

Abstract

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Among the most consistent findings in the warnings literature is the so-called “familiarity effect.” Research has shown that the more familiar an individual is with a product or situation the less likely he or she is to notice, read, recall, or comply with hazard communications. The effect has been found across numerous product types and situations using various operational definitions of familiarity and measures of warning effectiveness. However, research has also shown that subjective familiarity ratings are not highly correlated with actual product experience. Thus, individuals must be capable of developing a false or exaggerated sense of familiarity. One possible source of this exaggerated familiarity is exposure to product advertising. In attempting to influence consumers’ attitudes in favor of their products, advertisers direct their ads at consumers’ affect and beliefs about various product attributes. Research suggests that merely being exposed to a product in an advertisement can increase affect toward it. Research also shows that advertising effects can spill over to attributes not directly targeted in an ad. These spillover effects might lead consumers to believe that a product is safer than it actually is.

Three experiments were conducted to investigate whether the familiarity effect can be produced from exposure to product advertising. The relationships between advertising exposure and perceived familiarity and between perceived familiarity, perceived safety and warning effectiveness were examined. Experiment 1 explored participants’ attitudes

and beliefs about well-known and obscure brands of household, consumer products and sought to determine how past, direct product experience influences those attitudes and beliefs. Experiments 2 and 3 examined how the number of advertising exposures and the safety-related content of advertisements influence attitudes and beliefs about the advertised products and the effectiveness of on-product warnings. Following ad exposure, participants rated product familiarity, knowledge, and safety. Later, the product package labels were presented and recall and comprehension of the label warning information was measured.

Results of Experiment 1 revealed that past experience can not fully explain consumers' attitudes and beliefs about household, consumer products. Experiments 2 and 3 showed that advertising influences perceived product familiarity and knowledge. While there was a trend of greater perceived safety with increased ad exposures, the effect was not significant. No effects of advertising on warning recall were found. Implications for the design of product advertisements and product packaging as well as directions for future research are discussed.

Effects of Advertising on Product Risk Perception and Warning Effectiveness

by

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Dedication

“He plodded along, going slowly, but not stopping even once to rest.
On and on he went.
Eventually, just as the hare was waking up,
the tortoise crossed the finish line.
The tortoise was slow but he had won the race.”

-- Aesop, from “The Tortoise and the Hare”

I dedicate this work to my mother, the late Jeanne Marie Conzola. She always believed in me, even when I didn't believe in myself. Mom, you can finally say, “My son, the doctor...”

Biography

Vincent Conzola was born in Johnson City, New York on May 23, 1965 the youngest of six siblings. He grew up in nearby Endicott, New York best known as the birthplace of IBM Corporation. In 1983 he graduated from Union-Endicott High School and enrolled at Rochester Institute of Technology. He graduated from R.I.T. in 1988 with a B.S. degree in electrical engineering and took a job with IBM back home in Endicott.

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Finally, I wish to thank my family. To my wife, Camille, I could never have done this without your love, support, and understanding. To my sons Matthew, Justin and Samuel, you are the greatest blessings in my life, and the reason I get out of bed each day. I love you all so very, very much.

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Introduction

In an ideal world, warnings would not be necessary to protect consumers from hazardous products. The safety engineering hierarchy of priorities (National Safety Council, 1989) asserts that product hazards should first be eliminated from a design, and if this is not possible, should be guarded against. Warnings and personal protective equipment are viewed as a last resort. Unfortunately, some common consumer products, such as cleaning agents, lawn and garden products, and medicinal drugs, by their nature contain hazards that cannot be eliminated or effectively guarded. For these types of products, warnings are the best method available to protect consumers from accidental misuse and resulting injury.

A substantial body of warnings literature has been created over the past two decades. Researchers have investigated the design factors necessary for an effective warning (see Wogalter, Conzola, & Smith-Jackson, 2002, for a review). Warning salience, the wording of hazard descriptions and consequences, the use of pictorials and signal words, the importance of proper layout and placement, delivery modality, and individual differences have all been considered. Other research (e.g., Wogalter, Brelsford, Desaulniers, & Laughery, 1991; Slovic, Fischhoff, & Lichtenstein, 1979) has examined the components of risk perception and how perceived risk influences warning effectiveness. Based on empirical findings, Wogalter, DeJoy, and Laughery (1999) have proposed a communications-human information processing (C-HIP) model to explain the process by which warning information is transferred from an information source, through a media channel, to a targeted receiver (See Figure 1.) Research has investigated the

variables that act at each stage of the model. One receiver variable that has attracted particular attention is familiarity.

Among the most well accepted findings in the warnings literature is a negative correlation between product familiarity and warning effectiveness. A number of studies have examined this relationship. Results consistently show that the more familiar an individual is with a product or situation, the less likely he or she is to perceive the product or situation as hazardous or to look for, read, and comply with warnings. These findings have been replicated across numerous product types and situations. In the following review of the familiarity literature, empirical findings are organized by the measures of warning effectiveness that correspond to the various Receiver stages of the C-HIP model.

Familiarity Effect: Empirical Findings

According to the C-HIP model once a warning message arrives at a targeted receiver there are five processing stages through which it must successfully pass in order for the end result of compliance behavior to occur. Various effectiveness measures allow researchers to examine whether a warning succeeds at each stage.

Attention Switch and Maintenance

The first Receiver stage in the C-HIP model is attention switch and maintenance. To be effective, a warning must capture and hold the targeted, message recipient's attention long enough for information to be extracted. A number of studies have examined the effects of familiarity on the likelihood of looking for, noticing, and reading warnings.

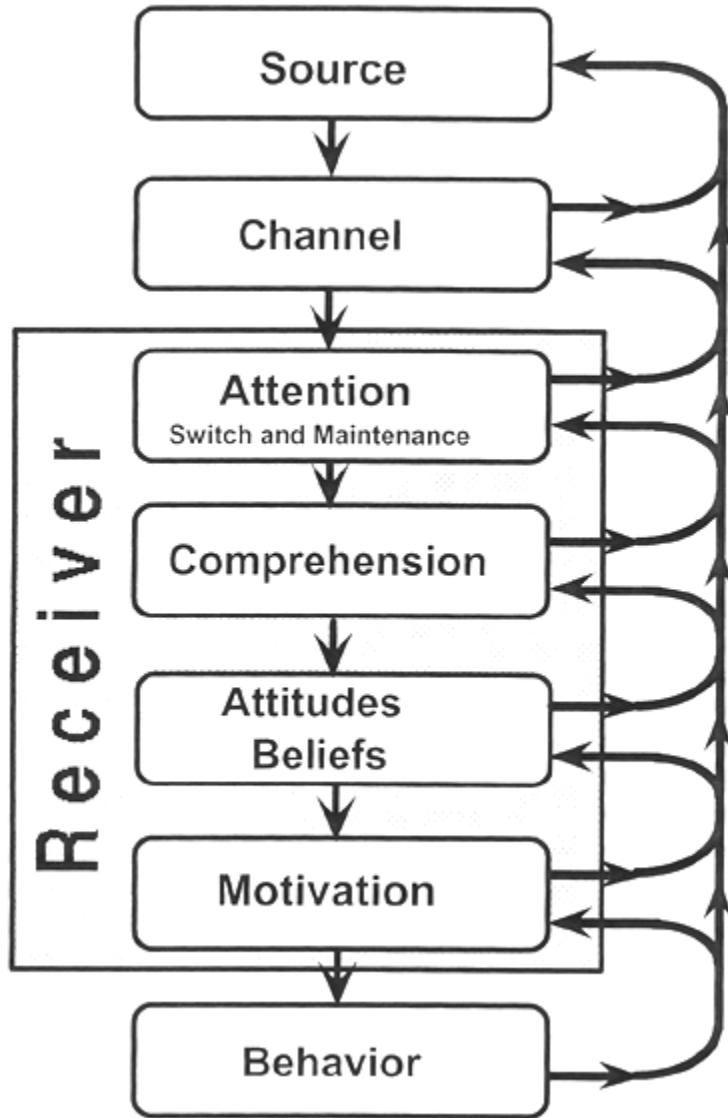


Figure 1. Communication – Human Information Processing (C-HIP) Model

Godfrey, Allender, Laughery, and Smith (1983) conducted two experiments in which participants rated the hazardousness of various household products along with their familiarity with each product. In Experiment 1, 32 undergraduates were asked to imagine themselves in product purchasing situations for eight, generic, household products. For products rated as having only slight hazards, such as dishwashing detergent, results revealed a significant negative correlation ($r = -.50$) between product familiarity and likelihood to look for a warning message. For highly hazardous products, such as pesticides and turpentine, the correlation between these two variables was not significant. Godfrey and Laughery (1984) studied the effectiveness of on-product warnings about toxic shock syndrome (TSS). One hundred ten women completed a 35 item survey about their history of tampon use, knowledge of instructions and warnings on tampon packages, and hazards of tampon use. Results showed that participants were more likely to notice the TSS warning if it was present when they first used tampons (unfamiliar participants) than when they switched to a different type of tampon. This result has important implications for products whose hazard level might change over time or when similar products with varying degrees of hazard are available.

Otsubo (1988) investigated the effects of warning design and user perceptions on participants' likelihood of noticing, reading, recalling and complying with power tool warnings. One hundred thirty-one undergraduates were exposed to one of four product warning labels on either a jig saw (low danger tool) or a circular saw (high danger tool). Results showed that participants who read the warning were less likely to have had prior experience with the tool and reported less confidence in using the tool.

In a series of studies Goldhaber and deTurck (1988a, b, 1989) investigated participants' perception of and intended compliance with NO DIVING warning signs posted near swimming pools. In one study they asked 24 owners of above ground swimming pools to examine a pool in the showroom of a pool dealership. Participants were instructed to imagine they were interested in purchasing the pool. Participants were given as much time as they wanted to examine the pool and were then asked a series of questions about the NO DIVING sign located near the pool. Results showed that participants who had owned their own pools for the longest time were more likely to either not notice the sign or be unsure about its presence.

In a second study, 864 high school and middle school students participated. Participants attended schools that varied on the presence (experimental condition) or absence (control condition) of a NO DIVING sign near the shallow end of the school's swimming pool. Participants completed questionnaires measuring their awareness and understanding of the sign, their perceived risk and likelihood of diving into the pool, and their past diving behavior. Results showed that students with a history of diving into the shallow end of their school's pool were less likely to notice the NO DIVING signs.

Wright, Creighton, and Threlfall (1982) asked 44 adults to rate their likelihood of reading the instructions for 60 consumer products. Participants also rated the products on the dimensions of familiarity, safety, simplicity, price, and use experience. Results showed that products for which participants would read "None" of the instructions were rated more familiar and more frequently used than products for which they would read "All" instructions.

Wogalter, Desaulniers, and Brelsford (1986) asked student participants to rate 72 generically-named products on six dimensions including familiarity, perceived hazardousness, need for warnings, and willingness to read warnings. Results indicated a significant negative correlation between familiarity and willingness to read warnings ($r = -.64$). However, when the partial correlation between willingness to read and familiarity was controlled for hazardousness the relationship was found to be only marginally significant ($p < .06$), indicating that perceived hazardousness was the primary determinant of willingness to read warnings and mediated the relationship between these variables.

LaRue and Cohen (1987) conducted a partial replication of the Wogalter et al. (1986) study using non-student participants. They asked 35 flea market visitors to rate each of 12 products on five warning related dimensions, including familiarity. Results were consistent with the Wogalter et al. study and showed a significant negative correlation between ratings of familiarity and likelihood of reading a warning ($r = -.66$).

Johnson (1992) tested the effectiveness of a warning label directing users to read safety guidelines before using or assembling a scaffold. One hundred fifty adult volunteers were questioned about their likelihood of reading and complying with the warning if they encountered it on a new or familiar scaffold. A significant negative correlation was revealed between the number of times a person had worked on a scaffold and perceived likelihood of reading safety information. A similar negative correlation was found between scaffold experience and perceived likelihood of warning compliance when the warning was encountered on a scaffold on which the user had not previously worked. For those scaffolds with which users were familiar, scaffold experience was not

predictive of warning compliance likelihood. Both experienced and inexperienced scaffold workers indicated a strong likelihood of non-compliance with the warning.

Comprehension

The next stage of the C-HIP model is comprehension. A warning that attracts attention and is read has little value if the information cannot be understood and later recalled. A few studies have examined the relationship between familiarity and warning recall.

In Otsubo's (1988) study, participants who had previously used a tool similar to the one presented during the experiment were less likely to recall the danger and avoidance components of the warning message.

However, Gardner-Bonneau et al. (1989) obtained different results when they investigated recall of cigarette warning information by smokers and non-smokers. One hundred eighteen adults were exposed to cigarette warnings printed on cigarette packs, in magazine advertisements for cigarettes, or printed on 3x5 cards. Recall of warning information was measured immediately after exposure and one week later. Results revealed that smokers recalled significantly more warning information than non-smokers immediately after exposure. This difference was attributed to the smokers' far greater exposure to the warning messages as well as to the irrelevancy of the warning information to non-smokers.

Beliefs and Attitudes

If a warning successfully captures and maintains attention and is understood, then it still might fail to elicit safety behavior if beliefs and attitudes held by the receiver are

discrepant with those intended by the warning and the warning is unable to change those beliefs and attitudes. Familiarity studies have used ratings of warning believability, need for a warning, and perceived risk to address this stage of the C-HIP model.

Andrews, Netemeyer, and Durvasula (1991) asked 273 undergraduate marketing students to evaluate five, government proposed, alcohol, warning labels on various dimensions related to the believability of the label and attitude toward the label. Participants were classified as either frequent users of alcohol (drank more than once a week) or occasional/nonusers of alcohol (drank once a week or less). Results showed that frequent alcohol users perceived the alcohol warning labels to be less believable and had less favorable attitudes toward the labels than did occasional/nonusers of alcohol.

In a similar study, Beltramini (1988) asked a sample of 727 undergraduates to rate the believability of five cigarette warnings – a standard warning (“Cigarette smoking is hazardous to your health.”) plus the four, government mandated warnings that are currently printed, on a rotating basis, on cigarette packages sold in the United States. Ratings were made using the ten item Advertising Believability Scale (Beltramini, 1982). Information regarding participants’ smoking behavior was also collected. Across all warnings, results showed that a participant’s smoking behavior had no significant effect on the perceived believability of warning information. The author attributed this unexpected result to participants’ likely prior exposure to other information on the risks of smoking.

Karnes, Leonard, and Rachwal (1986) investigated the perceived risk involved with riding all terrain vehicles (ATVs) by those with and without riding experience. In the

first of two studies, 447 college, high school, and junior high school students viewed videotaped scenes showing single (driver only) or double (driver and passenger) riding on a four wheel ATV and were asked to rate the risk involved in each scene. Results showed that experienced ATV riders considered the scenes to be significantly less risky than did non-riders. In a second study, using 198 undergraduate participants, a label on the ATV's fender warning about the danger of double riding was either present or absent. Results revealed that when the warning label was present, participants with both driver and passenger experience rated the double-riding scenes to be significantly less risky than participants who had either never ridden or had only been a passenger. In addition, the presence of a warning significantly increased the perceived risk of riding double among participants with either no experience or driver only experience.

