effect for gender ($F(3,273)=24.99$, $p < .001$).

The results for the dependent variable of media usage were more interesting as a significant interaction was found between outcome-relevant involvement and gender ($F(3,253)=6.67$, $p < .01$). T-tests comparing the cell means indicated that low-involved females reported a wider variety

of media usage than low-involved males (t=3.80, p < .001). In addition, high-involved males were more likely (t=3.63, p < .001) to report usage of a larger number of media sources than low-involved males.

Value-relevance. A significant interaction (F(3,278)=5.24, p < .05) was found between gender and value-relevant involvement on the compliance scale. T-tests comparing the cell means showed that females were significantly more likely than males to report likelihood of compliance (t=2.35, p < .05). Furthermore, high-involved females also were more apt to report likelihood of compliance than low-involved females (t=5.76, p < .001). Analysis of the knowledge scale revealed a significant main effect for gender (F(17.73, p < .001). Finally, there was a significant interaction (F(3,262)=4.13, p < .05) between gender and value-relevant involvement for the media usage scale. T-tests comparing the cell means indicated that, as with outcome-relevant involvement, females high in value-relevant involvement reported a wider variety of media usage than males high in value-relevant involvement (t=2.01, p < .05).

Impression-relevance. Significant main effects emerged for gender on both compliance (F(3,288)=11.20, p < .01)and knowledge (F(3,288)=16.93, p < .001). There was

also a significant main effect for gender on media usage ($F(3,277)=22.59$, $p < .001$).

Education. 2 X 2 ANOVAs were performed for each involvement type on the 20-item compliance scale, knowledge scale, and media usage scale. In the domain of outcome-relevant involvement, no significant main effects were found for education on compliance, knowledge, or media usage.

Value-relevance. A significant interaction ($F(5,275)=3.28$, $p < .05$) between education and value-relevant involvement was obtained for compliance. T-tests comparing the cell means found that subjects with higher levels of education and higher levels of involvement reported more knowledge than similarly involved subjects with lower levels of education ($t=3.75$, $p < .001$). In addition, high-involved, high educated subjects evidenced better knowledge scores than high-involved, less educated subjects ($t=3.35$, $p < .01$).

Impression-relevance. The only significant finding for education in the domain of impression-relevant involvement was with knowledge. Education produced a significant main effect on knowledge ($F(4,287)=5.86$, $p < .01$).

Susceptibility to sunburn. 2 X 2 ANOVAs were performed for each type of involvement on compliance, knowledge, and media usage. With outcome-relevant involvement, significant

main effects were found for susceptibility ($F(3,271)=13.19$, $p < .001$) on the compliance scale. There were also significant main effects for susceptibility on the dependent variables of knowledge ($F(3,273)=6.44$, $p < .01$) and media usage ($F(3,253)=5.08$, $p < .05$).

Value-relevance. A significant main effect was found on the dependent variable of compliance for susceptibility ($F(3,278)=30.18$, $p < .001$). Susceptibility also arose as a significant main effect ($F(3,279)=6.26$, $p < .05$) on the dependent variable of knowledge.

Impression-relevance. A significant 2-way interaction ($F(3,289)=6.16$, $p < .01$) was found between susceptibility and impression-relevant involvement on compliance. T-tests comparing the means found that among high-involved subjects with high susceptibility reported more compliance than subjects low in susceptibility ($t=6.21$, $p < .001$). This effect was duplicated for low-involved subjects as well ($t=2.72$, $p < .05$). Among subjects high in susceptibility, high-involved subjects reported higher likelihood of compliance than low-involved subjects ($t=4.03$, $p < .001$). A significant main effect was found for susceptibility on knowledge ($F(3,289)=20.20$, $p < .001$).

Complexion. 2 X 2 ANOVAs were performed for each type of involvement on compliance, knowledge, and media usage. A significant main effect was found for complexion

($F(5,268)=4.92$, $p < .01$) on the dependent variable of compliance. Similar effects were obtained for complexion ($F(5,270)=3.09$, $p < .05$) on the knowledge scale.

Value-relevance. In this domain, complexion only produced a significant main effect on compliance ($F(5,276)=5.68$, $p < .01$). Complexion had little, if any, impact on knowledge and media usage.

Impression-relevance. A significant main effect was obtained for complexion ($F(5,287)=9.57$, $p < .001$) on the dependent variable of compliance. In addition, a significant main effect ($F(5,287)=5.07$, $p < .01$) was found for complexion on knowledge.

CHAPTER 4

Discussion

The results of these two studies clearly indicate the viability of involvement as a tool for increasing compliance in health campaigns. High levels of involvement on all three separate dimensions--outcome-relevant, value-relevant, and impression-relevant--produced significant increases in likelihood of compliance, knowledge about skin cancer prevention, and in some cases, variety of media usage. This paper not only confirms previous research citing the utility of the involvement construct, but also illustrates the unique, multi-dimensional nature of involvement. Many studies in health communication primarily focus on subjects' knowledge about a disease, thereby mainly emphasizing outcome-relevance. This study, however, clearly indicates 2 additional dimensions--the strength of a person's values and one's desire to make a good impression on others---that need to be addressed when researchers explore personal relevance or involvement.

The results for media usage present a small caveat to this assertion. Subjects high in outcome-relevant involvement reported more variety of media usage and higher evaluations of various media channels, while subjects high in value-relevant involvement reported only more variety of media usage and subjects high in impression-relevant

involvement only reported higher media usage for the radio channel.

These results could be possibly be explained by mass media research citing the varying impact of different media channels. Print media could be more relevant for subjects high in outcome-relevant involvement since it is excellent at covering complex issues such as cancer in depth (Alcalay & Taplin, 1989). Radio could be more relevant for adolescents, a group with high concerns for how others evaluate them (DePietro & Clark, 1984). The minimal effects for impression-relevance are most likely due to the failure, evidenced by the supplementary analyses, of the impression-relevant message to partition out high and low involved subjects.

This failure is a certainly a hindrance to the interpretation of the findings on impression-relevant involvement. However, it should be noted that Johnson and Eagly's (1989) meta-analysis also disallowed any strong conclusions regarding the persuasive impact of impression-relevance. Yet it still can be concluded, from this study and others, that impression-relevance is a third type of involvement conceptually and empirically, albeit slightly, distinct from outcome-relevant and value-relevant involvement (Chaiken & Stangor, 1987; Eagly & Chaiken, 1993). This study confirms that involvement is multi-

dimensional and a powerful instrument for effective health campaigns.

Research questions

Group impact. The results from the analysis of the relative impact of involvement type on compliance, media usage, and knowledge offer further corroboration of the hypotheses' findings that high levels of involvement produce higher likelihood of compliance, more variety of media usage, and increased knowledge. There were significant differences between high and low-involved subjects' likelihood of compliance and knowledge across all involvement types and within each involvement type.

The differing effects of each involvement type on the various dependent variables illustrates something more however. Outcome-relevant involvement is far and away the best type of involvement in terms of increasing compliance, knowledge, and variety of media usage. While a significant difference between value and impression-relevant involvement did not arise from the data, the fact that value-relevant involvement was significant in many cases where impression-relevant involvement was not would seem to grant it second place. Indeed, impression-relevant involvement produced the least number of effects of any of the three involvement types.

Demographics. The results from the demographic analyses need to be interpreted with caution since they were only intended as exploratory efforts. No protection against experiment-wide error was initiated.

Gender. The results of this study strongly support the notion that high-involved females are more likely to comply with skin cancer messages, exhibit more knowledge about skin cancer prevention, and seek out a wider variety of media channels. Of particular interest are the interactions between gender and involvement. These were most common on media usage, although an interaction also occurred for outcome-relevant involvement on compliance. There are two explanations for these effects of gender. First is the large body of persuasion literature citing the greater influenceability of women (Bostrom, 1982; Eagly & Chaiken, 1993). However, O'Keefe (1990) notes that differences between the persuadibility of men and women are too small to be statistically meaningful. O'Keefe stresses that the nature of the topic in a persuasive message is the key determinant in whether or not females or males will be persuaded. General findings point to different areas of interest and response on part of men and women. Persuasion is probably related most to issue importance rather than gender-based differences.

This explanation is theoretically consistent with that posited in this paper. For some reason, skin cancer seemed to be a more involving topic for women than for men. Consequently, they should be more persuaded by messages in this context. However, in the interest of exploring this issue further, some possible additional explanations will be set forth. First, women tend to consume more media than men (Jamieson & Campbell, 1993) which could lead them to obtain more knowledge about skin cancer. Unfortunately, the significant interaction between men and women for both value and outcome-relevant involvement does not reveal whether the more voracious nature of women's media consumption causes them to be more involved or whether higher involvement causes them to seek out a variety of media sources to obtain information about skin cancer. Nevertheless, women are more involved than men on this topic. Second, it is possible that men and women have different values in regards to skin cancer and suntanning. Social marketing approaches have recognized this possibility and have targeted men and women with these value differences in mind. Women lie out more and are targeted more in women's magazines on skin beauty products (Solomon, 1992). Thus, skin cancer and suntanning may be topics on which women may inherently have more involvement and more knowledge.

Education. The results here offer an additional admonition for those who would advocate that health campaigns are successful if they merely increase knowledge and awareness. Highly involved, educated subjects certainly expressed more knowledge, but there were no main effects for education on compliance for any involvement type. Campaigns need to go beyond providing facts about skin cancer and pound home the personal relevancy (whether it be outcome-relevant, value-relevant, or impression-relevant) of the disease for all groups. This assertion is elucidated by the findings on the dependent variable of media usage. Skin cancer campaigns in the media will probably only be effective at enhancing knowledge and awareness of facts such as the existence of the new UV Index. Increasing one's involvement with skin cancer and targeting other factors such as values or impressions would be more successful in the long run.

Susceptibility and complexion. Discussion of these two variables will be combined due to the almost identical nature of the findings within each area and to their theoretically similar construction. Both variables emphasize one's personal risk of obtaining skin cancer since statistics show that those who sunburn easily and those with fairer complexions exhibit higher incidence rates of skin cancer. As one might expect, there were very strong

findings for these two variables among subjects high in outcome-relevant involvement. More importantly, however, significant findings surfaced for value-relevant and impression-relevant involvement on all three dependent variables of compliance, knowledge, and media usage. These findings, perhaps more than any, illustrate that involvement is a multi-dimensional construct. The effects of one's susceptibility to sunburn and complexion on compliance, knowledge, and media usage are not merely a reflection of the perceived, personal threat of obtaining skin cancer. The effects are also a function of an individual's constellation of personal values about healthy behavior, not just safe-sun behavior, and also of a person's concern about making a good impression on others. A person with a fair complexion or high susceptibility to sunburn would tend to value alabaster skin as healthy and beautiful. Likewise, a person who is susceptible to sunburn, yet desires to make a strong impression on others, will strive to maintain healthy skin so as to avoid the unpleasant experience of painful, blistering skin, especially if an important situation such as a date or job interview is involved.

The following sections attempt to explain how the involvement framework presented in this paper meshes with extant theories in general persuasion theory and specifically within the field of health communication.

While the framework is very similar to many of the theories mentioned, the following sections also try to illustrate the potential superiority of the multi-dimensional framework presented in the current paper.

Broader Persuasion Theory

Cohen (1983) notes that the field of social influence is in need of more involvement-based theory. This paper is an effort in that direction. This study offers support for the assertion that involvement plays a central role in the persuasion process. Involvement is a theoretical construct that enables one to traverse different streams of persuasion research. Involvement is a variable that not only enhances prediction, but also appears to enhance attitudinal-behavior compliance, one of the fundamental problems not only of health research, but of persuasion research in general (Chaffee & Roser, 1986; Eagly & Chaiken, 1993).

This search for a tool to improve knowledge-attitude-behavior consistency is one of the key quests of persuasion scholars (Eagly & Chaiken, 1993). Involvement-based theory appears to be one of the main candidates that could meet the specifications of such a tool (Devine & Hirt, 1989; Leippe & Elkin, 1987; Pavlik et al., 1990). Involvement yields significant insights about the multidimensionality of attitude structure. Both attitudes and involvement can be thought of as being multi-dimensional with differing effects

possible for each type. Successful health campaigns require persuasive efforts aimed at increasing the personal relevance of a situation for an individual, targeting a subject's values, and enhancing the rewards potentially accruable to one if they comply with a persuasive message.

Social Judgement Theory. Involvement research began with Sherif's work on ego-involvement. Ego-involvement is very similar to value-relevant involvement. However, the current paper goes beyond social judgment theory by positing at least two additional dimensions of involvement. This paper also contradicted the notion that value-relevant involvement would increase resistance to persuasion. Some of the possible reasons for such a contradiction are discussed below within the frame of inoculation theory.

Petty and Cacioppo. Petty and Cacioppo's work on ELM has primarily centered on issue involvement, which Johnson and Eagly (1989) correctly argue can be better labelled outcome-relevant involvement. This paper concurred with Johnson and Eagly's postulation of a multi-dimensional framework. As a result, the framework advocated in this paper goes beyond the work of the ELM. Value and impression-relevant involvement are generalizable to a wider variety of situations than those specified in the extant work on issue involvement. Whole classes of behaviors and attitudes could fit under these dimensions. For example, a

person could highly value a healthy lifestyle. Thus messages on skin cancer, smoking, safe sex, and a host of others could be involving for such a person. In terms of impression-relevant involvement, a person's willingness to maximize rewards for themselves in persuasive situations would apply beyond one particular product or issue. Much of Petty and Cacioppo's work deals with comprehensive exams for college students or with individual products. Such work cannot easily be grounds to make claims of applicability across a variety of domains. This paper argues that the concept of involvement is generalizable, in that the term is multi-dimensional and applies to whole categories of issues.

Functional Approaches. The framework presented in this paper closely matches the work of functional theorists in attitude research. Johnson and Eagly's three dimensions coincide amicably with value-expressive, instrumental, and social adjustive attitude functions. These three functions and involvement dimensions also can be calibrated with the classic cognitive, affective, and conative tripartite framework of attitudes (Eagly & Chaiken, 1993). Value-relevant involvement is consistent with the affective dimension and Katz's value-expressive function which recognizes that people are motivated to maintain values. Impression-relevant involvement is consistent, at least in part, with behavioral dimensions, and with Smith et al.'s

social-adjustive function which states that people are concerned about evaluations by others and remaining in positive relationships. The instrumental dimension is consistent with the cognitive dimension and outcome-relevant involvement. All emphasize a subject's rational assessment of a personally relevant situation.

State versus Process. This paper argues that involvement is both a motivational state and a process. Consequently, the current framework could be explained by both functional approaches and by processing approaches such as HSM and ELM. Involvement is a motivational state in that it is intimately intertwined with one's attitude structure and aspects of the self. This state will guide one's thoughts, beliefs, attitudes, and most importantly, actions. It affects both the extent and focus of one's attention (Celsi & Olson, 1988), influences acquisition of knowledge (Cohen & Chakravarti, 1990), reflects a heightened readiness to receive information (Grunig, 1989; Park & Mittal, 1985). In other words, involvement is an impetus to action.