In their second experiment, Godfrey et al. (1983) examined how various aspects of familiarity relate to perceived product hazardousness. Eighty-eight undergraduates rated the hazardousness of 40 household products and reported their familiarity with each product according to: whether they had ever used the product, whether they had ever used a similar product, how often they used the product, and how recently they had used the product. Results revealed significant negative correlations between hazard rating and each of the four measures of familiarity.

In the Wogalter et al. (1986) and LaRue and Cohen (1987) studies discussed above, participants also rated the need for warnings on the various products. Results of both studies showed significant negative correlations between familiarity and the perceived need for warnings.

Motivation

If a warning is noticed, read, understood, and concurs with a person's beliefs and attitudes (or is strong enough to change discrepant beliefs and attitudes), the process moves to the motivation stage. To be effective at this stage, warnings must motivate the desired behavior. Studies that measure participants' likelihood of compliance or precautionary intent address this stage of the model.

Wogalter, Brems, and Martin (1993) asked 80 undergraduates to rate 18 classes of consumer products on six risk-related dimensions: frequency of use, knowledge of hazards, severity of injury, likelihood of reading a product warning, likelihood of major injury and likelihood of minor injury. Participants also rated their precautionary intent for each product and indicated whether they or someone they knew had ever been injured while using the product. Results showed that participants with product injury experience reported greater precautionary intent than those without injury experience. In addition, frequency of use was significantly and negatively correlated ($r = -.59$) with precautionary intent, indicating that the more product experience participants had, the less likely they would be to exhibit precautionary behavior.

In the Goldhaber and deTurck (1988a, b, 1989) studies, participants with a history of diving into above ground pools and the shallow end of school pools perceived less danger in diving and indicated they would be more likely to dive in the future, regardless of whether they noticed a warning sign or not.

Behavior

The ultimate goal of warnings is to influence behavior. Because researchers cannot ethically place study participants in situations of actual risk, studies that measure warning compliance behavior are relatively rare. However, a few familiarity studies have measured its effects on compliance behavior.

Wogalter, Barlow, and Murphy (1995) asked 84 undergraduates to install a computer disk drive using the instructions provided in the product owner's manual. They found that more experienced participants (those who had previously owned, setup, or used computers, stereos, and VCRs) were less likely to comply with the manual's safety instructions. Results also showed that experienced participants were especially unlikely to comply when the only warnings present were located in the manual versus when the warnings, or directives to the warnings, were placed in additional locations more proximal to the disk drive.

In another behavioral compliance study, Zeitlin (1994) asked 40 undergraduates to perform cutting and tool adjustment tasks with an electric chain saw. All participants had some experience using electric power tools, but only half had ever used a chain saw. Results revealed significantly greater warning compliance among participants who had never previously used a chain saw. Safety instruction recognition, however, was not affected by tool experience.

Similarly, in the Otsubo (1988) study, those who failed to comply with power tool warnings had more experience with tools in general, had less experience with the type of

tool used in the study, were less confident using the tool, and were more likely to have been previously injured using a similar tool.

A few studies have failed to find a significant relationship between familiarity and measures of warning effectiveness. For example, Otani, Leonard, Ashford, Bushroe, and Reeder (1992) asked 358 adults to rate 12 warning labels on the dimensions of (a) how risky it would be to ignore the warning, (b) how likely it was that they would disregard the warning, and (c) how familiar they were with the labels. Results showed that across all products and participant age groups, familiarity ratings did not correlate with either ratings of risk or likelihood to disregard. These results are suspect however because (1) participants were asked to rate familiarity with a label rather than a specific product, (2) the wording of the labels was vague (e.g., DANGER. Electric shock. Keep Away. Can cause death.), and (3) the instructions failed to include a specific scenario where the label might be found.

Summary of Results

Research using various dependent measures has shown that a person's familiarity with a product or situation greatly influences warning effectiveness. Studies have examined warning effectiveness at each stage of the C-HIP model, and results consistently indicate a negative correlation between familiarity and the likelihood of noticing, reading, recalling, believing and complying with warnings. In addition, results show that the relationship between familiarity and measures of warning effectiveness is mediated by the perceived hazardousness of the product or situation. Despite the consistency of these findings, a precise definition of familiarity has not been established.

Some researchers (e.g., Karnes et al., 1986; Beltramini, 1988; Wogalter et al., 1995) have operationalized familiarity as direct product experience, while others (e.g., Godfrey et al., 1983, Experiment 1; LaRue & Cohen, 1987; Wogalter et al., 1986) considered subjective ratings of product or situational knowledge to be a sufficient indicator of familiarity. In still other studies, product ownership (Goldhaber & deTurck, 1988a, b, 1989) or prior injury experience with the product (Otsubo, 1988; Wogalter et al., 1993) served as independent variables. In the current research, familiarity was manipulated by controlling exposure to product advertising.

Theoretical Basis of the Familiarity Effect

DeJoy (1999) offered three possible explanations for the familiarity effect: benign experience, script theory, and habituation. Benign experience is the idea that as people use a product without encountering any safety problems they become more confident using the product and less concerned with product hazards. This notion concurs with the findings of Fazio and Zanna (1981) who, in a review of the attitude and behavior literature, found direct behavioral experiences to be predictive of an individual's attitude and later behavior toward an object.

Script theory proposes that much of human behavior is automatic and occurs without conscious thought and direction (Schank & Abelson, 1977). With regard to warnings and the familiarity effect, Wogalter et al. (1995) suggested that experienced product users rely on scripts stored in memory and devote little attention to warning labels, instructions, or other materials that accompany a product.

Habituation is the phenomenon by which repeated application of a stimulus results in decreased response (Thompson & Spencer, 1966). With respect to warnings, the more often an individual encounters a warning, the less likely it will be noticed. Thus, individuals can become habituated to warnings on products or in situations to which they are exposed on a regular basis. Thorley, Hellier, and Edworthy (2001) found that over the course of a semester student attention to and compliance with a warning posted outside a classroom door steadily decreased.

While these explanations might account for the familiarity effect among highly experienced product users, research suggests that direct experience is not necessary for the effect to occur. Ratings of product familiarity have shown that little experience or knowledge is necessary for people to consider themselves familiar with a product. Wogalter et al. (1991) found that ratings of familiarity with various consumer products were correlated only 0.66 with frequency of use and 0.28 with time of contact with a product. Thus, it appears individuals sometimes base their judgments of familiarity on factors other than direct experience and are capable of developing a false or exaggerated sense of familiarity. One possible source of this exaggerated sense of familiarity is product advertising.

Goals of Advertising

Advertising is ubiquitous. Each year the average American consumer is exposed to 182,000 advertisements in the mass media (Wilson & Wilson, 1998). Product advertisements are seemingly everywhere: on radio and television, in newspapers and magazines, on billboards, on the sides of city buses and race cars, and on the clothes we

wear. But regardless of the medium through which an advertisement is transmitted, all ads have a common purpose –to influence consumers’ attitudes and persuade them to buy certain products (Lippa, 1994). Tellis (1998) describes a hierarchy of advertising goals. According to his model, there are three categories of advertising goals: short-term or tactical goals, long-term or strategic goals, and ultimate goals. While the ultimate goals of advertising (increased sales, increased price, and increased profits) are of greatest importance to marketing managers, it is at the tactical level that psychology plays the greatest role. Tellis divides tactical goals into three types based on the tricomponent model of attitudes (e.g., Eagly & Chaiken, 1993). The cognitive goals of advertising, according to Tellis (1998, pg. 24), are to “draw attention to the brand or the ad, inform consumers about it, and remind them about it.” The affective goals are to “increase consumers’ liking for the brand and improve their attitude toward it.” The conative goals are to “persuade consumers of the merits of the brand, reduce dissonance about it, and instill loyalty for the brand.” Thus, from a psychological standpoint, the goal of advertising is to influence consumers’ attitudes in favor of a specific product or service so that at the point of purchase or point of use the advertised brand will be easily recognized and its positive attributes easily recalled.

Advertising and Attitudes

Marketers use various tactics to influence the attitudes of consumers. Different tactics are used to attack the different components of attitudes.

Behavioral Appeals

In marketing and consumer research the conative, or behavioral, component of attitudes is typically operationalized as intention to purchase. Marketers attempt to influence this attitudinal component by offering free samples, price discounts, and coupons. Research (e.g., Marks & Kamins, 1988; Smith & Swinyard, 1983) indicates that attitudes formed as a result of product trials are strongly held. The theory behind inducing product trials is based on operant conditioning. If a consumer tries a product and likes it, the behavior will be reinforced and make repurchase and reuse of the product more likely. In addition, a positive experience with a product is likely to influence the cognitive and affective components of the consumer's attitude. For example, a person who dislikes pickup trucks because they are perceived as uncomfortable and difficult to handle might change his or her feelings and beliefs after having a positive experience taking a test drive in one.

Affective Appeals

Marketers also use advertising to influence the affective component of attitudes. Hawkins, Best, and Coney (1998) list three basic approaches marketers use to directly increase affect: classical conditioning, affect toward the ad, and mere exposure.

In advertising appeals that make use of classical conditioning an object that elicits a positive emotional response (unconditioned stimulus) such as popular music or a beautiful, nature scene is paired with the product being advertised (conditioned stimulus). After a sufficient number of pairings the positive emotional response becomes associated with the product. For example, Gorn (1982) found that consumer attitudes and choice

behavior could be conditioned by a single pairing with a pleasant musical selection. Stuart, Shimp, and Engle (1987) found more positive ratings toward a fictitious brand of toothpaste when slides of the toothpaste were paired with slides of pleasant and emotionally pleasing pictures. A substantial body of research has shown that liking an advertisement increases the tendency to like the product. Results have consistently shown that attitude toward the ad (Aad) mediates the relationship between advertising and attitude toward the brand (Ab) (Mitchell & Olson, 1981). This relationship is especially strong when the ads are for unfamiliar products.

The mere exposure effect is the notion that people tend to like people or objects that are more familiar to them. Empirical findings show that repeated exposure to a stimulus generally increases liking for that stimulus, even when the stimulus exposure occurs at a preattentive level. In a series of four classic experiments, Zajonc (1968) found mere exposure effects using nonsense words, Chinese characters, and photographs of human faces as the stimulus objects. He also found that the galvanic skin response (GSR) elicited by exposure to a stimulus decreased with repeated exposure. With respect to advertising, Janisewski (1988, 1993) found that incidental exposure to product brand names in newspaper advertisements led to higher preference ratings for the ads even while recognition of the ads was no greater than for control ads that did not appear in the newspaper.

While empirical studies of mere exposure effects in advertising are surprisingly rare, based on a review of research findings, Bornstein (1989) concluded that advertising (especially television advertising) could make effective use of the mere exposure

phenomenon because ads are relatively complex stimuli that are presented fairly briefly and are interspersed with other stimuli such as TV programs and other ads.

Cognitive Appeals

Much advertising is directed at changing the cognitive component of consumers' attitudes about a product. The theory is that if beliefs can be changed, affective and behavioral change will follow. Hawkins et al. (1998) discussed four basic marketing strategies advertisers use to influence the cognitive component of consumers' attitudes. The first strategy, changing beliefs, involves presenting evidence that supports the performance of the product on one or more attributes such as quality, value, or reliability. Pepsi made effective use of this strategy in the 1970s to take market share from Coca-Cola. Pepsi ads presented the results of "taste tests" that invariably showed consumers preferred the taste of Pepsi over Coke. The second strategy is to shift consumers' beliefs about the importance of specific product attributes. If the advertised product is particularly strong on one attribute (e.g., the safety of Volvo automobiles) advertisers will stress the importance of this attribute in their ads. The third way advertisers attempt to influence the cognitive attitudinal component is to add new beliefs to consumers' belief structures. This strategy involves creating ads that stress a product attribute that might not have been considered in previous promotions or that differentiates the advertised product from other brands in the same class. For example, in the late 1990's Pepsi introduced a "clear" version of their soft drink and supported its release with ads that suggested it was lighter and more refreshing than other cola brands. The final strategy used to alter consumers' beliefs is to change their perceptions of the ideal product.

Advertisements from conservation organizations often suggest that an ideal brand must include the attributes of being recyclable and having been manufactured in an environmentally conscious manner.

Repetition Effects

While there is clear evidence that advertisements can influence the cognitive and affective components of attitudes, the number of ad exposures necessary to elicit attitudinal change is unclear. Bornstein (1989) suggested that mere exposure effects continue up to 10 to 20 exposures before a ceiling effect is reached. However, Sawyer (1981) found that over exposure can lead to negative affect if the number of repetitions exceeds some saturation point. People become irritated and bored by too much repetition. For this reason, advertisers often use several different ads for the same product concurrently – the message is the same but the presentation is varied so it does not get tiresome. Rao and Burnkrant (1991) found that varied ad executions (using a series of ads versus repeating a single ad) maintained ad recall at high levels. Cacioppo and Petty (1985) reported similar findings, but only among low-involvement participants.

The minimum number of advertising repetitions needed to exert attitudinal and behavioral effects has also been considered. Krugman (1972) suggested that three exposures to a brand is sufficient. Based on consumer, eye movement, and memory research, he theorized that the first exposure elicits a cognitive response and makes consumers aware of the brand. The second exposure prompts the ad recipient to evaluate and give meaning to the product, and the third exposure serves as a reminder and begins

the withdrawal of attention. Exposures beyond three, he argued, do little to influence attitudes or facilitate remembrance of the brand.

Summary

To achieve their goal of influencing consumer attitudes in favor of a product, advertisers attack all three attitudinal components. To influence the behavioral component they offer free samples and discount coupons. To influence the affective component they make use of classical conditioning, mere exposure effects, and the mediating relationship between A_{ad} and A_b. To influence the cognitive component, advertisers carefully select the information content of their ads and the context in which the product is presented. Advertisers must also control the number of ad exposures so that attitudinal influence can be exerted without the negative effects of over exposure.

Communication Model of Advertising

While advertisers use various strategies to change consumers' beliefs, feelings, and behavior, other extraneous factors also affect how successful they will be in influencing consumer attitudes. As with warnings, one popular way to view advertising is through the use of a communication model. The communication model of advertising shows how source, message, channel, and receiver variables in advertisements and other persuasive communications affect attitudes. Source variables such as credibility, status, and attractiveness have all been shown to influence the persuasiveness of a message (Chaiken, 1979; Petty & Cacioppo, 1981). In general, individuals perceived to be attractive, credible, expert, and unbiased are more persuasive. Message variables such as the degree to which a message evokes fear, whether a message is single-sided or double-sided, and

how many times a message is repeated also influence persuasion. Fear appeals in advertising are most likely to be effective when they evoke a moderate level of arousal and when the receiver attributes the arousal to the threatening message (Smith, Frankenberger, & Kahle, 1990). Single-sided messages (those that focus only on positive attributes of the advertised brand) are most effective when reinforcing existing attitudes held by current users of the product. Conversely, double-sided ads (those that compare the advertised brand to a competitor) are most effective with people who are not familiar with the advertised product.