However, involvement is also a process. The process dimension appears in one's actual behavior and can be measured by both the intensity and direction of one's actions to lessen threat of the disease (Perse, 1990a; 1990b). The message-relevant thinking of ELM and HSM would be an instance of involvement as an actual process.

Uses and Gratifications. Media usage was a subsidiary interest of the current work. However, the involvement-based framework set forth in this work could certainly fit into a uses and gratifications perspective. Persons high in involvement could feel a need to seek out more information from a variety of sources, including media channels (Perse, 1990a; 1990b). A person high in value-relevant involvement may feel a need to be informed on health issues and will turn to different media channels. A person high in outcome-relevant involvement who is personally affected by an issue would try to seek out information to fulfill such a personally relevant need. A combination of a uses and gratifications approach with involvement-based theory could nicely explain some of the differing impacts for the media usage in this paper, and would also conjunct well with work explaining the impact of different media modalities (Pfau, Diedrich, Larson, & Van Winkle, 1995).

Inoculation Theory. This study did not measure subjects' involvement and intention of compliance levels at different time-points. However, the effect of involvement over a period of time would certainly be an interesting avenue for persuasion research. Some scholars have noted that involvement levels can shift the sequence of communication impact (Chaffee & Roser, 1986; Krugman, 1965; Ray, 1973). Involvement, at least in high amounts, has been

thought to enhance the persistence of attitudes over time (Krosnick, 1988; O'Keefe, 1990). Johnson and Eagly (1989) note that, in some cases, high levels of value and impression-relevant involvement may actually increase resistance to persuasion. Petty and Cacioppo (1979) also contend that persons high in outcome-relevant involvement can be persuaded by strong arguments. The strong effects for outcome-relevance, yet moderate to weak effects for impression and value-relevance, may have something to do with the results reported in this work.

A time-lag analysis of involvement might predict that increasing one's level of involvement would make one more likely to comply with a persuasive message. Subsequently, this person would be highly resistant to messages advocating a switch to a previous position. For example, increasing one's involvement in complying with "safe-sun" behavior would make this person more likely to comply with messages advocating such behavior. This person should then be more resistant to future messages promoting the beauty of a tan.

The involvement-based theory in the current work could thus be combined with inoculation theory in a dualistic approach. People already highly involved with a topic would be receptive to messages supporting their position. People who are low or moderately involved may need to be threatened or have their involvement levels increased. Lau and Sears

(1985) note that individuals vary in political involvement because they are exposed to a varying amount of political instances. The same effect should be true in the health context. Pfau, Kenski, Nitz, and Sorenson (1990) found that strong supporters of a candidate would be resistant to messages attacking that candidate. Weak supporters could be made resistant if their support were strengthened. In sum, inoculation theory, with involvement, could help inform a longitudinal analysis. Persuasion can be increased by increasing levels of involvement. People of high levels of involvement, either pre-existing or artificially created in the manner done in this study, would be more resistant to messages offering an alternative view.

Involvement Theory in Health Communication

The multi-dimensional framework presented in this work represents a step beyond extant conceptualization in the health communication field. While there have been a plethora of conceptualizations, most can be grouped under one of the three models to be discussed.

Health Belief Model. The health belief model has generated more research than any other model/framework in health communication (Goff, 1992; Rosenstock, Strecher, & Becker, 1988; Yep, 1992). The basic assumption is that the likelihood of a person taking action to reduce health risk is determined by several factors: the perceived

susceptibility to the risk, the perceived seriousness of the threat and its related consequences, the perception that the rewards of preventive action will outweigh perceived barriers to taking action, the person's motivation and desire to maintain health, and cues to action such as illness of significant others, and interpersonal or mass media messages (Rosenstock 1974; Seibold & Roper, 1979).

Several problems exist with the Health Belief Model. First, no two studies of the model's variables have used identical questions for determining the presence or absence of belief. This definitional confusion hinders the predictions that can be made by the Health Belief Model. The current framework in this paper attempts to remedy this by taking the mass of definitions in the involvement literature and synthesizing them into a multi-dimensional conceptualization of involvement.

Second, the model underestimates the importance of perceived relevance in predicting behavior. As shown above, perceived relevance, a.k.a. involvement, can be a very potent predictor of health-related behavior.

Third, the model fails to specify the relationships among variables (Seibold & Roper, 1979). This has led to the model only being able to explain small percentages of variance in the numerous studies conducted on it (Rosenstock et al., 1988). This paper attempts to specify how the

various types of involvement in the framework relate to each other, to dependent variables such as media usage, knowledge levels, and intention to comply, and to various demographic variables including gender, education, skin complexion, and job requirements.

Stages and Processes of Change. Prochaska and colleagues (DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1982; 92; Prochaska, DiClemente, & Norcross, 1992) have proposed a model that states behavioral change requires movement through discrete stages in order to achieve maintained cessation or initiation. Clients move from Precontemplation to Maintenance on their way toward long-term behavioral change. The model is useful because it recognizes that not all audience members start at the same stage. Different behavioral processes will receive varying emphasis depending upon a person's stage. It appreciates that not all people are in the same stage prior to change and also aids in identification of isolated groups of individuals with specific patterns. However, the model has some gaps that can be filled in and expanded by the current framework of involvement.

First, the stages of change model is very unclear on variables affecting movement through the stages. Motivational considerations for movement are said to be related to the pros and cons of a behavior. Prochaska and

DiClemente (1992) claim that this pro/con process is related to motivation which is defined primarily as reasons for change, a highly uninvolving definition.

The current approach would forward involvement as a key variable affecting movement through the stages. A message or an issue would need to be highly involving for it to move a person into contemplation and/or action. Outcome and value-relevant involvement are similar to the precontemplation and contemplation stages. However, involvement goes beyond in that outcome-relevant involvement emphasizes issue importance, the quality of knowledge levels, and the personal relevance of a potential health risk. Value-relevant involvement emphasizes the personal relevance of a problem in terms of its effect on values and self-concepts. The contemplation stage focuses on ambiguous notions such as "I'm hoping this place will help me better understand myself" (McConnaughy, DiClemente, Prochaska, & Velicer, 1989, p. 502).

The stages of change model does recognize the concept inherent in impression-relevant involvement that persons realize they might receive rewards for changing a behavior and maintaining that change and thus would try to maximize those rewards. However, the model overlooks the other key components of health consciousness (value-relevant

involvement) and personal relevance (outcome-relevant involvement).

Consequently, the multi-dimensional notion of involvement advanced here has two advantages. First, it can subsume the stages of change and collapse them into three dimensions of involvement and still not lose any of the key features of the model. Second, the multi-dimensional conceptualization of involvement is richer in its potential to predict movement through the stages as well as being a potent predictor of behavior change when all three dimensions are considered as a whole.

Yale model. Many health researchers have adapted the Yale model and/or its modifications by McGuire (1989). The basic format has five stages. A person moves from awareness to knowledge to motivation to learning to action (Albert, 1981; Atkin, 1989; Flay et al., 1980; Solomon, 1984). Others have added a maintenance stage (Flora, Maccoby, & Farquhar, 1989). Puska et al. (1985) utilized a similar approach of attending, comprehending, persuading, acting, and maintaining.

The current framework would argue for a partial reconfiguration of this model. This paper argues that involvement can also precede knowledge, awareness, and learning. In addition, much like with Prochaska's model, involvement is a variable that can predict movement through

the five stages. If a person perceives an issue as being more personally important to them (outcome-relevant) and/or perceives themself as being health conscious (awareness or value-relevant involvement), they should be more likely to seek knowledge, and potentially act in a manner consistent with the relevant health persuasive message. In sum, the proffered framework of involvement goes beyond the Yale model in that it can predict movement through the stages (both forwards and backwards), and subsume various parts of the model.

Limitations

This study suffers from several limitations. First, the nature of the topic could have affected the results. Involvement does tend to be issue or topic-specific (Batra & Ray, 1986; Powell, 1976; Salmon, 1986; Zaller, 1992). Neuman, Just, and Crigler (1992) note that people do not naturally have equal interest in every topic, nor do they all have the same interest. It is certainly possible that the use of alternative health topics in this study may have produced different results.

Second, there may have been a social desirability effect arising from the nature of the questionnaire. The majority of the questions were on skin cancer, making it easy for subjects to guess the study's hypothesis.

Third, the study did not measure actual behaviors. Behavioral compliance is the bottom-line in health communication research. Intention to comply and knowledge do not always correlate with actual behavior change. Future research should extend this study and monitor subjects' actual sun behavior.

Conclusion

Despite these limitations, this study clearly supports the potential effectiveness of involvement in health campaigns. Health communication is an area of research that addresses intimate issues (Dewis & Lee, 1993). Involvement is a concept that can enhance compliance in health campaigns by addressing these issues. It motivates information-seeking, increases media usage, and elevates knowledge levels.

Involvement plays a key role in the persuasion process. Zaichowsky (1986) argues that a more sophisticated theory and model framework for involvement is needed. The multidimensional, involvement-based framework presented in this paper, while similar to some extant models/frameworks/theories in persuasion and health communication, supersedes most of these same conceptualizations. This paper also attempted to specify the relative impact of each involvement type. Each of the three dimensions can increase intention to comply, knowledge

levels, and media usage on its own. Hence, this paper is in agreement with Chaffee and Roser's (1986) claim that the conceptualization of involvement should constitute a central problem for future study in health communication research.

APPENDIX A

Table 1

Contingency Index Ratings and Word Counts for Three Types of Involvement

Involvement Type	Word Count	Contingency Rating
Outcome-Relevant	240	3.14
Value-Relevant	245	3.19
Impression-Relevant	251	3.27

APPENDIX A contd.

Table 2

Means for the Dependent Variables of Compliance by Type of Involvement

Involvement Type	t	means	p
H1 (outcome)			
likely	10.62	2.51	
		3.76	<.001
0-100	6.39	80.90	
		62.66	<.001
H2 (value)			
likely	5.37	2.78	
		3.50	<.001
0-100	3.20	73.43	
		63.25	<.01
H3 (impression)			
likely	3.20	2.98	
		3.42	<.01
0-100	1.55	69.95	
		64.72	n.s.

Note: The means for the high involvement groups are listed on top of the means for the low involvement group.

APPENDIX A contd.

Table 3

Supplementary Analyses for Persuasiveness and Credibility of Involvement Messages

Involvement Type	Persuasiveness t	p	mean	Credibility t	p	mean
Outcome	10.49	<.001	1.74 2.78	3.14	<.01	6.18 5.76
Value	2.34	<.05	2.49 2.82	4.09	<.05	6.16 5.89
Impression	2.80 2.76	n.s.		5.82 5.81	n.s.	

Note: A score of 1 on the persuasive scale indicates the message was highly persuasive. A score of 7 on the credibility scale indicates the message was highly credible. In all cases, the means for the high involved groups are placed on top of the means for the low involved groups.

APPENDIX A contd.

Table 4

Means for Media Usage and Evaluation by Involvement Type

Involvement Type

	t	mean	p
Outcome			
Usage	2.73	8.42 9.20	<.01
Evaluation	2.22	5.30 4.90	<.05
Television	2.16	5.38 4.96	<.05
Newspaper	2.37	5.49 5.03	<.05
Magazines	2.05	5.55	<.05
Value			
Usage	1.81	8.85 9.35	<.05
Impression			
usage	1.93	8.41 8.76	<.05

Note: The means for the high involved groups are placed on top of the means for the low involved groups. A score of 4 on the media usage scale indicates that the subjects used a wide variety of media sources. A score of 7 on the media evaluation scale indicates subjects evaluated the media (or particular media type) highly.

APPENDIX A contd.

Table 5

Means on the Dependent Variable of Knowledge by Involvement Type

Involvement Type	t	means	p
Outcome	6.44	2.25 2.70	<.001
Value	3.17	2.26 2.51	<.01

Note: The means for the high involved groups are placed on top of the means for the low involved groups. A score of 1 on the knowledge scale indicates the subject had high levels of knowledge.

APPENDIX A contd.

Table 6

Means for Six Groups Comprising Different Types of Involvement

	Dependent Variable Means		
Group Number	Compliance	Knowledge	Media
1(High outcome)	2.51	2.26	8.42
2(Low outcome)	3.76	2.70	9.20
3(High value)	2.78	2.26	9.35
4(Low value)	3.50	2.51	8.85
5(High impression)	2.98	2.40	9.08
6(Low impression)	3.42	2.79	8.79

Note: For compliance and knowledge, a score of 1 indicates high levels, while a score of 4 on the media usage scale indicates a high variety of media usage.

APPENDIX B

INITIAL INVOLVEMENT SCALE
(For Study 1)

The following is a survey being conducted by researchers from the University of Arizona, Department of Communication. We appreciate your assistance in this study of health issues. Your participation is strictly voluntary. We guarantee you complete confidentiality and anonymity. Your responses will be combined with those of other respondents to provide general information about the topic of interest. In order for your responses to be included in this study, we will be happy to provide answers to any questions you might have regarding the purposes of this study and its design. Thanks again for your participation.

APPENDIX B contd.

Each of the statements below is a statement of an attitude or opinion that some people have. Please read each statement and indicate the degree to which you agree or disagree that the statement expresses an attitude that you hold by circling your response. The range of responses is from one (1), indicating that you "strongly disagree" that the statement reflects an attitude you hold, to seven (7), which indicates you "Strongly agree" that the statement is a reflection of your attitude. Circling a four (4) indicates that you "neither agree or disagree" that the statement expresses your attitude. Please circle the number which best represents your reaction to the statement. There are no right or wrong responses. Take as much time as you need and PLEASE RESPOND TO ALL ITEMS. Thank You for your time!

		Strongly Agree						Strongly Disagree
1.	Having a tan is enjoyable.	1	2	3	4	5	6	7
2.	Having a tan gives me pleasure.	1	2	3	4	5	6	7
3.	Having a tan is exciting.	1	2	3	4	5	6	7
4.	Tanned skin is personally relevant to me.	1	2	3	4	5	6	7
5.	Tanned skin is personally relevant to my well-being.	1	2	3	4	5	6	7
6.	A suntan is healthy.	1	2	3	4	5	6	7
7.	A suntan reflects my personality.	1	2	3	4	5	6	7
8.	A suntan is desirable.	1	2	3	4	5	6	7
9.	A suntan is important to my well-being.	1	2	3	4	5	6	7
10.	A suntan is important to my self-concept.	1	2	3	4	5	6	7

APPENDIX B contd.