Channel variables in the communications model include the media through which the persuasive message is transmitted. The type of media that will be most effective depends in large part on the complexity of the message being communicated. When messages are simple and relatively easy to comprehend persuasion is greater with audio or audiovisual messages (Chaiken & Eagly, 1976). However, longer more complex messages are more effective when presented via a written media (print advertisements). People not only think more about written material (Maier & Thurber, 1968) but they also have an opportunity to review information that was initially missed or misunderstood.

Receiver variables that affect the communication of persuasive messages include intelligence, self-esteem, and need for cognition. In general, highly intelligent people are more likely to be persuaded by complex arguments (Rhodes & Wood, 1992). People with moderate self-esteem are more easily persuaded than individuals with high or low self-esteem (Rhodes & Wood, 1992). And people with a high need for cognition (individuals who have a tendency to seek out and understand information in their

environment) are more likely to be persuaded by high quality arguments and are less likely to be influenced by communicator variables like attractiveness (Haugtvedt, Petty, & Cacioppo, 1992).

The level of involvement of the receiver is another important factor in attitude change. With respect to advertising communications the Elaboration Likelihood Model (Petty & Cacioppo, 1986) suggests that the personal relevance of the product to the consumer determines how the ad information is processed and how effective the ad will be in influencing attitudes. Ads for products that are personally relevant to the consumer (high involvement ads) are processed via a central route, whereas ads for irrelevant products (low involvement) will follow a peripheral route. The central route tends to be more cognitive in nature and is used when message recipients carefully process message content before deciding whether to accept a persuasive message. The peripheral route takes precedence when recipients are either unable or unwilling to expend the cognitive energy required to carefully analyze message content and instead rely on cues like communicator attractiveness to guide their acceptance. The peripheral route to persuasion tends to rely on affect and emotion more than cognition to facilitate attitude change. The Elaboration Likelihood Model suggests that different strategies are required to influence the attitudes of highly involved consumers compared to consumers with little product involvement. In general, ads aimed at high involvement recipients should be more detailed, factual, and logical, while ads aimed at low involvement recipients should allow a quick association between key product attributes and the advertised brand (Petty, Cacioppo, & Schumann, 1983).

Resistance to Attitude Change: Belief Perseverance

In addition to explaining the processes involved in attitude formation, research has also shown that attitudes, once formed, are resistant to change. The perseverance effect suggests that once formed, attitudinal beliefs tend to persist to an unwarranted and inappropriate degree, even in the face of discrediting evidence (Ross & Anderson, 1982).

Empirical results supporting this hypothesis have been found for beliefs about support or opposition to capital punishment (Lord, Ross, & Lepper, 1979), the functional relationship between two measured variables (Anderson, Lepper, & Ross, 1980), personal abilities on various tasks such as discriminating authentic suicide notes from fictitious ones (Ross, Lepper, & Hubbard, 1975) and logical problem solving (Lepper, Ross, & Lau, 1986). With respect to advertising, a number of studies have examined the persistence of brand attitudes formed by exposure to product ads. Grossman and Till (1998) found that classically-conditioned, positive attitudes toward a fictitious brand of mouthwash persisted for up to three weeks. Haugtvedt and Petty (1992) examined the persistence and resistance to change of attitudes and beliefs formed by individuals varying in Need for Cognition (NFC). Results of Study 1 showed that attitudes formed by exposure to an advertisement decayed less over two days for High NFC participants than for Low NFC participants. Results of Study 2 showed that the attitudes of High NFC participants were more resistant to change by a countermessage.

Research investigating belief perseverance has generally followed two related lines: selective exposure and suppression. Selective exposure is the idea that people tend to seek out information that supports or reinforces their existing beliefs and avoid

information that challenges their beliefs (Freedman & Sears, 1965). Suppression is the tendency of people to selectively discount or ignore information that conflicts with an existing interpretation of a situation. Arkes and Harkness (1980) found that participants, when supplied with a diagnosis of a simulated plumbing problem, were later more likely to falsely recognize symptoms that were consistent with the diagnosis and less likely to recall actual symptoms that were inconsistent with the diagnosis.

Selective exposure and suppression have implications for advertising and warnings because exposure to a warning on a product package at the point of use might occur far away, both temporally and physically, from the point at which the attitude toward the product was formed (seeing the product advertised). DeJoy (1987) states, "... it is plausible to expect that users with preconceived notions about product risks will tend to misappraise subsequent information about the product if it is inconsistent with their preconceptions." Therefore, if exposure to product advertising creates inappropriate beliefs about product hazardousness by suggesting that a product is safe (perhaps by showing the product being used safely) consumers are likely to discount warning information about product hazards presented later, at the time of use.

In the current research, advertisements for obscure products were used as stimuli to reduce the likelihood that participants would have formed attitudes and beliefs about the products prior to the experiments.

Indirect Effects of Advertising

In addition to influencing product attitudes directly related to advertisers' ultimate goal of product purchase and use, advertising can also influence attitudes about other

product attributes. Advertisements directed at the cognitive component of attitudes typically focus on product attributes such as quality, reliability, and value and attempt to change consumer's beliefs about those attributes. A change in beliefs about these specific attributes leads to a change in general product attitudes. However, research has shown that advertisements can also influence beliefs about product attributes not directly mentioned in advertisements. Lutz (1975) found that changes in beliefs about unattacked product attributes (which he called second-order cognitive effects) accounted for more of the variance in attitude than did belief changes about attributes attacked directly in the ad (first-order effects).

In a series of studies Yi (1989, 1990a, b, c, d, 1991, 1993) examined the indirect effects of advertising - specifically what beliefs might be indirectly affected and what conditions facilitate indirect effects. The results of these studies show that the two factors most responsible for indirect effects are attribute interdependence and attribute accessibility.

Attribute Interdependence

Interdependent product attributes are attributes perceived as related, either causally, or by virtue of their measuring the same concept or sharing a common antecedent (Yi, 1997). When a certain product attribute is activated by an advertisement, the activation can spread to other interdependent attributes that then become accessible to ad recipients (Collins & Loftus, 1975). As a result, people are likely to make inferences about the interdependent attributes and change their beliefs about them.

Yi (1990 c, d) examined the indirect effects of an ad designed to change beliefs about automobile repair costs. In a pilot study, participants were asked to rate the interrelatedness of eight automobile attributes. Three attributes, including repair costs were related to dependability. In the main study, business school students and staff were exposed to a magazine advertisement for an automobile that either made claims about low repair costs (direct condition) or high dependability (indirect condition). Results revealed significant belief change scores about repair costs even among participants who were exposed to the advertisement touting high dependability. Thus, an ad focused on one attribute (dependability) was able to influence beliefs about a second, related yet unmentioned attribute (repair costs).

Attribute Accessibility

The second factor associated with indirect advertising effects is attribute accessibility. An attribute must be accessible in order for an inference to be made about it and for it to change beliefs. With respect to advertising, attributes are often made accessible through priming. Yi (1997) discusses two types of priming: priming within the ad through the use of visual cues, and external or contextual priming related to the material presented in proximity to the ad. In Yi's (1990 c, d) study, beliefs about repair costs were primed in the ad by visual cues showing an automobile owner with a repair bill in his hand standing next to a mechanic. The impact of contextual priming can have either a positive or negative effect on the evaluation of the advertised brand depending on the specific attribute primed or activated by the context.

In a different study, Yi (1990b, 1991) primed an ambiguous ad for a fictitious brand of personal computer, the PC-3000, by manipulating the contents of a “prime ad” that was seen immediately before exposure to the target ad. The positive prime ad touted the versatility of a competing brand of personal computer. The negative prime ad touted a competing brand’s ease of use. The target ad was ambiguous in that it simply emphasized that the PC-3000 had numerous features. Results showed that participants interpreted the ambiguous information in the target ad based on the contextual priming. Positively primed participants viewed the PC-3000’s numerous features as a sign of versatility and were quicker and more likely to list versatility as a product attribute. Conversely, negatively primed participants interpreted numerous features as suggesting poor ease of use and rated the PC-3000 poorly on this attribute. Further research (Yi, 1993) has shown that contextual priming has pronounced effects on brand evaluations among moderately knowledgeable consumers, but that effects are sharply diminished among those low and high in product knowledge.

The above findings have implications for the current research. Yi’s work has shown that favorable attitudes toward product attributes targeted directly in an advertisement can spill over to other interdependent attributes not specifically mentioned in the ad. It is therefore possible that consumers will make false inferences about product attributes, such as safety, even if an ad does not mention safety as a product attribute. Further, the attribute of safety can be inadvertently primed by visual cues within the ad. For example, an ad for a powerful, and hazardous, stain remover might show a well dressed woman nonchalantly using the product without wearing gloves or other personal protective

equipment. While the attribute of safety might not be directly addressed in the ad copy, it can easily be inferred by the woman's appearance and actions. Further, even if the ad copy and visuals were designed to project an image of product quality, it is foreseeable that for products such as stain removers many consumers would view quality and safety as interdependent attributes and might make false inferences about the safety of the product.

Advertising, Risk Perception and Warnings

Consumer psychologists consider six dimensions of risk associated with product selection. These include performance risk, physical risk, financial risk, social risk, psychological risk, and time loss risk (Jacoby & Kaplan, 1972). Most consumer risk research has focused on the economic and social costs associated with product and service selection. In general, perceived risk is a function of both consumer characteristics and product characteristics (Dowling & Staelin, 1994), and service decisions are perceived as riskier than product decisions (Murray & Schlacter, 1990). The effect of perceived physical risk on product selection has been largely ignored in the consumer psychology literature.

In the warnings literature, a few studies have examined consumers' perceived physical risk for various consumer products. Wogalter et al. (1991) examined factors associated with people's hazard perceptions of consumer products and how hazard perceptions relate to willingness to read product warnings. In Study 1, participants rated 72 generic products on perceived hazard, familiarity and various warning-related dimensions. Results showed that perceived hazard is the primary factor determining

whether product warnings will be read. Study 2 examined three potential components of hazard perception. Using the same products as Study 1, participants rated each on product knowledge, perceived likelihood of injury, and perceived severity of injury. Results revealed that injury severity is the primary predictor of hazard perception. In Study 3 participants were asked to generate three accident scenarios for each of 18 products and then rate the likelihood and severity of each scenario. As in Study 2, perceived severity was the best predictor of hazard perception. Results also showed that precautionary intent is highly related to perceived hazard.

Wogalter et al. (1993) investigated people's accuracy in estimating the frequency of product-related injuries for common consumer products such as fans, lawn mowers, and bicycles. Despite overestimating the risks of products with low objective accident frequencies, and underestimating the risks for product with higher frequencies, in general participants were able to accurately estimate product risks. The inclusion of accident scenarios had no effect on accuracy. Additional analyses showed positive relationships between injury severity ratings and precautionary intent, and between previous injury experience and precautionary intent, but no significant relationship between objective risk and precautionary intent was found.

With respect to advertising and risk perception, empirical research has focused in two areas: the efficacy of public service announcements in altering attitudes and behavior related to public health and safety issues like AIDS and seat belt use, and the effects of warning messages incorporated into advertisements for specific classes of products including alcohol, tobacco, and medicinal drugs.

The effectiveness of public service advertising campaigns is unclear. Raghurir and Menon (1998) found that by increasing the accessibility of information about the cause of AIDS, an advertisement encouraging safe sex increased viewers perceptions of the risk of contracting AIDS, reduced the self-positivity bias, and led to more favorable attitudes and intentions toward practicing precautionary behaviors. However, a number of studies examining the effectiveness of campaigns designed to increase seat belt usage found small or no effects (e.g., Phaner & Hane, 1973; Gantz, Fitzmaurice, & Yoo, 1990). In one study (Cope, Moy, & Grossnickle, 1988), initial positive effects were shown when an incentive (free soft drink) was provided for compliance, but belt use declined to baseline levels when the incentive was removed.

Because the primary purpose of advertisements is to promote the image of a product and increase sales, manufacturers rarely include warnings and hazard information in product advertisements. Presumably, manufacturers fear that such information might deter people from purchasing their product. The few exceptions to this are when the law mandates that warning information be included in advertisements. For example, advertisements for prescription medications are required to include a balanced presentation of product attributes and possible contraindications and side effects (Code of Federal Regulations, 1999). Because so few ads incorporate hazard or warning information relatively little empirical research has examined how the presence of warning information in advertisements influences perceptions of product hazardousness and warning effectiveness.

A few studies have found warnings in alcohol and cigarette advertisements to be of limited value (e.g., Fox, Krugman, Fletcher, & Fischer, 1998) or even to produce a boomerang effect where perceived risk or cautious intent actually decrease with the presence of a warning (Hyland & Birrell, 1979; Snyder & Blood, 1992). However, most research has found some benefits. For example, MacKinnon and Lapin (1998) were unable to replicate Snyder and Blood's (1992) findings and found evidence that warnings increased perceived alcohol risk and reduced advertising effects on perceived benefits. Slater and Domenech (1995) found that alcohol warnings in TV beer advertisements reduced students' confidence in their skeptical attitudes toward beer risks and may have primed negative reactions to subsequent beer ads. Barlow and Wogalter (1993) found that knowledge of alcohol beverage hazards increased as a result of exposure to warnings in magazine and television ads, but the degree of warning effectiveness was largely dependent on warning salience and modality of presentation. Beltramini (1988) found perceived believability of cigarette warning label information was directly related to existing beliefs about the hazards of smoking regardless of actual smoking behavior. Morris, Brinberg, Klimberg, Millstein, and Rivera (1986) found that people's impressions of a fictitious prescription drug were more positive after viewing a television ad that contained warning information than when viewing a magazine ad containing the same warning information. However, television ads that contained more vivid presentations of risk material led to more negative views about the drugs.

Only one previous study has examined the behavioral effects of advertisements with and without warnings on subsequent measures of risk perception and warning

effectiveness. Wright (1979) examined how the presence of a “visual action demonstration” by an actor in an ad modeling precautionary behavior would influence later viewer behavior. Under the guise of a television programming study, adult participants were exposed to a 30-minute episode of the “Mary Tyler Moore” show. Three 30-second advertisements for different brands of antacids were embedded into the show. After viewing the program and completing measures related to the cover story, participants were given coupons (including one for antacids) that could be used at a store in a mall adjacent to the test location. An observer in the store recorded the time each participant who used the coupons spent looking at the warning information on the antacid package.

The antacid ads each included a directive instructing consumers to read the package warnings, however the presentation of the directive was varied according to a 2 x 2 design. The first dimension was concreteness of the directive. In the Concrete condition the directive stated “Sometimes antacids are harmful. In the store, before buying, read the package warnings.” In the General condition the directive simply said, “Sometimes antacids are harmful. Read the package warnings.” The second dimension concerned the video image that was shown while the directive was presented auditorally. In the Package condition, close-ups of the front and then back of the product package were shown while the directive statement was presented. In the Shopper condition a woman was shown in a retail store picking up the advertised brand and reading the back of the package while the directive statement was presented. Four additional conditions were also included. In the Control A condition, participants saw the program and the ads but without the directive.

Participants in the Control B condition were not exposed to the program or the ads.

Participants in the Control C condition saw neither the program nor the ads, but instead were exposed to an in-store warning sign that included a directive to read the package warnings as well as hazard information for people with specific health conditions.

Participants in the final condition were exposed to the program, the ads with the Concrete-Shopper directive, and the in-store warning sign.

An analysis of the in-store package and warning inspection times revealed that the combination of a concrete directive with a visual enactment of the desired behavior (Concrete-Shopper condition) led to longer label inspection times. While there were few statistically significant findings due to small sample sizes, this trend was evident across all measures. Of particular relevance to the proposed research is the lack of significant inspection time differences between those participants exposed to ads without directives (Control A) and those exposed only to the product in the store (Control B). Participants who saw the product advertised without any mention of safety spent as much time looking at the on-product warnings as participants who never saw the ads. This suggests that exposure to the ads failed to facilitate the familiarity effect and had little or no influence on subsequent warning effectiveness.

However, several limitations of this study might be responsible for the lack of significant findings. First, inspection time in the store does not necessarily translate to inspection time at the point of use. It is possible, that when faced with using the product consumers will recall the advertisements and perform the directed behavior. Second, no attempt was made to control or measure participants' prior familiarity with the type of

product used in the study. Participants might have been familiar with antacids because of previous use experience and therefore saw no reason to comply with the directive.

Perhaps a less familiar product type would have led to different results.

Effects of Warning Quality

Like advertising, the primary goal of warnings is to change attitudes and influence behavior. Also like advertising, a warning's effectiveness is determined by its content and the context in which it is presented. Research has examined the factors that influence the strength, or effectiveness, of warning messages. In a review of empirical findings Wogalter (1994) described several elements of an effective visual warning. According to Wogalter, a visual warning should be conspicuous relative to its background environment, with high contrast and large, legible print. It should include a signal word, signal icon and graphic pictorial, and should use appropriate colors. Additionally, the wording of an effective visual warning should be understandable and explicit.

Color

A number of studies have examined the effects of adding color to printed warnings. Braun, Sansing, Kennedy, and Silver (1994) tested various combinations of colors and signal words. Their results showed that signal words printed in red connoted greater hazard than the same signal words printed in other colors, including black. Additionally, Young (1991) found that the color red enhanced the noticeability of warnings on alcoholic beverage labels. Kline, Braun, Peterson, and Silver (1993) found that, across four product classes and three signal words, colored warning labels were perceived as more readable and hazardous than similar, achromatic labels.

Surrounding warning text with a colored border has also been shown to increase a warning's effectiveness. Wogalter and Rashid (1998) examined people's looking behavior toward warning signs posted in a public area. They found that signs with thick red or yellow / black diagonally striped borders were more frequently noticed and examined for longer periods of time than similar signs with thin or no borders.

Signal Words and Icons

Several studies have shown that presence of a signal word, such as DEADLY, DANGER, WARNING, or CAUTION, in a printed warning increases its ability to attract attention and convey hazard. For example, Wogalter, Desaulniers, and Godfrey (1985) found that environmental warning signs that included the signal words DANGER or WARNING were more effective than similar signs without signal words. In a later study, Wogalter Jarrard, and Simpson (1992) exposed high school and college students to package labels for 16 brand-name, consumer products with varying degrees of hazard. Results showed that presence of a signal word in the package label warning increased perceived hazard compared to its absence.

The signal icon is an exclamation point surrounded by a triangle that is placed along with the signal word in a rectangular box at the top of the warning. The inclusion of a signal icon in print warnings has been recommended to attract attention and indicate the presence of a hazard (FMC, 1985). Young (1991) found that the time required to find a warning was significantly faster when a signal icon was present. Additionally, Barlow and Wogalter (1993) found that highly conspicuous print warnings (including those that used the signal icon) led to greater recall and comprehension of the warning information.

Layout

The layout of a printed warning also influences effectiveness. Layout describes the internal characteristics of a warning label. Research has shown that text presented as bullets in outline form is rated more appealing, easier to process, and more effective compared to other layout formats (Hartley, 1994; Wogalter & Shaver, 2001).

Additionally, Desaulniers (1987) found that outline formats led to longer attention and greater warning compliance compared to paragraph layouts.

Conclusion

The familiarity effect is well established in the warnings literature. People more familiar with a product or situation are less likely to notice, search for, recall or comply with safety and warning information. Several theories have been offered to explain the effect including benign experience, script theory, and habituation. In prior research, familiarity has been operationalized as self-reported product use, product ownership, product injury experience, or simply by subjective ratings of product familiarity. Empirical results have shown that actual product experience is not a necessary condition for perceived familiarity. Other methods of obtaining knowledge and information beyond direct experience can lead individuals to perceive themselves as familiar with a product. Exposure to product advertising might be one such source. It is hypothesized that repeated exposure to product advertisements can lead to an exaggerated sense of familiarity. This heightened perception of familiarity might then lead individuals to be less cautious with a product when later exposed to it at the point of use.

The primary goal of advertising is to influence consumers' attitudes and alter their buying behavior. Advertisers use various techniques to attack the affective, cognitive, and conative components of consumer attitudes. By creating a more positive attitude toward a product or a particular product attribute, advertisers hope to influence consumers' purchase decisions in favor of their brand. The number of repetitions necessary to elicit attitude change must also be considered. In the current research, participants were exposed to varying numbers of repetitions of product advertisements. From a product safety perspective, one unfortunate side effect of advertising is that it can influence attitudes and beliefs about product attributes not specifically addressed in the ads. These indirect effects can lead to favorable attitudes about attributes, like safety, that are rarely mentioned in ads. A favorable attitude about the safety of a product might then cause consumers to behave less cautiously when using the product. In addition, research has shown that once attitudes are formed they are resistant to change because of effects such as selective exposure and suppression.

Three experiments were conducted to examine the relationships between advertising exposure and perceived familiarity and between perceived familiarity, perceived safety and warning effectiveness. Experiment 1 examined how attitudes and beliefs about well-known brands of household, consumer products differ from attitudes and beliefs about obscure brands of similar products. This experiment also sought to determine if past, product experience is sufficient to explain these differences. The second and third experiments examined how the number of advertising exposures and the content of advertisements influence attitudes and beliefs about the advertised products, as well as

recall and comprehension of product warning information. In Experiment 2, zero, one, three, or five ads were presented, and participants rated the advertised products on the dimensions of familiarity, knowledge, and safety. In Experiment 3, the ads included text that ignored safety, claimed the product was safe, or warned about a hazard associated with product use. Familiarity, knowledge, and safety ratings as well as warning recall and comprehension scores were used to measure advertising induced familiarity effects. More detail about the experiments is provided below.

The purpose of the first experiment was to determine if well-known brands of household, consumer products are perceived differently than obscure brands of similar products. Participants rated well-known and obscure brands of five types of products on various attributes including product safety. They also reported their level of past, direct experience with each brand. If results show that well-known brands are perceived as safer than obscure brands, this would support previous findings on the familiarity effect. Further, if results show that direct experience could not fully explain the relationship between familiarity and safety, this would suggest that other factors, such as exposure to advertising, must be partially responsible for the familiarity effect.

The main purpose of the second and third experiments was to examine whether exposure to product advertising is sufficient to elicit the familiarity effect. Experiment 2 considered the effects of number of ad exposures on participant attitudes and beliefs. Participants were exposed to varying numbers magazine advertisements for obscure brands of household, consumer products. They then rated the products on various attributes including familiarity, knowledge and safety. Obscure brands were used to

reduce the likelihood that participants would have formed attitudes about the products prior to the experiment and thus ignore or suppress the information presented in the ads.

The main purpose of Experiment 3 was to determine how the content of product advertisements affects perceived familiarity, knowledge, and safety and whether these perceptions lead to familiarity effects. The presence and type of safety related information in the ads was manipulated. The same obscure brands presented in Experiment 2 were again used. Ads included text that either: (1) did not concern safety, (2) directly stated the product was safe to use, (3) suggested the product was safe, or (4) warned about a hazard associated with product use. Product familiarity, knowledge, and safety ratings and warning recall and comprehension scores were used to measure advertising induced familiarity effects.

A second purpose of Experiment 3 was to investigate the effects of indirect versus direct safety claims in advertisements. Few ads address product safety directly. However, empirical results (e.g., Lutz, 1975) suggest that consumers make inferences about product attributes, such as safety, that are not specifically mentioned in advertisements. In Experiment 3, the effects of direct versus indirect product safety claims in advertisements were considered.

A third purpose of Experiment 3 was to investigate the effects of warning quality on safety ratings and warning recall and comprehension scores. Previous studies have shown that strong warnings, those that include color, signal words and icons, and a list-style layout are more effective than weak warnings that do not include these features.

The design of the warnings on the product package labels was manipulated to include or exclude these design features.

A final purpose of Experiment 3 was to determine how the timing of the product ratings would influence product attitudes and beliefs. Groups of participants rated the products after being exposed only to the advertisements, after being exposed to the advertisements and the product labels, or after being exposed to the ads, the labels and answering questions about the product warnings.

This research sought to extend the familiarity literature in two ways. First, the idea that simply being exposed to product advertising might be sufficient to produce a familiarity effect had not been considered previously. Second, in none of the previous familiarity studies had familiarity been manipulated. Familiarity had always been measured through self-reports. In the current research familiarity was manipulated by controlling the number and content of the advertisements to which participants were exposed.

Hypotheses

In Experiment 1, participants will rate well-known and obscure brands of similar products. Clearly, the well known brands should be rated as more familiar than the obscure brands. However, the mere exposure effect suggests that participants will also have more favorable attitudes about the well known brands than the obscure brands. Thus,

Hypothesis 1 (H1): For all product types, participants will assign higher ratings of familiarity, knowledge, quality, ease of use, value, safety, and purchase intent to the well known brands versus the obscure brands.

Previous research has shown that perceived familiarity with a product or situation is related to, but can not be fully explained by, past use experience. In Experiment 1, participants will indicate their prior experience with each of the rated products.

Hypothesis 2 (H2): Past use experience will be correlated with ratings of perceived familiarity but will account for only a fraction of the variance in perceived familiarity.

In both Experiments 2 and 3, a control condition will be included such that one product will not be advertised in the magazine. Since all of the products will initially be obscure to participants, following exposure to the magazine participants should be more familiar with the advertised products than with the product that was not advertised. Further, because of the familiarity effect, this increased familiarity with the advertised products should translate to greater perceived product knowledge and safety. Thus,

Hypothesis 3 (H3): Participants will assign higher ratings of product knowledge, familiarity, and safety to those products for which they are exposed to ads than to those for which no ads are presented.

In Experiment 2, products will be advertised zero, one, three, or five times in the magazine. Previous research has found that, because of the mere exposure effect, positive product attitudes increase with increased advertising repetition up to as many as

20 exposures. This suggests that increased ad exposure should positively impact attitudes about product safety as well as knowledge and familiarity beliefs.

Hypothesis 4 (H4): Product knowledge, familiarity, and safety ratings will increase as the number of advertising exposures increases.

Overexposure to a particular advertisement can lead to boredom and irritation if the number of repetitions exceeds some saturation point. Although three exposures would not typically exceed such a saturation point, the close temporal proximity of the exposures in Experiment 2 might accelerate the effect. In addition, it is possible that repeating the same ad three times might lead to wear-out and a lack of attention to the ads.

Hypothesis 5 (H5): Products for which three different ads are shown will have higher ratings of product knowledge, familiarity, and safety than products for which three repetitions of the same ad are shown.

In Experiment 3, advertisements for two of the products will contain either a direct or an indirect claim that the product is safe. Given that all of the products are unfamiliar to participants prior to the experiment, the ads should be a primary source of product information. Therefore, the perceived safety of a product should be influenced by the presence or absence of a safety claim in the ads.

Hypothesis 6 (H6): Products whose ads include a safety claim will be perceived as safer than products whose ads contain no safety claim or for which no ads are presented.

In Experiment 3, after seeing advertisements for some and package labels for all of the products, participants will be given a test to measure their recall and comprehension of the warning information printed on the package labels. If exposure to advertising produces a familiarity effect, then because of their greater (perceived) familiarity, participants should be less likely to look for, notice, read, or recall warnings for the advertised products.

Hypothesis 7 (H7): Participants will recall less safety and warning information from the labels of products they see advertised than from those they did not see advertised.

In addition, one of the advertised products will include a direct safety claim in its ad. Because this product is declared safe, it is expected that there will be less motivation for participants to read and retain warning information on the product label. For this product, participants will not only need to overcome familiarity effects to be motivated to read and recall the warning information, but will also have to ignore or suppress the ad information telling them the product is safe. Therefore, familiarity effects should be greatest for this product.

Hypothesis 8 (H8): Recall scores will be lowest for products whose ads include a direct safety claim.

The quality of the warnings on the product package labels will be manipulated. Some participants will be presented strong warnings that have been designed following guidelines for effective warning design, while others will see weak warnings designed

without consideration of the design guidelines. Research has consistently shown that well designed warnings are more effective than poorly designed ones.

Hypothesis 9 (H9): Warning recall and comprehension scores will be higher when product labels contain strong warnings versus weak warnings.

Experiment 1

One goal of advertising is to increase brand awareness. Before advertisers can achieve their ultimate goal of influencing buying decisions, they must first make consumers aware of their brand and generate positive affect toward it. Experiment 1 examined the relationship between brand awareness and product attitudes and beliefs. Of particular interest was how brand awareness affects attitudes and beliefs about product safety. If well-known brands are perceived as safer than more obscure brands of similar products, this suggests that advertising, by virtue of its raising brand awareness, can facilitate the familiarity effect. This experiment examined the effects of brand name familiarity on participants' attitudes and beliefs about household products. The influence of past, direct product experience on attitudes and beliefs was also considered.

Method

Preliminary Study

A preliminary study was conducted to explore undergraduate students' familiarity with name brand household products. The goal was to measure participants' use experience with various brands of household cleaners, over-the-counter medications, and lawn and garden products, and use these data to select the specific brands to be included in Experiment 1.

As part of a larger survey 191 undergraduates (88 males and 103 females; mean age = 20.6 years, SD = 1.8 years) rated their experience with 24 name brand household products. Ratings were done on a 6-point scale, with the following numerical and verbal anchors: (1) I have never seen or heard of this brand, (2) I have seen or heard of this

brand, but have never used it, (3) I have used this brand a few times in the past, (4) I use this brand occasionally (a few times per year), (5) I use this brand regularly (at least once per month), and (6) I use this brand almost every day.