11. Laying out in the sun gives me enjoyment.	1	2	3	4	5	6	7
12. People who lay out in the sun are alot like me.	1	2	3	4	5	6	7
13. Suntanning is a key part of my lifestyle.	1	2	3	4	5	6	7
14. My friends see me as the kind of person who enjoys suntanning.	1	2	3	4	5	6	7
15. Thinking of suntanning brings to mind experiences I've had in my life.	1	2	3	4	5	6	7
16. I probably share alot of experiences with people who lay out in the sun.	1	2	3	4	5	6	7
17. Tanned skin makes me feel good about myself.	1	2	3	4	5	6	7
18. I see myself as the kind of person who lays out in the sun.	1	2	3	4	5	6	7
19. If I could change my lifestyle, I would make it more like the people who lay out in the sun.	1	2	3	4	5	6	7
20. When I see people laying out in the sun, I often see myself as joining them.	1	2	3	4	5	6	7
21. It is difficult to give a reason why, but suntanning is really not for me.	1	2	3	4	5	6	7
22. If people knew I liked not having a tan, I'd be a little embarrassed.	1	2	3	4	5	6	7

APPENDIX B contd.

23. I think I know a great deal about the proper way to lay out in the sun.	1	2	3	4	5	6	7
24. I think I know what features to compare when shopping for sunscreen.	1	2	3	4	5	6	7
25. Having a tanned skin means one is strong.	1	2	3	4	5	6	7
26. Having a tan is for me.	1	2	3	4	5	6	7
27. Having a tan is good.	1	2	3	4	5	6	7
28. Having a tan is exciting.	1	2	3	4	5	6	7
29. I am concerned about my overall health.	1	2	3	4	5	6	7
30. I am concerned about getting cancer.	1	2	3	4	5	6	7
31. Other people's opinions of my health are important.	1	2	3	4	5	6	7
31. Other people's opinions of my appearance are important.	1	2	3	4	5	6	7
32. Other people's opinions of my skin's appearance are important.	1	2	3	4	5	6	7
33. I have a family history of skin cancer.	1	2	3	4	5	6	7
34. I have been told by a medical professional that I have skin cancer.	1	2	3	4	5	6	7
35. Having a tan is attractive.	1	2	3	4	5	6	7

APPENDIX B contd.

36. When I'm with a friend, we often talk about laying out in the sun.	1	2	3	4	5	6	7
37. I have no need whatsoever for a suntan.	1	2	3	4	5	6	7
38. A suntan allows others to see me as I would ideally like them to see me.	1	2	3	4	5	6	7
39. A suntan helps me attain the life I strive for.	1	2	3	4	5	6	7
40. I feel my lifestyle puts me at risk for obtaining skin cancer.	1	2	3	4	5	6	7
41. Having a suntan is personally important to me.	1	2	3	4	5	6	7
42. I feel that a suntan increases the risk of getting skin cancer.	1	2	3	4	5	6	7
43. When I get a suntan, others see me the way I want them to see me.	1	2	3	4	5	6	7
44. When other people see me with a suntan,they form a positive opinion of me.	1	2	3	4	5	6	7
45. A suntan helps me express who I am.	1	2	3	4	5	6	7
46. I attach great importance to getting a suntan.	1	2	3	4	5	6	7
47. Skin cancer means alot to me.	1	2	3	4	5	6	7
48. Skin cancer is a concern to me.	1	2	3	4	5	6	7

APPENDIX B contd.

49.	Skin cancer is an important health problem for me.	1	2	3	4	5	6	7
50.	Skin cancer matters to me.	1	2	3	4	5	6	7
51.	Having a suntan is essential for good health.	1	2	3	4	5	6	7
52.	Laying out is fun.	1	2	3	4	5	6	7
53.	Having a good tan matters to me.	1	2	3	4	5	6	7
54.	Having a good tan is important to me.	1	2	3	4	5	6	7
55.	My skin's appearance is a criteria others use to judge me.	1	2	3	4	5	6	7
56.	My skin's appearance portrays an image of me to others.	1	2	3	4	5	6	7
57.	My skin appearance is part of my self-image.	1	2	3	4	5	6	7
58.	I think frequently about the dangers of skin cancer.	1	2	3	4	5	6	7
59.	Skin cancer is a highly relevant topic for me.	1	2	3	4	5	6	7
60.	I have little or no interest in getting a tan.	1	2	3	4	5	6	7
61.	If everyone else in a group is getting a suntan this must be the proper way to behave.	1	2	3	4	5	6	7
62.	I tend to pay attention to what others are wearing.	1	2	3	4	5	6	7

APPENDIX B contd.

63.	It's important to me to fit into the group I'm with.	1	2	3	4	5	6	7
64.	When in a social situation. I tend to follow the crowd.	1	2	3	4	5	6	7
65.	My tanning behavior is dependent on how others wish me to behave.	1	2	3	4	5	6	7
66.	I usually keep up with suntanning trends by observing others' tans.	1	2	3	4	5	6	7
67.	Having a suntan enhances the image others will have of me.	1	2	3	4	5	6	7
68.	Having a suntan will make me admired and respected by others.	1	2	3	4	5	6	7
69.	It is important that others like my skin appearance.	1	2	3	4	5	6	7
70.	I like to make a good impression on others.	1	2	3	4	5	6	7
71.	I frequently gather information from friends and family about sun-tanning.	1	2	3	4	5	6	7
72.	Compared to others, I have a greater chance of getting skin cancer.	1	2	3	4	5	6	7
73.	I worry alot about getting skin cancer.	1	2	3	4	5	6	7
74.	I worry alot about the dangers of unsafe sun exposure.	1	2	3	4	5	6	7

APPENDIX B contd.

75.	I frequently perceive skin cancer symptoms in myself.	1	2	3	4	5	6	7
76.	I frequently perceive skin cancer symptoms in others.	1	2	3	4	5	6	7
77.	I am very concerned about the health of my skin.	1	2	3	4	5	6	7
78.	A healthy skin is essential to my overall health.	1	2	3	4	5	6	7
79.	A healthy skin is important in interpersonal relationships.	1	2	3	4	5	6	7
80.	A healthy skin is an integral to my well-being.	1	2	3	4	5	6	7
81.	I have a vested interest in maintaining a tan.	1	2	3	4	5	6	7
82.	I have a vested interest in maintaining healthy skin.	1	2	3	4	5	6	7
83.	Skin cancer is personally important to me.	1	2	3	4	5	6	7
84.	I am in immediate danger of getting skin cancer if I lay out in the sun.	1	2	3	4	5	6	7
85.	Getting a tan is personally important to me.	1	2	3	4	5	6	7
86.	I am in immediate danger of getting skin cancer if I stay out too long in the sun.	1	2	3	4	5	6	7
87.	Maintaining healthy skin is important to my current goals and desires	1	2	3	4	5	6	7

APPENDIX B contd.

88.	Maintaining a tan is important to my current goals and desires.	1	2	3	4	5	6	7
89.	It is important to reduce my total sun exposure to reduce the risk of skin cancer.	1	2	3	4	5	6	7
90.	It is important to take preventive measures to prevent skin cancer.	1	2	3	4	5	6	7
91.	Sun-safety behaviors are important to maintain healthy skin.	1	2	3	4	5	6	7
92.	I use sunscreen to help prevent skin cancer.	1	2	3	4	5	6	7
93.	I wear protective clothing to help prevent skin cancer.	1	2	3	4	5	6	7
94.	I avoid the sun's rays when they are most intense (10AM-3PM).	1	2	3	4	5	6	7
95.	Knowledge of safe sun behavior is important to my present job/career.	1	2	3	4	5	6	7
96.	Knowledge of safe sun behavior is important to the quality of my social life.	1	2	3	4	5	6	7
97.	I find myself thinking frequently about practicing safe sun behavior.	1	2	3	4	5	6	7

APPENDIX B contd.