Table 1 shows a complete list of the products and their associated mean ratings and standard deviations. Based on these ratings two products, one relatively well-known and one relatively obscure, from each of five product categories were selected for inclusion in Experiment 1. The product categories were: Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, and Laundry Stain Removers. These categories were chosen to represent a cross section of household consumer products with varying degrees of hazard. The well-known brands included RoundUp (Weed Killer), Tylenol Cold (Cold Remedy), Tilex (Tub and Tile Cleaner), Blistex (Cold Sore Ointment), and Shout (Laundry Stain Remover). The obscure brands selected were Preen (Weed Killer), Remdex (Cold Remedy), Zap (Tub and Tile Cleaner), Zilactin (Cold Sore Ointment), and Zout (Laundry Stain Remover). An examination of means showed that participants had significantly less experience with the obscure brands than the well-known brands ($ps < .001$). Mean experience ratings for the obscure brands ranged from 1.12 to 1.63, while mean ratings for the well-known brands ranged from 2.59 to 4.09.

Participants

Fifty undergraduates (37 males, and 13 females; mean age = 19.2 years, SD = 1.7 years) recruited from introductory psychology classes at North Carolina State University participated in Experiment 1. They received partial course credit for their participation.

Table 1

Preliminary Study Ratings of Product Experience

Brand Name	Product Type	Mean Experience Rating (SD)
Remdex *	Cold Remedy	1.12 (0.45)
Amdro		1.16 (0.58)
ZiCam		1.16 (0.46)
Zilactin *	Cold Sore Ointment	1.17 (0.53)
Ecotrin		1.18 (0.58)
Preen *	Weed Killer	1.18 (0.52)
Zout *	Laundry Stain Remover	1.46 (0.94)
Zap *	Tub and Tile Cleaner	1.63 (0.87)
CLR		1.75 (0.97)
Triaminic		2.12 (1.01)
Zantac		2.29 (0.94)
RoundUp *	Weed Killer	2.59 (1.12)
Excedrine		3.10 (1.09)
Raid		3.25 (0.96)
Tilex *	Tub and Tile Cleaner	3.30 (1.03)
Aleve		3.48 (1.04)
Shout *	Laundry Stain Remover	3.65 (1.02)
Neosporin		3.69 (0.95)
Blistex *	Cold Sore Ointment	3.69 (1.18)
Lysol		3.81 (0.89)
Clorox		3.87 (0.78)
Advil		4.01 (0.82)
Tylenol Cold *	Cold Remedy	4.09 (0.78)
Tide		4.23 (0.77)

Note: * Denotes product used in Experiment 1.

Participants were randomly assigned to one of two between-subjects conditions, hereafter called Group.

Design

Experiment 1 used a 2 (Group) x 5 (Product Type) mixed design. Group was a between subjects variable while Product Type was within-subjects.

The five Products Types selected from the previously described preliminary study (Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, and Laundry Stain Removers) represented the five levels of the repeated measures independent variable. As described previously, for each Product Type there was one well known and one obscure brand.

The second independent variable in Experiment 1, Group, was a between subjects variable with two levels. Participants in Group 1 rated the well-known brands from three of the five product categories (Weed Killers, Cold Sore Ointments, and Laundry Stain Removers) and obscure brands from the other two categories (Cold Remedies and Tub and Tile Cleaners). Conversely, Group 2 participants rated well-known brands of Cold Remedies and Tub and Tile Cleaners and obscure brands of Weed Killers, Cold Sore Ointments, and Laundry Stain Removers. The reason for dividing participants in this uneven manner was because it was believed that having all participants rate all products would cause fatigue. Experiment 1 was part of a larger study that involved a number of other tasks, and the product ratings used for Experiment 1 were done toward the end of this larger study's procedure. Thus, two rating groups were used to maintain participant attention to the rating task.

The dependent variables in Experiment 1 were participant ratings of product familiarity, knowledge, quality, ease of use, value, safety, and purchase intent. All ratings were done on seven-point Likert-type scales. In addition, participants indicated their prior use experience with each product using a rating scale similar to that used in the preliminary study.

Materials

Consent form. Initially, participants read and signed an Informed Consent Form (Appendix A). The form briefly described the nature of the experiment and explained that participants had a right to withdraw without penalty at any time during the experiment.

Demographics questionnaire. Participants completed a short demographics questionnaire on which they indicated their gender, age in years, ethnicity, occupation, number of years of formal education, and average number of hours of television watched per week. A copy of the demographics questionnaire is shown in Appendix B.

Product rating form. Product familiarity and knowledge ratings were made using seven-point Likert-type scales with anchors: (1) not at all familiar, (3) somewhat familiar, (5) very familiar, and (7) extremely familiar, and (1) not at all knowledgeable, (3) somewhat knowledgeable, (5) very knowledgeable and (7) extremely knowledgeable, respectively. Participants also used a seven-point Likert scale to rate their agreement with the following statements:

- 1) This is a high quality product.
- 2) This product is easy to use.

- 3) This product is a good value.
- 4) This product is safe to use.
- 5) I am likely to purchase this product in the future.

The anchors for this scale were: (1) I Disagree Completely, (4) I Neither Agree Nor Disagree, and (7) I Agree Completely.

Finally, participants were asked to rate their prior use experience with the product using the following scale: (1) I have never used this product; (2) I have used this product a few times in my life; (3) I use this product occasionally (a few times per year); (4) I use this product regularly (at least once per month); and (5) I use this product almost every day. A sample of the rating form is shown in Appendix C.

Procedure

Up to three participants were run per session. Participants were asked not to talk to one another during the experiment. Initially, participants were seated at a table and given the Informed Consent form to read and sign. Participants were then told that they would be completing a number of rating forms about consumer products. Any questions participants had were answered, and participants were presented with a small booklet of stapled pages that included the demographics questionnaire and the five brand rating forms. Participants were told they would have as much time as they needed to complete the ratings. The demographics questionnaire was always the first page in the booklet. The order of presentation of the brand rating forms was randomized for each participant. When participants had finished all of the ratings in the booklet the booklet was collected and participants were thanked and excused.

Results

Product Ratings

Participants rated one product from each of the five Product Types on the dimensions of familiarity, knowledge, quality, ease of use, value, safety, and likelihood of purchase. Rating means and standard deviations by Group are shown in Table 2. Recall however, that the Group variable was an artificial construct created only because of the constraints under which the experiment was run. Its inclusion adds little to understanding the results. Therefore, the rating data are shown again in a more meaningful context in Table 3, broken down by brand recognition (Known versus Obscure). Further, although data were analyzed using Group as an independent variable, the results are discussed in terms of brand recognition for added clarity.

A 2 (Group) x 5 (Product Type) mixed, multivariate analysis of variance (MANOVA) was performed on the product ratings. There was a significant main effect of Product Type, $F(28, 21) = 2.95, p < .01$, as well as a significant Group x Product Type interaction, $F(28, 21) = 7.64, p < .001$, indicating different Group and Product Type effects on the rating measures, considered as a set. The individual dependent measures were then probed further with univariate analyses. A 2 (Group) x 5 (Product Type) mixed ANOVA was performed using each dependent variable. Significant interactions were revealed for each measure. Subsequent analyses of simple main effects showed that for all Product Types participants exposed to the Known brand gave significantly higher ratings of familiarity, knowledge, and quality than participants exposed to the Obscure brand, $ps < .05$. In addition, for all Product Types except the Tub and Tile Cleaner, ease

of use, value, and likelihood of purchase ratings were significantly higher for the Known brand versus the Obscure brand. On safety, the Known brand was rated significantly higher only for the Cold Remedy and Cold Sore Ointment. Together, these results provide partial support for Hypothesis 1 which predicted higher ratings for well-known brands on all measures and for all product types.

Table 2

Rating Means (SD) by Product Type and Rating Group

		Weed Killer	Cold Remedy	Tub and Tile Cleaner	Cold Sore Ointment	Laundry Stain Remover
Familiarity	Group 1	4.52 (1.81)	1.44 (0.71)	2.60 (1.85)	4.68 (1.73)	4.48 (1.61)
	Group 2	1.96 (1.51)	4.80 (1.41)	3.48 (1.50)	1.56 (1.00)	2.48 (2.12)
Knowledge	Group 1	3.88 (1.74)	1.48 (0.82)	2.28 (1.65)	3.96 (1.54)	3.68 (1.25)
	Group 2	1.76 (1.17)	4.16 (1.46)	3.16 (1.52)	1.44 (0.96)	2.32 (1.87)
Quality	Group 1	5.12 (1.20)	4.04 (0.20)	4.36 (0.70)	5.28 (1.14)	5.12 (0.88)
	Group 2	4.08 (1.00)	5.32 (0.95)	5.08 (1.08)	4.12 (0.33)	4.40 (1.00)
Ease of Use	Group 1	5.20 (1.26)	4.16 (0.62)	4.84 (1.11)	5.96 (1.21)	5.60 (1.16)
	Group 2	4.36 (0.76)	6.08 (0.91)	5.20 (1.35)	4.28 (0.89)	4.72 (1.34)
Value	Group 1	4.92 (1.15)	4.08 (0.28)	4.44 (0.92)	5.00 (1.38)	5.28 (1.10)
	Group 2	4.16 (0.80)	5.16 (1.03)	4.72 (1.14)	4.04 (0.54)	4.28 (1.10)
Safety	Group 1	4.12 (1.09)	4.08 (0.40)	4.56 (0.82)	5.88 (1.17)	5.36 (1.35)
	Group 2	3.96 (0.98)	5.44 (1.00)	4.52 (1.23)	4.08 (0.28)	4.92 (1.35)
Purchase	Group 1	5.16 (1.60)	3.68 (1.25)	4.08 (1.26)	5.52 (1.33)	5.28 (1.37)
	Group 2	3.56 (1.56)	5.72 (1.17)	4.80 (1.35)	3.32 (1.63)	4.24 (1.83)

Table 3

Rating Means (SD) by Product Type and Brand Recognition

		Weed Killer	Cold Remedy	Tub and Tile Cleaner	Cold Sore Ointment	Laundry Stain Remover
Familiarity	Known	4.52 (1.81)	4.80 (1.41)	3.48 (1.50)	4.68 (1.73)	4.48 (1.61)
	Obscure	1.96 (1.51)	1.44 (0.71)	2.60 (1.85)	1.56 (1.00)	2.48 (2.12)
Knowledge	Known	3.88 (1.74)	4.16 (1.46)	3.16 (1.52)	3.96 (1.54)	3.68 (1.25)
	Obscure	1.76 (1.17)	1.48 (0.82)	2.28 (1.65)	1.44 (0.96)	2.32 (1.87)
Quality	Known	5.12 (1.20)	5.32 (0.95)	5.08 (1.08)	5.28 (1.14)	5.12 (0.88)
	Obscure	4.08 (1.00)	4.04 (0.20)	4.36 (0.70)	4.12 (0.33)	4.40 (1.00)
Ease of Use	Known	5.20 (1.26)	6.08 (0.91)	5.20 (1.35)	5.96 (1.21)	5.60 (1.16)
	Obscure	4.36 (0.76)	4.16 (0.62)	4.84 (1.11)	4.28 (0.89)	4.72 (1.34)
Value	Known	4.92 (1.15)	5.16 (1.03)	4.72 (1.14)	5.00 (1.38)	5.28 (1.10)
	Obscure	4.16 (0.80)	4.08 (0.28)	4.44 (0.92)	4.04 (0.54)	4.28 (1.10)
Safety	Known	4.12 (1.09)	5.44 (1.00)	4.52 (1.23)	5.88 (1.17)	5.36 (1.35)
	Obscure	3.96 (0.98)	4.08 (0.40)	4.56 (0.82)	4.08 (0.28)	4.92 (1.35)
Purchase	Known	5.16 (1.60)	5.72 (1.17)	4.80 (1.35)	5.52 (1.33)	5.28 (1.37)
	Obscure	3.56 (1.56)	3.68 (1.25)	4.08 (1.26)	3.32 (1.63)	4.24 (1.83)

The ANOVA on safety ratings also revealed a significant main effect of Product Type. Post hoc tests using Tukey's HSD procedure showed that participants rated the Weed Killers as less safe than all other products except the Tub and Tile Cleaners, $ps < .05$. In addition, the Tub and Tile Cleaners were rated less safe than the Laundry Stain Removers.

The univariate ANOVAs also showed a significant main effect of Rating Group on ratings of familiarity and knowledge. On both measures Group 1 assigned significantly higher ratings than Group 2. This finding, however, has little meaning and is most likely an artifact of the experimental design. Recall that Group 1 participants were exposed to three well-known brands versus two well-known brands for Group 2. Therefore, it was expected that Group 1's familiarity and knowledge ratings across all products should be higher.

Experience Ratings

After rating the products on the seven dimensions listed above, participants rated their prior use experience with each product. Across the five Product Types mean experience ratings (see Table 4) were low. Even the Known brands had mean experience ratings less than 3.0 indicating that most participants had used these brands only a few times in their lives, or never. A 2 (Group) x 5 (Product Type) mixed ANOVA on the experience ratings revealed a significant main effect of Group and a significant interaction. The interaction was probed further with an analysis of simple main effects. Results showed that for all Product Types except the Tub and Tile Cleaners participants had greater use experience with the Known brands than with the Obscure brands, $p_s < .05$. As discussed previously, the significant main effect showing Group 1 participants having greater use experience than Group 2 participants is likely explained by their rating three well-known brands versus two well-known brands rated by Group 2 participants.

Table 4

Ratings of Prior Product Experience

	Weed Killer	Cold Remedy	Tub and Tile Cleaner	Cold Sore Ointment	Laundry Stain Remover
Known	2.16 (1.03)	2.60 (0.82)	2.00 (0.96)	2.60 (1.16)	2.64 (1.15)
Obscure	1.24 (0.52)	1.16 (0.47)	1.56 (0.87)	1.08 (0.28)	1.48 (0.92)

Predictors of Perceived Familiarity, Perceived Safety and Purchase Intent

One purpose of this research was to explore the relationships among the various product ratings, with particular attention paid to use experience, perceived familiarity, perceived safety, and purchase intent. The intercorrelations between product ratings are shown in Table 5, collapsed across all 10 products. Examination of Table 5 reveals that all rating measures were significantly correlated with each other, $ps < .01$. Table 5 also showed that perceived familiarity and perceived knowledge about the product were very highly correlated, ($r = .93, p < .001$). This suggests that these two variables measured the same construct. Therefore, knowledge ratings were omitted from all subsequent analyses in this Experiment 1.

In order to test which variables predict perceived familiarity, perceived safety, and likelihood of purchase, multiple regressions were performed on each of these measures using the remaining rating measures as predictor variables. A similar method of analysis was used by Pederson, Middel and Larsen (2002) to examine how personality traits mediate the relationship between social support and anxiety, depression, and health

complaints. While not the primary focus of this research, an exploratory analysis of the predictors of purchase intent was conducted, because the influence of product safety on consumer buying decisions has been a subject of debate in the risk literature. The regression coefficients and standard errors for each predictor variable are shown in Table 6. Reported use experience with the product and perceived ease of use were strong predictors of familiarity, safety, and purchase likelihood ratings, $ps < .05$. In addition, perceived quality predicted familiarity and purchase intent but not safety, while perceived value was associated with a greater likelihood of purchase. Perceived safety did not predict purchase intent.

Table 5

Intercorrelations Among Product Rating Measures

	Knowledge	Quality	Ease of Use	Value	Safety	Purchase Likelihood	Use Experience
Familiarity	.926	.674	.708	.570	.529	.560	.783
Knowledge		.666	.699	.568	.498	.563	.757
Quality			.715	.724	.512	.658	.660
Ease of Use				.674	.598	.643	.689
Value					.522	.630	.617
Safety						.496	.562
Purchase Likelihood							.628

All correlations are significant at the 0.01 level (2-tailed).

Hypothesis 2 predicted that previous product experience would be highly correlated with perceived familiarity, but would not explain familiarity completely. While Table 5 shows that these two measures are highly correlated ($r = .78, p < .01$), the magnitude of the correlation indicates that as an independent predictor past experience accounts for only about 60% of the variance in perceived familiarity. Further, when other variables were added to the regression model the value of β for past use experience (.518) suggests that other factors have considerable influence on perceived familiarity.

Discussion

The purpose of Experiment 1 was to determine if well-known brands of certain types of household products are perceived differently than more obscure brands of similar products. Results support the power of branding. As expected, participants considered themselves to be more familiar with and more knowledgeable of the well-known brands versus the obscure brands. However, participants also rated the well-known brands to be higher quality, easier to use, a better value, and more likely to be purchased compared to the obscure brands. With regard to safety, only the well-known Cold Sore Ointment and Cold Remedy were rated safer than their more obscure counterparts. This finding suggests that the familiarity effect might be more powerful on safety attitudes for personal use products (those that are applied onto or ingested into the body) than other types of household products. One possible explanation for this is that the hazards associated with many personal use products are less obvious than those of other types of products. Almost anyone exposed to a weed killer, for example, would assume it to be a hazardous product regardless of the brand name it carries, simply by nature of the purpose for which

it is used. However, the hazards involved with personal use products are often not so obvious. This could lead to consumer uncertainty about the safety of a product. Faced with such uncertainty, consumers likely assign more positive attributes (such as safety) to well-known brands than obscure ones, as suggested by the mere exposure effect.

The purpose of Experiments 2 and 3 was to determine if exposure to product advertising can help explain the familiarity effect. The regression results above showed that perceived ease of use is a strong predictor ($p < .001$) and perceived value is a marginal predictor ($p = .055$) of perceived safety. Given that past research (e.g., Yi, 1997) has shown that ads directed at one attribute can spill over to related attributes, these findings suggest that ads focused on value and ease of use perceptions could potentially spill over and affect safety attitudes.

The analysis of participants' prior experience with the products showed that while participants had significantly more experience with the well-known brands than with the obscure brands, experience overall was fairly low. In addition, the regression analyses showed that despite its high correlation with perceived familiarity, past use experience accounted for only a little more than half of the variance in familiarity adjusting for other factors such as perceived value, quality, and ease of use. Thus, DeJoy's (1999) experience based explanations (benign experience, script theory, and habituation) cannot fully explain the familiarity effect. At least two other possibilities exist. It could be that product attitudes and beliefs are formed based on a single or a few product use experiences. Or, perhaps other information sources, beyond direct experience, such as advertising, play a role.

Table 6

Predictors of Perceived Familiarity, Perceived Safety and Purchase Intent

Criterion	Predictor variables	<i>B</i>	β	S.E.	<i>P</i>
Familiarity	Experience	1.005	.518	.104	< .001
	Quality	.384	.196	.118	.001
	Value	-.114	-.061	.105	.278
	Ease of Use	.404	.252	.094	< .001
Safety	Familiarity	.037	.062	.052	.479
	Experience	.237	.205	.099	.017
	Quality	.001	.008	.098	.928
	Value	.165	.147	.085	.055
	Ease of Use	.295	.308	.079	< .001
Purchase Intent	Safety	.085	.062	.078	.276
	Familiarity	-.049	-.060	.063	.437
	Experience	.377	.238	.121	.002
	Quality	.392	.244	.119	.001
	Value	.280	.182	.104	.008
	Ease of Use	.247	.187	.099	.013

Experiment 2

Experiment 1 showed that prior use experience can only partly explain people's safety attitudes and familiarity beliefs about household consumer products. Other contributing factors also must exist. Experiment 2 sought to determine whether exposure to product advertising might be one of those factors. As discussed in the introduction, advertisers use various techniques to influence consumers' attitudes and beliefs in favor of their products. Ads are designed in different ways to attack the affective, cognitive and conative components of consumer attitudes. In presenting their products, advertisers must be careful to provide enough ad exposures to promote brand recognition and familiarity while avoiding overexposure that can lead to negative affect toward the product. Specifically, this experiment examined the effects of different numbers of advertising exposures on participants' safety attitudes and familiarity and knowledge beliefs about household consumer products. The effects of multiple exposures to the same ad versus different ads for the same product were also considered.

Method

Participants

Thirty North Carolina State University undergraduates (13 males, 17 females; mean age = 19.4 years, SD = 5.2 years) enrolled in introductory psychology classes participated for credit toward a course requirement.

Design

Experiment 2 used a within-subjects design. Ad Exposure was manipulated on five levels according to the total number of ads presented and the repetition scheme. In the

No Exposure (control) condition, participants were not exposed to an ad for the product. In the One Exposure condition, participants were exposed to one product advertisement one time. In the Three Exposures - Single Ad condition participants were exposed to the same product advertisement repeated three times. In the Three Exposures - Multiple Ads condition participants were exposed to three different ads for the same product one time each. In the Five Exposures condition, participants saw the product advertised five times with the ad for each exposure chosen randomly from among three designs.

A total of 15 advertisements were created - three different ads for each of five products. The advertisements for the five products were rotated through the five levels of Ad Exposure according to a balanced Latin Square (see Table 7) such that each participant saw one product at each level of exposure. In addition, the ads to which participants were exposed in the One Exposure and Three Exposures - Single Ad conditions were rotated such that each of the three ads for a given product was presented an equal number of times across all participants. The specific ads to which each participant was exposed are shown in Appendix D.

Table 7

Latin Square Showing Product by Repetition Condition Combinations for Experiment 2

	No Exposure	Single Exposure	Three Exposures / Single Ad	Three Exposures / Multiple Ads	Five Exposures
X1	Zap	Zout	Preen	Zilactin	Remdex
X2	Zout	Zilactin	Zap	Remdex	Preen
X3	Zilactin	Remdex	Zout	Preen	Zap
X4	Remdex	Preen	Zilactin	Zap	Zout
X5	Preen	Zap	Remdex	Zout	Zilactin

The dependent variables in Experiment 2 were participant ratings of product familiarity, knowledge, and safety. Knowledge was included along with familiarity and safety because in some previous research (Godfrey et al., 1983, Experiment 1; LaRue & Cohen, 1987) perceived product knowledge, rather than familiarity, was used to predict warning effectiveness. Participants also rated each product on quality, ease of use, value, and purchase intent, but these ratings served only as distractors to disguise the true purpose of the experiment and were not analyzed. All ratings were done on seven-point Likert-type scales.

Materials

Product advertisements. Advertisements for the five, obscure products used in Experiment 1 served as the experimental stimuli in Experiment 2. Obscure products were used to reduce the likelihood that participants would have formed attitudes regarding the safety of the products prior to the experiment. As discussed in the introduction, once attitudes are formed they are very difficult to change (Ross and Anderson, 1982). Because low experience was critical to determining the effects of ad exposure on attitudes and beliefs, it was decided *a priori* that any participant who reported having used any of the products more than a few times in the past was excluded from the experiment. The products included: Preen (weed killer), Remdex (cold remedy), Zap (tub and tile cleaner), Zilactin (cold sore ointment), and Zout (laundry stain remover).

Full page, color, magazine advertisements for the five products served as the experimental stimuli. There were three different ads for each product. The ads were created in two ways. When available, existing ads were cut from magazines, digitally

scanned into a computer, and if necessary, edited using Adobe Illustrator and Adobe Photoshop graphics software to remove any references to product safety. When existing ads could not be located, new realistic appearing ads that were similar in content and style to the existing ads were created by a professional graphics designer using clip art and graphics editing software.

Magazine. The magazine ads were incorporated into a series of articles taken from *Southern Living* - a monthly, lifestyle magazine focused on living and traveling in the Southeastern United States. Articles and advertisements were clipped from back issues of *Southern Living* with the pages rearranged to incorporate the experimental ads. Each double-sided page was placed in a clear, plastic, protective cover and then all of the pages were numbered and placed in a three-ring binder. A total of 12 experimental ads appeared in the magazine – one for the product in the One Exposure condition, three each for the products in the Three Exposures - Single Ad and Three Exposures – Multiple Ads conditions, and five for the product in the Five Exposures condition. The product in the No Exposure condition did not have any ads included in the binder. The experimental ads were inserted on pages 1, 8, 17, 20, 25, 29, 34, 37, 44, 46, 49, and 58 of the binder. The pages on which ads appeared for the various products are shown in Table 8. The version numbers of the magazine correspond to the rows of the Latin Square shown in Table 7. Note that in each version one product (the product in the No Ad condition, for example Zap in Version 1) had no advertisements. Multiple versions of the magazine were used to rotate all products into all conditions and thus eliminate any potential bias due to product. The specific ads presented to each participant were according to the

rotation shown in Appendix D. Equating the number of exposures to each of the three ads for each product across participants was done to account for possible differences in the effectiveness of the different ads. The remaining pages of the binder included the magazine articles and distractor ads.

Table 8

Placement of Experimental Ads in Each Version of the Magazine

Page #	Version 1	Version 2	Version 3	Version 4	Version 5
1	Remdex	Preen	Zap	Zout	Zilactin
8	Zilactin	Remdex	Preen	Zap	Zout
17	Preen	Zap	Zout	Zilactin	Remdex
20	Remdex	Preen	Zap	Zout	Zilactin
25	Zilactin	Remdex	Preen	Zap	Zout
29	Zout	Zilactin	Remdex	Preen	Zap
34	Preen	Zap	Zout	Zilactin	Remdex
37	Remdex	Preen	Zap	Zout	Zilactin
44	Zilactin	Remdex	Preen	Zap	Zout
46	Remdex	Preen	Zap	Zout	Zilactin
49	Remdex	Preen	Zap	Zout	Zilactin
58	Preen	Zap	Zout	Zilactin	Remdex

Task instruction script. Task instructions were read aloud to participants.

Instructions introduced the experiment and briefly described the fictitious purpose of the study. The verbatim text of the task instruction script is shown in Appendix E.

Consent form. Participants read and signed an Informed Consent Form (Appendix F) before the experiment began. The form briefly described the nature of the experiment and explained to participants that they had a right to withdraw without penalty at any time during the experiment.

Demographics questionnaire. Participants completed a short demographics questionnaire on which they indicated their gender, age in years, occupation, and living situation. This instrument was also be used to collect information about participants' television viewing and magazine reading habits. Although not the main focus of this research, these data could suggest directions for future research. A copy of the demographics questionnaire is shown in Appendix G.

Attraction rating forms. Participants rated the attraction of each page in the binder. Attraction was defined as the likelihood the participant would stop and read the page if they were turning through the magazine. A seven-point Likert-type scale was used with the following anchors: (1) not at all likely, (4) somewhat likely, and (7) extremely likely. The purpose of the attraction rating task was to ensure that participants looked at each page in the binder. Attraction ratings were not analyzed. A copy of the attraction rating form is shown in Appendix H.

Product rating form. Following exposure to the ads in the binder, participants rated each product using the same seven-point rating scales that were used in Experiment 1. A separate rating form was used for each product. The rating form was the same as that used in Experiment 1 except that it did not include the final question about prior product use experience. Use experience was measured using a different familiarity rating form described below. A sample product rating form is shown in Appendix I.

Familiarity rating form. At the end of the experiment, participants were asked to rate their prior familiarity with the types of products and the specific brands used in the study. This was the measure used to exclude participants based on prior product

experience. Any participant who reported having used any of the brands more than a few times in the past was excluded from the study. A sample familiarity rating form is shown in Appendix J.

Procedure

Participation took place individually or in groups of two or three. Participants were asked not to talk to one another during the session. Participants were randomly assigned to conditions using a pre-determined order sheet (see Appendix D). The procedure was similar to that employed by Barlow and Wogalter (1993, Experiment 1) and Wogalter, Paine, Mills, and Smith-Jackson (1999).

After being greeted by the experimenter, participants were seated at individual desks and asked to read and sign the Informed Consent form. Any questions concerning informed consent were answered. Next, the task instruction script (Appendix E) was read aloud to participants. To conceal the true purpose of the study, participants were told they were taking part in a marketing research study investigating how a magazine's graphics design style contributes to its success. Not until the debriefing were participants told that the advertisements and their effect on product safety was the main focus of the experiment. Participants were given a Style Rating sheet and a binder containing the magazine articles and stimulus advertisements. Participants were asked to rate the style of each page in the binder based on their willingness to stop and read the page contents. They were instructed that they would be given 30 s to examine and rate each two-page spread in the binder. As practice, participants rated a cover page taken from a back issue of *Southern Living* magazine. After any questions about the task were answered the

experimenter started an audiotape that instructed participants to “Please turn to the first two pages” in the binder. Every 30 seconds thereafter the tape instructed participants to “Please make your ratings and turn the page.” How participants divided their time between the two pages during the 30 seconds was not controlled. Participants could spend as much or as little of the 30 seconds attending to the page with the experimental ad. Thus, participants were only incidentally exposed to the experimental stimuli. When participants had rated all of the pages in the booklet the experimenter stopped the tape and collected the binders and rating sheets.

The purpose of the individual page ratings was to keep participants attentive to each page in the booklet. This task not only supported the marketing research cover story, but also reduced the likelihood that participants would skip pages in the booklet and miss exposure to one or more of the experimental stimuli. The page interest ratings were not analyzed.

Next, participants completed the Demographics Questionnaire. The questionnaire was used to collect general demographic information as well as information about participants’ reading and television viewing habits. Following the Demographics Questionnaire, participants completed Product Rating forms for the five experimental products. The rating forms were presented in random order. Next, participants completed the Familiarity Rating Form, which was used to measure their prior familiarity with the products used in the experiment. After completing this form participants were debriefed and told the true purpose of the study. Any remaining questions were answered, then participants were thanked and excused.