98. Has anyone close to you ever had skin cancer?
___Yes___No

99. In thinking about your own skin health and outdoor behaviors please rank from 1 (least concern) to 10 (greatest concern) your concern about getting skin cancer. _____

100. In thinking about your family's skin health and outdoor behaviors, please rank from 1 (least concern to 10 (greatest concern) your concern about them getting skin cancer. _____

APPENDIX C

Outcome-relevant Involvement Message

SAVE YOUR SKIN

Has anyone in your family ever been diagnosed with skin cancer? Have you ever been diagnosed with skin cancer? You may be more at risk than you think. Skin cancer is the most rapidly increasing form of cancer, nearly doubling since the 1970s. Skin cancers are now more common than all other cancers combined. One in six Americans is expected to develop skin cancer in their lifetime. Arizona's rate of skin cancer is highest in the U.S. and second highest in the world. Over 30,000 Arizonans are diagnosed with skin cancer each year. Current evidence suggests that more than 95% of all skin cancers in the U.S. can be attributed to exposure to ultraviolet radiation. Arizonans are particularly at risk due to their frequent sun exposure. Arizonans spend much of their time, leisure and otherwise, in outdoor activities such as hiking, boating, and swimming. With such activities and with such risk of cancer, sun safety behaviors are important to you in maintaining healthy skin.

Please adopt the following recommendations for protecting your skin. You should wear protective clothing such as wide-brimmed hats, long-sleeved shirts, and sunglasses. Use sunscreen with a protection factor of at least 15. Apply it regularly. Check skin moles for any abnormalities and go see a doctor to see if you are at risk for skin cancer. Most importantly, tell your friends and family about the dangers of unsafe sun exposure.

APPENDIX D

Impression-relevant message

SAVE YOUR SKIN

Have you ever had to deal with the pain and the peeling of a sunburn? How do your friends and family react when they see you with a tan? Even though a tan may seem attractive, there are immediate situational rewards to be gained by practicing safe sun behavior. You'll never have to use aloe, Noxzema, or vinegar to soothe a sunburn. If you use sunscreen and wear protective clothing, you can still enjoy a baseball game, the beach, and other outdoor activities with your friends without the worry of a sunburn, skin disfigurement, or even worse, cancer. There's no embarrassment if you don't like having a tan. Others will still see you as a person they want to spend time with. Only 59% of Americans say a tan looks healthy. That's down from 66%. One third of teens and adults never sunbathe. Nearly half of all adults sunbathe less. Many beauty magazines are promoting the attractiveness of alabaster skin, especially as one gets older. Besides, with the advent of fake tanning cream, you can enjoy all the perceived benefits of a tan without the costs.

Please adopt the following recommendations for protecting your skin. You should wear protective clothing such as wide-brimmed hats, long-sleeved shirts, and sunglasses. Use sunscreen with a protection factor of at least 15. Apply it regularly. Check skin moles for any abnormalities and go see a doctor to see if you are at risk for skin cancer. Most importantly, tell your friends and family about the dangers of unsafe sun exposure.

APPENDIX E

Value-relevant Involvement Message

SAVE YOUR SKIN

Do you consider yourself healthy? What constitutes a healthy lifestyle for you? America's current health craze has us eating better and exercising more. What is often overlooked is the importance of healthy skin. A healthy skin is a good value to uphold and an important part of overall health. The skin regulates body temperature, stores water, protects the body from injury, and acts as a sensor of the environment. Americans have come to value living under the sun as a result of more outdoor recreational activities, more emphasis on tanning, and a population shift to warm, sunny climates. Living well under the sun, however, means being aware of the dangers of sun exposure and respecting them. For many years, a tanned skin has been perceived as healthy and desirable. A tanned skin, however, is not a sign of health. It is your skin's response to ultraviolet damage and can lead to skin cancer and other health problems. Safe sun behavior should be as much a part of one's health regimen as teeth brushing or showering.

Please adopt the following recommendations for protecting your skin. You should wear protective clothing such as wide-brimmed hats, long-sleeved shirts, and sunglasses. Use sunscreen with a protection factor of at least 15. Apply it regularly. Check skin moles for any abnormalities and go see a doctor to see if you are at risk for skin cancer. Most importantly, tell your friends and family about the dangers of unsafe sun exposure.

APPENDIX F

Outcome-relevant Involvement Scale

Please read each statement and indicate the degree to which you agree or disagree that the statement expresses your attitude about the message you just read. The range of responses is from one (1), indicating that you "strongly agree" that the statement reflects an attitude you hold, to seven (7), which indicates you "Strongly disagree" that the statement is a reflection of your attitude. Circling a four (4) indicates that you "neither agree or disagree" that the statement expresses your attitude. Please circle the number which best represents your reaction to the statement. There are no right or wrong responses. Take as much time as you need and PLEASE RESPOND TO ALL ITEMS. Thank You for your time!

	Strongly Agree						Strongly Disagree
1. I feel my lifestyle puts me at risk for obtaining skin cancer.	1	2	3	4	5	6	7
2. Having a suntan is personally important to me.	1	2	3	4	5	6	7
3. I feel that a suntan increases the risk of getting skin cancer.	1	2	3	4	5	6	7
4. Skin cancer is a concern to me.	1	2	3	4	5	6	7
5. Skin cancer is an important health problem for me.	1	2	3	4	5	6	7
6. Skin cancer matters to me.	1	2	3	4	5	6	7
7. Compared to others, I have a greater chance of getting skin cancer.	1	2	3	4	5	6	7
8. I worry alot about getting skin cancer.	1	2	3	4	5	6	7

APPENDIX F contd.

9. I worry alot about the dangers of unsafe sun exposure.	1	2	3	4	5	6	7
10. I frequently perceive skin cancer symptoms in myself.	1	2	3	4	5	6	7
11. I have a vested interest in maintaining a tan.	1	2	3	4	5	6	7
12. Skin cancer is personally important to me.	1	2	3	4	5	6	7
13. I am in immediate danger of getting skin cancer if I lay out in the sun.	1	2	3	4	5	6	7
14. Maintaining a tan is important to my current goals and desires.	1	2	3	4	5	6	7
15. It is important to reduce my total sun exposure to reduce the risk of skin cancer.	1	2	3	4	5	6	7
16. It is important to take preventive measures to prevent skin cancer.	1	2	3	4	5	6	7
17. Sun-safety behaviors are important to maintain healthy skin.	1	2	3	4	5	6	7
18. I use sunscreen to help prevent skin cancer/	1	2	3	4	5	6	7
19. I wear protective clothing to help prevent skin cancer.	1	2	3	4	5	6	7

APPENDIX F contd.

20. I avoid the sun's rays when they are most intense (10AM-3PM).	1	2	3	4	5	6	7
21. Knowledge of safe sun behavior is important to my present job/career.	1	2	3	4	5	6	7
22. Knowledge of safe sun behavior is important to the quality of my social life.	1	2	3	4	5	6	7
23. I find myself thinking frequently about practicing safe sun behavior.	1	2	3	4	5	6	7

APPENDIX G

Impression-relevant Involvement Scale

Please read each statement and indicate the degree to which you agree or disagree that the statement expresses your attitude about the message you just read. The range of responses is from one (1), indicating that you "strongly agree" that the statement reflects an attitude you hold, to seven (7), which indicates you "Strongly disagree" that the statement is a reflection of your attitude. Circling a four (4) indicates that you "neither agree or disagree" that the statement expresses your attitude. Please circle the number which best represents your reaction to the statement. There are no right or wrong responses. Take as much time as you need and PLEASE RESPOND TO ALL ITEMS. Thank You for your time!