Results

An omnibus analysis of the product ratings was conducted followed by tests of the specific hypotheses stated previously.

Product Ratings

Following exposure to the advertisements, participants rated the five products on the dimensions of familiarity, knowledge, quality, ease of use, value, safety, and likelihood of purchase. Mean rating scores for each variable by Ad Exposure condition are shown in Table 9. As explained previously, only the familiarity, knowledge, and safety ratings were analyzed beyond simple descriptive statistics. The other measures were not the main focus of the research and were only included as part of the ruse that the experiment was a marketing study. The data for these other measures are included in Appendix P for possible future analysis. A 5-way repeated measures MANOVA on the familiarity, knowledge, and safety ratings was not significant indicating that Ad Exposure did not significantly affect the product ratings when the ratings were considered as a set, $p > .05$.

Despite the lack of significance found by MANOVA, an examination of the mean familiarity, knowledge, and safety ratings showed a clear trend of higher ratings with increased advertising exposure. Thus, 5-way, repeated measures ANOVAs were performed on each dependent variable. The ANOVAs revealed significant main effects of Ad Exposure on familiarity, $F(4, 116) = 6.62, p < .001$ and knowledge, $F(4, 116) = 4.39, p < .01$ ratings. While the ANOVA on safety ratings failed to reach the traditional level of significance, $p > .05$, there was a trend of greater perceived safety for the two

Table 9

Mean (SD) Ratings by Ad Exposure Condition

	No Exposure	One Exposure	Three Exposures / Single Ad	Three Exposures / Multiple Ads	Five Exposures
Familiarity	1.57 (1.07)	1.90 (1.27)	2.53 (1.36)	2.73 (1.62)	2.93 (1.74)
Knowledge	1.60 (1.10)	1.77 (1.10)	2.07 (1.01)	2.37 (1.27)	2.53 (1.38)
Quality	4.00 (0.26)	4.07 (0.69)	4.20 (0.92)	4.23 (0.73)	4.10 (0.92)
Ease of Use	4.50 (0.86)	4.63 (1.10)	4.70 (0.88)	4.67 (1.03)	4.60 (1.07)
Value	4.17 (0.46)	4.03 (0.49)	3.97 (0.56)	4.30 (0.65)	4.27 (0.58)
Safety	4.30 (0.88)	4.33 (0.84)	4.33 (0.84)	4.47 (0.78)	4.60 (1.07)
Purchase	3.03 (1.56)	3.03 (1.47)	3.33 (1.63)	3.10 (1.97)	3.03 (1.73)

multiple ad conditions. To further investigate the differences among the means on the familiarity and knowledge ratings, pairwise comparisons were performed using the Bonferroni adjustment for multiple comparisons. On familiarity, products in the Three Exposures - Single Ad, Three Exposures - Multiple Ads, and Five Exposures conditions were rated higher than those in the No Ad condition, $ps < .05$. In addition, the Five Exposures condition was rated significantly higher than the One Exposure condition, $p < .05$. On knowledge, ratings for the Three Exposures - Multiple Ads, and Five Exposures conditions were significantly higher than those for the No Ad condition, $ps < .05$.

Hypothesis Tests

Specific hypotheses were made *a priori* about how the number of product ad exposures would influence subsequent participant product ratings of familiarity,

knowledge, and safety. Hypothesis 3 predicted that participants would assign higher ratings of product knowledge, familiarity, and safety to products for which they were exposed to ads than to those for which no ad was seen. To test this hypothesis planned comparisons were conducted comparing ratings on these three measures in the No Ad condition versus the average of the remaining (ad exposure) conditions. Results showed that ratings of familiarity and knowledge were significantly higher for advertised products than for products for which no ads were shown, $p < .01$. No significant difference was found on safety ratings, $p > .05$.

Hypothesis 4 predicted that product knowledge, familiarity, and safety ratings would increase as the number of advertising exposures increased. This hypothesis was tested using a repeated measures ANOVA with the rating scores for the Three Exposure - Single Ad and Three Exposure - Multiple Ads conditions averaged to generate a single Three Exposures score. Results of the ANOVA showed a significant main effect of exposures on familiarity ratings, $F(3, 87) = 8.43, p < .001$, and knowledge ratings, $F(3, 87) = 5.41, p < .01$. Pairwise comparisons using the Bonferroni correction for multiple comparisons showed that for familiarity, products in the Three Exposures and Five Exposures conditions were rated significantly higher than those in the No Ad condition, $ps < .05$. In addition, the Five Exposures condition was given familiarity ratings significantly higher than the One Exposure condition, $p < .05$. Knowledge ratings for the Three Exposures and Five Exposures conditions were higher than those for the No Ad condition, $ps < .05$. The effect of number of exposures on safety ratings was not significant, $p > .05$.

In addition, planned trend analyses showed strong positive linear trends of number of exposures on ratings of familiarity, $F(1,29) = 17.16, p < .001$, and knowledge, $F(1,29) = 15.69, p < .001$. (See Figure 2.) However, the shallow slopes of the lines ($R = .178$ and $R = .109$) suggest that incremental changes in the number of ad exposures have only slight impacts on perceived familiarity and knowledge.

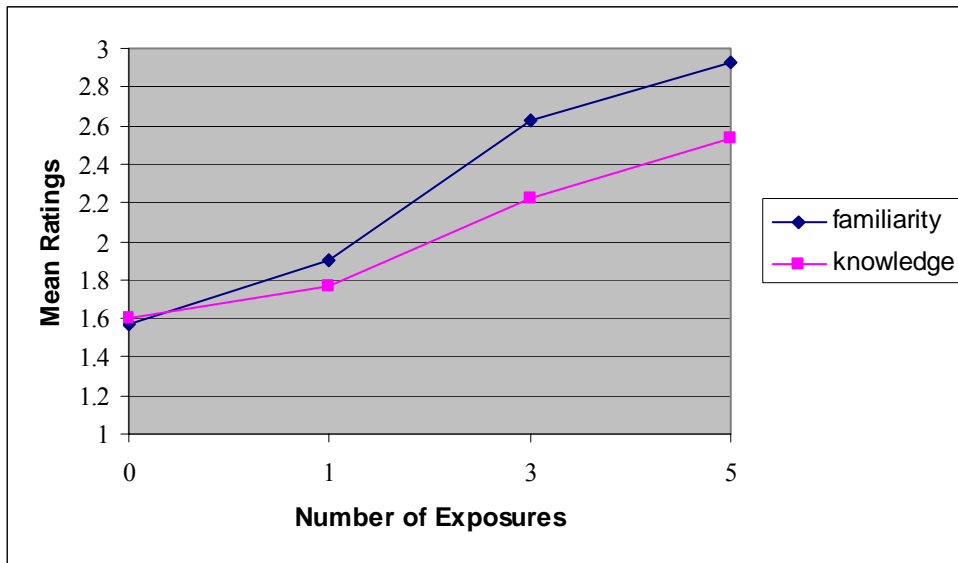


Figure 2. Mean familiarity and knowledge ratings by number of ad exposures.

Hypothesis 5 predicted that participants exposed to different ads for the same product would assign higher ratings of product knowledge, familiarity, and safety than participants exposed to multiple repetitions of the same ad. To test this hypothesis planned comparisons were conducted comparing ratings on these three measures in the Three Exposures - Single Ad and Three Exposures - Multiple Ads conditions. Although the mean rating scores on all three measures were higher for the Three Exposures - Multiple Ads condition, the ANOVAS were not significant, $ps > .05$.

Discussion

The purpose of Experiment 2 was to determine if exposure to product advertising affects attitudes and beliefs about unfamiliar brands of household products. Exposure to advertising produced higher ratings of product familiarity and knowledge. While safety ratings were higher for advertised products, and showed a trend of increased perceived safety with increased number of ad exposures, the differences were not significant. Thus, the results partially supported Hypothesis 3 which predicted higher ratings for advertised products on all three measures.

The finding that advertising affects product familiarity and knowledge beliefs has implications for understanding the familiarity effect. First, it supports the notion that use experience is not necessary for people to perceive themselves as familiar with and knowledgeable about a product. What remained unclear, however, is whether advertising imparts general perceptions of familiarity and knowledge, or knowledge about specific product attributes. The lack of a significant safety effect suggests that the ads did not convey knowledge about product safety.

A further purpose of Experiment 2 was to examine how the number of advertising exposures influences attitudes and beliefs about household consumer products. Hypothesis 4 predicted that knowledge, familiarity, and safety ratings would increase with the number of ad exposures. Again, results showed partial support for this hypothesis. Participants assigned significantly higher ratings of familiarity and knowledge when they saw a product advertised five times or three times with different ads compared to products for which they saw no ads. In addition, familiarity ratings for

products advertised five times were significantly higher than those advertised only once. Also, significant, positive, linear relationships were found between number of ad exposures and familiarity ratings and between number of ad exposures and knowledge ratings. This suggests that perceived familiarity and knowledge beliefs do not plateau quickly and will continue to grow over time. Whether these beliefs translate to diminishing warning effectiveness over time is unclear and will most likely need to be determined empirically. Safety ratings did not increase significantly with increasing ad exposures.

Krugman (1972) theorized that three advertising exposures are necessary and sufficient to change attitudes about the advertised product. With respect to safety attitudes, the results of Experiment 2 provided limited support for this hypothesis. As predicted, the first ad exposure influenced awareness in the form of higher product familiarity and knowledge ratings. The subsequent exposures, however, failed to affect safety attitudes. One possible explanation for the ineffectiveness of the later ads is that their temporal proximity to the first ad led all of the exposures to be treated as a single exposure. All of the exposures occurred within 15 minutes. Krugman's theory did not specifically address requirements for temporal spacing between ad exposures, but it is possible that insufficient time was allotted for the necessary processing to occur for attitude change.

Hypothesis 5, which predicted that exposing participants to three different ads for a product would be more effective at altering attitudes and beliefs than a single ad repeated

three times, was not supported. Although ratings on all measures were higher in the Three Exposures - Multiple Ads condition, the differences were not significant.

Taken together these results show that participants' beliefs concerning their familiarity with and knowledge of household products are influenced by exposure to product advertising. Ratings on both of these measures increased linearly with increasing number of ad exposures. Attitudes about product safety were relatively unaffected by advertising. This finding is inconsistent with previous research (Godfrey et al., 1983) that showed safety attitudes correlate highly with familiarity and knowledge ratings.

Experiment 2 sought only to examine effects due to the presence or absence of advertisements and the number of ad exposures. The content of the advertisements was not considered. Although participants saw three different product ads in the Three Exposures - Multiple Ads and Five Exposures conditions, the content of the ads was similar. In all cases, the ad copy was taken either from existing product advertisements or was created based on product claims made either on the product itself or on the product Web site. Product safety was not mentioned in any of the ads. A third experiment was conducted to determine if changing the content of the ads through the presence or absence of safety related information in the ad copy would affect participants' attitudes and beliefs about product safety.

Experiment 3

Except for certain types of products such as automobiles and drugs, safety is rarely the focus of product advertisements. Ads for household consumer products typically focus on attributes like quality, value, and innovation. If safety is addressed at all in ads, it is usually indirectly. For example, an ad that boasts of a product having received the Good Housekeeping Seal of Approval certainly implies the product is safe to use. Similarly, ads that show potentially harmful products being used without necessary precautions, such as cleaning agents being used without gloves, imply safety. Other ads imply safety by treating potentially harmful products lightly, such as depicting Scrubbing Bubbles, a powerful bathroom cleaner, as silly, little, animated characters. Lutz (1975) found that advertising can influence attitudes about product attributes implied by an ad to an even greater extent than attributes directly attacked by an ad. While Lutz did not specifically consider safety as a product attribute that could be influenced by indirect, or second-order effects, it is certainly plausible.

In Experiment 2 all references to product safety, stated or implied, were kept out of the advertisements. The results of Experiment 2 showed that while advertising affected beliefs about product familiarity and knowledge, it did not significantly influence attitudes about product safety. The purpose of Experiment 3 was to determine if the presence of safety related information in the product advertisements would affect safety attitudes and beliefs. The presence or absence of safety related information was manipulated by altering the ad copy. In one control condition the ads were like those in Experiment 2 in that any reference to product safety was removed. In the experimental ad

conditions three different types of safety information were considered: direct safety claims, indirect safety claims, and warnings. While the ads themselves had at least some affective components, the safety related text that was added to the ads in the experimental conditions was more likely to influence the cognitive component of consumers' attitudes.

How the different types of safety information in the ads would affect participants' perceptions of the products was of primary interest in this experiment. It was expected that putting direct or indirect safety claims in product advertisements would increase participants' perceived safety of the product. Placing a warning in the ads was expected to decrease perceived product safety. Including warnings in the ads was also done to expand the existing literature in this area. Most previous research examining warnings in advertisements were for products such as alcohol, tobacco, and pharmaceuticals, where the inclusion of warning information in advertisements is mandated by law. No previous research had examined the effects of including warnings in ads for household, consumer products.

As in Experiment 2, ads for obscure brands of household consumer products were used as stimuli to reduce the likelihood that participants would have formed attitudes about the products prior to the experiment. The same five brands – Preen, Zout, Remdex, Zilactin, and Zap – that were used in Experiment 2 were used in Experiment 3. Again, as in Experiment 2, participants experienced with any of the products prior to the experiment were excluded.

Method

This experiment followed a procedure similar to Experiment 2, but in addition to seeing the products advertised in the magazine, participants were also exposed to product labels that contained either strong or weak warnings. Following exposure to the labels participants were tested on their recall and comprehension of the warning information. As in Experiment 2, participants rated the products on familiarity, knowledge, and safety.

Participants

Eighty North Carolina State University undergraduates (36 males, 44 females; mean age = 19.3 years, SD = 4.1 years) enrolled in introductory psychology classes participated for credit toward a course requirement. Fifteen participants were randomly assigned to each of six between subjects conditions.

Design

Experiment 3 used a 3 (Rating Group) x 2 (Warning Quality) x 5 (Ad Content) mixed design. Rating Group and Warning Quality were between subjects variables. Ad Content was a within subjects variable. In addition, scores on a Need for Cognition were included as a quazi-experimental variable. Each independent variable is described below.

Rating Group was manipulated on three levels according to when the product ratings were done. Half of the participants (the Pre-Label Group) completed product ratings after seeing the product advertisements but before being exposed to the product package labels. The other half of the participants was split between the remaining two groups. Participants in the Pre-Recall Group rated the products after seeing the ads and the labels but before completing the Warning Recall Test. Participants in the Post-Recall

Group rated the products after seeing the ads and the labels and completing the Warning Recall Test. This separation was included to control for any possible carry over effects the product ratings might have on later tasks and to distinguish familiarity effects due to exposure to advertising from effects due to product exposure. It was decided *a priori* that if initial analyses revealed no differences in rating and recall scores between the Pre-Recall and Post-Recall groups they would be combined into a single group for subsequent analyses. The task sequence for each rating group is shown in Figure 3.