	Strongly Agree						Strongly Disagree
1. People who lie out in the sun are alot like me.	1	2	3	4	5	6	7
2. My friends see me as the kind of person who enjoys suntanning.	1	2	3	4	5	6	7
3. I probably share alot of experiences with people who lie out in the sun.	1	2	3	4	5	6	7
4. Tanned skin makes me feel good about myself.	1	2	3	4	5	6	7
5. I see myself as the kind of person who lies out in the sun.	1	2	3	4	5	6	7
6. If I could change my lifestyle, I would make it more like the people who lie out in the sun.	1	2	3	4	5	6	7
7. When I see people lying out in the sun, I often see myself as joining them.	1	2	3	4	5	6	7

APPENDIX G contd.

8. Other people's opinions of my health are important.	1	2	3	4	5	6	7
9. Other people's opinions of my appearance are important.	1	2	3	4	5	6	7
10. Other people's opinions of my skin's appearance are important.	1	2	3	4	5	6	7
11. Having a tan is attractive.	1	2	3	4	5	6	7
12. When I'm with a friend, we often talk about lying out in the sun.	1	2	3	4	5	6	7
13. A suntan allows others to see me as I would ideally like them to see me.	1	2	3	4	5	6	7
14. When I get a suntan, others see me the way I want them to see me.	1	2	3	4	5	6	7
15. When other people see me with a suntan, they form a positive opinion of me.	1	2	3	4	5	6	7
16. My skin's appearance is a criteria others use to judge me.	1	2	3	4	5	6	7
17. My skin's appearance portrays an image of me to others.	1	2	3	4	5	6	7
18. My skin appearance is part of my self-image.	1	2	3	4	5	6	7
19. If everyone else in a group is getting a suntan this must be the proper way to behave.	1	2	3	4	5	6	7

APPENDIX G contd.

20. I tend to pay attention to what others are wearing.	1	2	3	4	5	6	7
21. It's important to me to fit into the group I'm with.	1	2	3	4	5	6	7
22. When in a social situation, I tend to follow the crowd.	1	2	3	4	5	6	7
23. My tanning behavior is dependent on how others wish me to behave.	1	2	3	4	5	6	7
24. I usually keep up with suntanning trends by observing others'tans.	1	2	3	4	5	6	7
25. Having a suntan enhances the image others will have of me.	1	2	3	4	5	6	7
26. Having a suntan will make me admired and respected by others.	1	2	3	4	5	6	7
27. It is important that others like my skin appearance.	1	2	3	4	5	6	7
28. I like to make a good impression on others.	1	2	3	4	5	6	7
29. I frequently gather information from friends and family about sun-tanning.	1	2	3	4	5	6	7

APPENDIX H

Value-relevant Involvement Scale

Please read each statement and indicate the degree to which you agree or disagree that the statement expresses your attitude about the message you just read. The range of responses is from one (1), indicating that you "strongly agree" that the statement reflects an attitude you hold, to seven (7), which indicates you "Strongly disagree" that the statement is a reflection of your attitude. Circling a four (4) indicates that you "neither agree or disagree" that the statement expresses your attitude. Please circle the number which best represents your reaction to the statement. There are no right or wrong responses. Take as much time as you need and PLEASE RESPOND TO ALL ITEMS. Thank You for your time!

		Strongly Agree						Strongly Disagree
1.	Having a tan is enjoyable.	1	2	3	4	5	6	7
2.	Having a tan gives me pleasure.	1	2	3	4	5	6	7
3.	Having a tan is exciting.	1	2	3	4	5	6	7
4.	Tanned skin is personally relevant to me.	1	2	3	4	5	6	7
5.	Tanned skin is personally relevant to my well-being.	1	2	3	4	5	6	7
6.	A suntan is healthy.	1	2	3	4	5	6	7
7.	A suntan reflects my personality.	1	2	3	4	5	6	7
8.	A suntan is desirable.	1	2	3	4	5	6	7
9.	A suntan is important to my well-being.	1	2	3	4	5	6	7
10.	A suntan is important to my self-concept.	1	2	3	4	5	6	7

APPENDIX H contd.

11. Lying out in the sun gives me enjoyment.	1	2	3	4	5	6	7
12. Suntanning is a key part of my lifestyle.	1	2	3	4	5	6	7
13. Thinking of suntanning brings to mind experiences I've had in my life.	1	2	3	4	5	6	7
14. Having a tanned skin means one is strong.	1	2	3	4	5	6	7
15. Having a tan is for me.	1	2	3	4	5	6	7
16. Having a tan is good.	1	2	3	4	5	6	7
17. I have no need whatsoever for a suntan.	1	2	3	4	5	6	7
18. A suntan helps me attain the life I strive for.	1	2	3	4	5	6	7
19. A suntan helps me express who I am.	1	2	3	4	5	6	7
20. I attach great importance to getting a suntan.	1	2	3	4	5	6	7
21. Having a suntan is essential for good health.	1	2	3	4	5	6	7
22. Lying out is fun.	1	2	3	4	5	6	7
23. Having a good tan matters to me.	1	2	3	4	5	6	7
24. Having a good tan is important to me.	1	2	3	4	5	6	7
25. I have little or no interest in getting a tan.	1	2	3	4	5	6	7
26. A healthy skin is essential to my overall health.	1	2	3	4	5	6	7

APPENDIX H contd.

27.	A healthy skin is important in interpersonal relationships.	1	2	3	4	5	6	7
28.	A healthy skin is integral to my well-being.	1	2	3	4	5	6	7

APPENDIX I

KNOWLEDGE DEPENDENT MEASURE

Please answer the following questions to the best of your ability. Circle one (1) if you strongly agree with the statement. Circle seven (7) if you strongly disagree with the statement. Circle four (4) if you neither agree nor disagree with the statement. Please answer all questions.

	Strongly Agree						Strongly Disagree
1. Suntan is NOT a sign of health.	1	2	3	4	5	6	7
2. Ultraviolet radiation cannot be seen or felt.	1	2	3	4	5	6	7
3. Sunscreen is unnecessary if I wear a hat.	1	2	3	4	5	6	7
4. Sunscreen is unnecessary if I lay under a beach umbrella.	1	2	3	4	5	6	7
5. Some medicines can increase sensitivity to the sun.	1	2	3	4	5	6	7
6. Sunscreen prevents skin cancer.	1	2	3	4	5	6	7
7. You should shop for sunscreens with a protection factor of 15 or higher.	1	2	3	4	5	6	7
8. The sun's ultraviolet rays reflect off cement.	1	2	3	4	5	6	7
9. The sun's ultraviolet rays reflect off snow.	1	2	3	4	5	6	7
10. The sun's ultraviolet rays reflect off sand.	1	2	3	4	5	6	7
11. UV radiation cannot be seen or felt .	1	2	3	4	5	6	7

APPENDIX I

12. Suntan is a skin's response to UV damage.	1	2	3	4	5	6	7
13. The sun's UV rays can damage your skin under water.	1	2	3	4	5	6	7
14. The sun's UV rays can damage your skin on cloudy days.	1	2	3	4	5	6	7
15. The sun's UV rays can damage your skin through car windows.	1	2	3	4	5	6	7
16. Avoid sun exposure between 10AM and 3PM.	1	2	3	4	5	6	7
17. Sunscreen needs to be applied at least 30 minutes before you go outside.	1	2	3	4	5	6	7
18. Sunscreen needs to be reapplied when you are in the sun for long periods of time.	1	2	3	4	5	6	7
19. A sunscreen with protection factor of 15 is good, even in summer, for 2 1/2 hours.	1	2	3	4	5	6	7
20. Moles are good warning signs for detecting skin cancer.	1	2	3	4	5	6	7

APPENDIX J

MEDIA USAGE DEPENDENT MEASURE

1. How much information do you get about skin cancer from the following sources?

	Very much	Some	Not Much	None
Television?	____	____	____	____
Newspapers?	____	____	____	____
Radio?	____	____	____	____
Friends?	____	____	____	____
Family?	____	____	____	____

For each of the following statements, please circle the number that best represents your reactions to it.

2. The skin cancer information I receive from television is:

Accurate	1	2	3	4	5	6	7
Understandable	1	2	3	4	5	6	7

3. The skin cancer information I receive from newspapers is:

Accurate	1	2	3	4	5	6	7
Understandable	1	2	3	4	5	6	7

4. The skin cancer information I receive from radio is:

Accurate	1	2	3	4	5	6	7
Understandable	1	2	3	4	5	6	7

APPENDIX J contd.

5. The skin cancer information I receive from family is:

Accurate	1	2	3	4	5	6	7
Understandable	1	2	3	4	5	6	7

6. The skin cancer information I receive from family is:

Accurate	1	2	3	4	5	6	7
Understandable	1	2	3	4	5	6	7

How would you evaluate the following mass media channels in terms of their ability to provide quality information about safe sun behavior?

7. Television

Bad	1	2	3	4	5	6	7	Good
Worthless	1	2	3	4	5	6	7	Valuable
Foolish	1	2	3	4	5	6	7	Wise
Confusing	1	2	3	4	5	6	7	Understandable

8. Radio

Bad	1	2	3	4	5	6	7	Good
Worthless	1	2	3	4	5	6	7	Valuable
Foolish	1	2	3	4	5	6	7	Wise
Confusing	1	2	3	4	5	6	7	Understandable

9. Newspapers

Bad	1	2	3	4	5	6	7	Good
Worthless	1	2	3	4	5	6	7	Valuable
Foolish	1	2	3	4	5	6	7	Wise
Confusing	1	2	3	4	5	6	7	Understandable

10. Magazines

Bad	1	2	3	4	5	6	7	Good
Worthless	1	2	3	4	5	6	7	Valuable
Foolish	1	2	3	4	5	6	7	Wise
Confusing	1	2	3	4	5	6	7	Understandable

APPENDIX K

LIKELIHOOD OF COMPLIANCE
(Dependent Measure)

Please rate your likelihood of complying with the following recommendations when you are out in the sun. Circle one (1) if you think it is very likely you would comply and circle seven (7) if you think is very unlikely that you would comply. Circle four (4) if you are unsure whether you would comply or not.

	Very Likely						Very Unlikely
1. Wear a wide-brimmed hat when out in the sun.	1	2	3	4	5	6	7
2. Use sunscreen year-round.	1	2	3	4	5	6	7
3. Wear sunglasses with UV protection.	1	2	3	4	5	6	7
4. Wear sunscreens with a protection factor of 15 or higher.	1	2	3	4	5	6	7
5. Avoid sun exposure between 10AM and 3PM.	1	2	3	4	5	6	7
6. Apply sunscreen at least 30 minutes before I go outside.	1	2	3	4	5	6	7
7. Contact a dermatologist to see if I am at risk for skin cancer.	1	2	3	4	5	6	7
8. Check skin moles for any changes in size, color texture, shape, and sensation.	1	2	3	4	5	6	7
9. Wear sunscreen when under a umbrella or shade tree.	1	2	3	4	5	6	7
10. Tell my friends and family about the dangers of unsafe sun exposure.	1	2	3	4	5	6	7

APPENDIX K contd.

11. Get regular screenings to check for skin cancer.	1	2	3	4	5	6	7
12. Slip on a T-shirt when at the beach.	1	2	3	4	5	6	7
13. Avoid tanning salons.	1	2	3	4	5	6	7
14. Avoid prolonged sun-bathing.	1	2	3	4	5	6	7
15. Wear shoes rather than sandals.	1	2	3	4	5	6	7
16. Wear long pants rather than shorts.	1	2	3	4	5	6	7
17. Wear a long-sleeve shirt.	1	2	3	4	5	6	7
18. Practice safe sun behavior throughout the day.	1	2	3	4	5	6	7
19. Practice safe sun behavior regardless of the length of total exposure.	1	2	3	4	5	6	7
20. Tell my friends that a tan is unhealthy.	1	2	3	4	5	6	7

21. In general, on a scale from 0-100, how likely are you to comply with the message's recommendations? (0=very unlikely; 100=very likely)._____

APPENDIX L

DEMOGRAPHICS

1. My age is _____ years

2. My gender is: Male____ Female____

3. My ethnic origin is:

   Hispanic____ Asian/Pacific Islander____
   African-American____ White/Caucasian____
   Native American/Alaskan native ____
   Other(specify)____

4. Highest level of education completed:

   Grade School____ High School____ Some College

5. Employment status

   Full-time____ Part-time____ Unemployed____

6. What is your occupation?_____

7. Does your job require you to work outdoors between 10AM and 3PM? _____Yes ____No

8. Marital status:

   Single:_____ Married____ Divorced____ Separated_____

9. Do you sunburn or freckle easily? ____Yes ____No

10. What is your skin complexion?
    ____Fair _____Moderate ____Dark

APPENDIX M

ATTITUDES TOWARD MESSAGE (MESSAGE CREDIBILITY)
Supplementary Analysis

Please rate the message you just read by answering the following questions. Circle the number that you feel most closely matches your opinion of the message.

In my opinion, the message was:

Unbelievable	1	2	3	4	5	6	7 Believable
Untrustworthy	1	2	3	4	5	6	7 Trustworthy
Not credible	1	2	3	4	5	6	7 Credible
Unreasonable	1	2	3	4	5	6	7 Reasonable
Dishonest	1	2	3	4	5	6	7 Honest
Questionable	1	2	3	4	5	6	7 Unquestionable
Inconclusive	1	2	3	4	5	6	7 Conclusive
Not Authentic	1	2	3	4	5	6	7 Authentic
Non-Involving	1	2	3	4	5	6	7 Involving
Unlikely	1	2	3	4	5	6	7 Likely
Foolish	1	2	3	4	5	6	7 Wise
Wrong	1	2	3	4	5	6	7 Right
Unacceptable	1	2	3	4	5	6	7 Acceptable

APPENDIX N

PERSUASIVENESS OF MESSAGE
Supplementary Analysis

Please answer the following questions about the message you just read. Circle one (1) if you strongly agree with the statement, and circle seven (7) if you strongly disagree with the statement.

	Strongly Agree						Strongly Disagree
1. The message was appealing to me.	1	2	3	4	5	6	7
2. The message made me want to practice safe sun behavior.	1	2	3	4	5	6	7
3. The message had little interest for me.	1	2	3	4	5	6	7
4. The message was useful to me.	1	2	3	4	5	6	7
5. The message was personal for me.	1	2	3	4	5	6	7
6. The message was informative.	1	2	3	4	5	6	7
7. The message was confusing.	1	2	3	4	5	6	7
8. The message was offensive.	1	2	3	4	5	6	7
9. The message was favorable.	1	2	3	4	5	6	7
10. The message was worth remembering.	1	2	3	4	5	6	7
11. The message was convincing.	1	2	3	4	5	6	7
12. The message was important to me.	1	2	3	4	5	6	7
13. The message was helpful to me.	1	2	3	4	5	6	7
14. The message was persuasive.	1	2	3	4	5	6	7

APPENDIX N contd.

15. The message was meaningful for me.	1	2	3	4	5	6	7
16. I would probably skip this message if I saw it in print someplace.	1	2	3	4	5	6	7

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