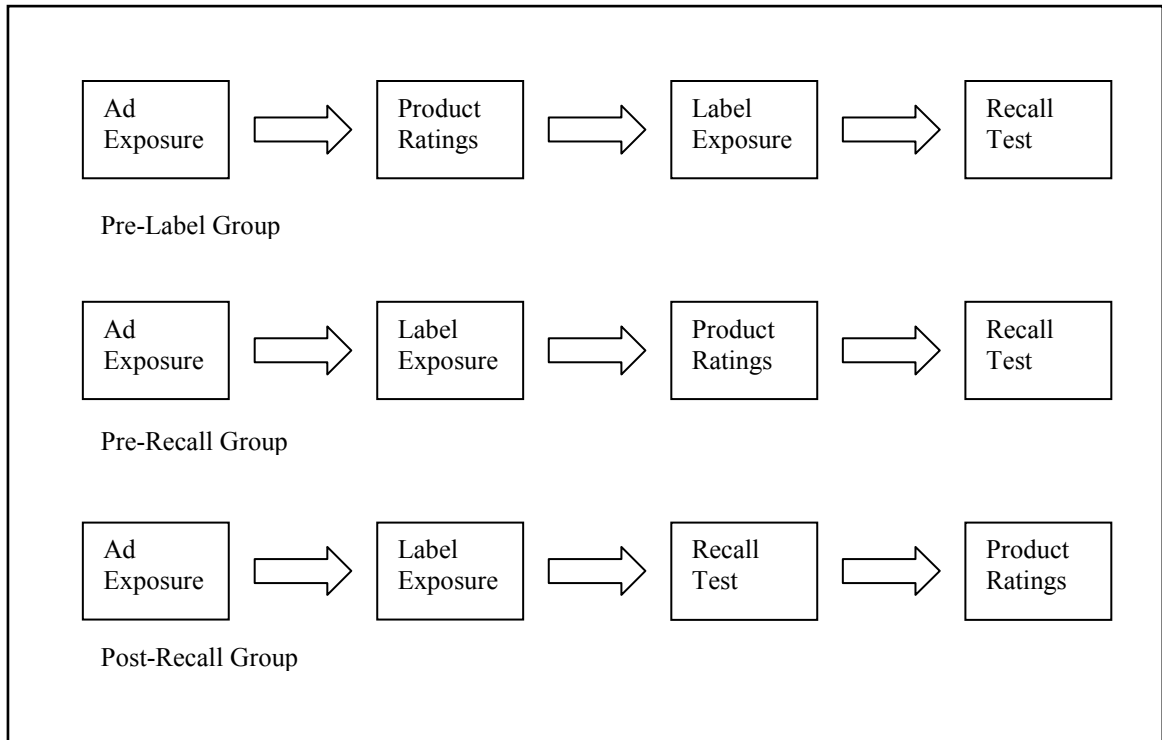


Figure 3. Task sequences for different rating groups.

Warning Quality was manipulated on two levels. In the Strong Warning condition, the product label warnings included color, signal words, and signal icons. In the Weak

Warning condition, the product label warnings were similar to those found on the existing labels, which were designed without the above features.

Ad Content was manipulated on five levels: No Ad (control), No Safety Claim, Indirect Safety Claim, Direct Safety Claim, and Warning. In the No Ad condition no advertisements for the product were presented. In the No Safety Claim condition product advertisements included text unrelated to product safety. In the Indirect Safety Claim condition product advertisements included text that suggested the product is safe to use. In the Direct Safety Claim condition product advertisements include text that explicitly stated the product is safe to use. In the Warning condition product advertisements included a warning statement about one of the product’s hazards. Each participant was exposed to one product at each level of Ad Content. The five products were rotated through the five levels of Ad Content according to the Latin Square shown in Table 10.

Table 10

Latin Square Showing Product by Ad Content Combinations for Experiment 3

	No Ad	No Safety Claim	Indirect Safety Claim	Direct Safety Claim	Warning
X1	Zap	Zout	Preen	Zilactin	Remdex
X2	Zout	Zilactin	Zap	Remdex	Preen
X3	Zilactin	Remdex	Zout	Preen	Zap
X4	Remdex	Preen	Zilactin	Zap	Zout
X5	Preen	Zap	Remdex	Zout	Zilactin

Need for Cognition (NFC) was included as an additional between subjects variable with two levels. Based on their scores on the short form of the Need for Cognition scale (Caccioppo, Petty, & Kao, 1984) participants were classified as either

High NFC or Low NFC. The NFC scale measures the degree to which individuals seek out information from their environment and enjoy the cognitive effort required to process the information. Scores on the scale can range from 18 - 126 with higher scores indicating a greater need for cognition. NFC was included because previous research (Haugtvedt and Petty, 1992) showed differing effects of advertising on individuals high versus low in NFC.

Dependent variables in Experiment 3 included familiarity, knowledge, and safety ratings and warning recall and comprehension scores. Participants rated products on the same dimensions as in Experiment 2 using the same seven-point Likert-type scales. Warning comprehension and recall was measured following exposure to the product labels. Participants were “tested” on their knowledge of product hazards using multiple choice, true/false, and open-ended questions.

Materials

Advertisements. A total of 60 ads were created to serve as the experimental stimuli – 12 ads for each of the five products. For each product, four versions of the three ads used in Experiment 2 were created. The versions were identical except for a single text statement that varied for each non-control level of Ad Content. The statement for the Indirect Safety Claim version of each ad suggested the product is safe to use. The statement for the Direct Safety Claim version of each ad explicitly stated that the product is safe to use. The statement for the Warning version of each ad warned about a specific product hazard. The statement for the No Safety Claim version of each ad neither stated nor implied anything about the product’s safety. The statements for each product and

level of ad content are shown in Table 11. The same statements appeared in all three ads for each product. The statements were incorporated into the existing ad copy as a single line of text, placed near the bottom of the ads. The statements were printed in bold and two points larger than the rest of the ad copy. This was done so that the manipulated text would be conspicuous without detracting from the overall design and layout of the ad. As an example, the four versions of one of the Remdex ads are shown in Appendix K.

Magazine binders. The same binders containing articles and advertisements taken from *Southern Living* magazine that were used in Experiment 2 were used again in Experiment 3. The 12 experimental ads were located on the same binder pages as in Experiment 2. Five versions of the binder were created – one representing each row of the Latin Square shown in Table 10. In each version of the binder the three different advertisements for the products in the No Safety Claim, Indirect Safety Claim, Direct Safety Claim, and Warning conditions were presented one time each. Advertisements for products in each experimental condition were presented three times. Three ad exposures were used based on the results of Experiment 2 which failed to show a significant difference between three and five ad exposures on ratings of familiarity, knowledge, and safety. The product in the No Ad condition did not have any ads included in the binder. As in Experiment 2, the other pages in the binder included the magazine articles and distractor ads. The stimulus ads included in each version of the binder and the pages on which they appeared are shown in Table 12. For a given product the specific ad that appeared on each page was determined by a random draw repeated for each participant.

Table 11

Safety related statements added to product advertisements.

Preen	No safety	The biggest thing in Weed Control since the gardening glove
	Indirect Safety	#1 choice of Better Homes and Gardens magazine
	Direct Safety	Safe for use around pets and children
	Warning	CAUTION: Hazardous to humans and animals
Remdex	No safety	Stops colds before they really start
	Indirect Safety	All natural relief from cold symptoms
	Direct Safety	Safe, effective, non-drowsy cold relief
	Warning	CAUTION: Not for use by pregnant women
Zap	No safety	Make old surfaces look new again
	Indirect Safety	Awarded the Good Housekeeping Seal of Approval
	Direct Safety	Safe and effective. Contains no phosphates.
	Warning	CAUTION: Contains sulfuric and muratic acids
Zilactin	No safety	Treats sores even before they break out
	Indirect Safety	Pharmacist recommended cold sore relief
	Direct Safety	Safe, effective relief from cold sore pain
	Warning	CAUTION: Not for use by children
Zout	No safety	Removes stains the others don't
	Indirect Safety	Awarded the Queen of Clean Seal of Approval
	Direct Safety	Safe and effective. Contains no chlorine or bleach.
	Warning	CAUTION: Eye irritant. Harmful if swallowed.

Table 12

Placement of Experimental Ads in Each Version of the Magazine for Experiment 3

Page #	Version 1	Version 2	Version 3	Version 4	Version 5
1	Zout	Zilactin	Remdex	Preen	Zap
8	Remdex	Preen	Zap	Zout	Zilactin
17	Zilactin	Remdex	Preen	Zap	Zout
20	Preen	Zap	Zout	Zilactin	Remdex
25	Remdex	Preen	Zap	Zout	Zilactin
29	Zout	Zilactin	Remdex	Preen	Zap
34	Zilactin	Remdex	Preen	Zap	Zout
37	Preen	Zap	Zout	Zilactin	Remdex
44	Zout	Zilactin	Remdex	Preen	Zap
46	Remdex	Preen	Zap	Zout	Zilactin
49	Zilactin	Remdex	Preen	Zap	Zout
58	Preen	Zap	Zout	Zilactin	Remdex

Product information binders. Following exposure to the product advertisements, information about the five products was presented to participants for examination. Binders were assembled that contained two pages of information about each product.

One page was a color reproduction of the product package label. Labels were removed from existing product packaging and digitally scanned into a computer. The label designs were then modified using Adobe Photoshop and Adobe Illustrator graphics editing software. Two versions of each label were created. In the Strong Warning condition, warning information on the label was added or edited according to guidelines for effective warning design. Signal words, signal icons, color, and borders were used to attract attention to the warning. In the Weak Warning condition, these features were absent from the label. In all cases, the label area allocated for the strong and weak

warnings was the same. As an example, the two versions of the package label for Preen are shown in Appendix L.

The other page of product information was taken from the product Web sites. Text and images were copied from the sites and edited using Microsoft Word to fit the format of the booklet. None of the information copied from the Web sites pertained to product safety. This page served as a distractor and also forced participants to make a decision about what information they would read in the limited time allotted for product information review. The pages were arranged in the binder so that they represented a two-page information “spread“ about each product.

Need for Cognition scale. The short form of the Need for Cognition scale consists of 18 items. Agreement with each scale item is rated on a 7-point Likert scale. The reliability and validity of this scale has been verified empirically. Caccioppo, Petty, Feinstein, and Jarvis (1996) reviewed 11 studies that examined the psychometric properties of the short form of the Need for Cognition scale. The studies consistently found the scale to have high internal consistencies with Cronbach alphas greater than .85. Two studies also examined the factor structure of the scale. In both, principal-components analysis revealed a single dominant factor accounting for more than 30% of the scale variance. A copy of the short form of the Need for Cognition scale is shown in Appendix M.

Warning Recall and Comprehension Test. After reviewing the material in the product information binder, participants were tested on their memory and comprehension of the warning information presented on the product labels. The Recall and

Comprehension Test consisted of five sub-tests, one for each product. Each sub-test contained eight questions about the hazards described in the product label warnings. Each sub-test was presented on a separate page, and the order of the pages was randomized for each participant. Questions included open-ended, fill-in-the-blank, true-false, and multiple choice. Each sub-test was presented on a separate page. The complete list of questions for each sub-test is shown in Appendix N.

Other materials. All other materials, including the task instruction script, consent form, demographics questionnaire, interest rating form, product rating form, and familiarity rating form were identical to those used in Experiment 2.

Procedure

Participation took place individually or in small groups. Participants were asked not to talk to one another during the experiment. Participants were randomly assigned to conditions using a pre-determined order sheet (see Appendix O). The first part of the experiment followed a procedure identical to Experiment 2. The same task instructions were read aloud to participants, and the same magazine ratings and Demographics Questionnaire were completed. However, following the Demographics Questionnaire, participants were told that the experimenters were also interested in people's perceptions of the types of products that advertise in successful magazines like *Southern Living*. At this point, half of the participants (Pre-Label group) completed Product Rating sheets for the five experimental products. The rating sheets were presented in random order. The remaining participants (Pre-Recall and Post-Recall groups) completed the product ratings later in the experiment.

Next, participants were asked to imagine that they were about to use some of the products they had seen advertised in the magazine. They were told that they would be given information about each product – some of which had been downloaded from the Internet and some that was from the product package labels. Participants were told they would have 90 s to examine the information for each product. They were also told that they might not be able to read all of the information in that time so they should pay particular attention to the information that would be most useful to them if they were going to use the product. Participants were given a binder containing the product information sheets and instructed to turn to the first product's information. The order of the products in the binder was based on a random draw for each participant. After 90 s participants were instructed to turn to the next product. This process was repeated until participants had seen the information for all five products. The binders were then collected and participants completed the Need for Cognition scale. This task also served as a distractor to prevent participants from maintaining product label information in short term memory. Next, participants in Post-Recall group completed the warning Recall and Comprehension Test followed by the product rating task. Conversely, Pre-Recall group participants completed the product rating task followed by the warning Recall and Comprehension Test. Pre-Label participants completed only the warning Recall and Comprehension Test. Finally, all participants completed the product familiarity form. Participants were then debriefed and told the true purpose of the study. After any remaining questions were answered; participants were thanked and excused.

Results

Product ratings and warning recall scores were initially analyzed using the main independent variables. NFC scores were then added to the model as an additional between-subjects variable and all analyses were re-run.

Comparison of Pre- and Post-Label Rating Groups

As explained previously, it was decided *a priori* that if no differences were found between the Pre-Recall and Post-Recall rating groups they would be combined into a single group for subsequent analyses. Mean rating scores by group are shown in Table 13. A 2 (Pre-Recall vs. Post-Recall rating group) x 5 (Ad Content) mixed MANOVA showed a significant main effect of Rating Group, $F(3, 36) = 4.71, p < .01$. Univariate ANOVAs using the individual rating measures revealed significant main effects of Rating Group on familiarity, $F(1, 38) = 5.05, p < .01$, and knowledge, $F(1, 38) = 14.63, p < .001$. Thus, the Pre-Recall and Post-Recall rating groups were considered separately in all subsequent analyses.

Table 13

Mean Rating and Recall Scores for Pre- and Post-Recall Groups

	Familiarity Rating	Knowledge Rating	Safety Rating
Pre-Recall	3.24 (1.52)	3.71 (1.44)	4.47 (1.44)
Post-Recall	2.33 (1.27)	2.79 (1.30)	4.12 (1.27)

Product Ratings

Participants rated the five products on the dimensions of familiarity, knowledge, and safety. The timing of the ratings within the study procedure varied according to Rating Group. A 2 (Warning Strength) x 3 (Rating Group) x 5 (Ad Content) mixed MANOVA showed a significant main effect of Rating Group, $F(14, 136) = 3.88, p < .001$, indicating that the groups differed on the three rating measures, considered as a set. Subsequent univariate ANOVAs were performed on the familiarity, knowledge, and safety ratings. The ANOVAs revealed significant Ad Content x Rating Group interactions on the familiarity, $F(8, 296) = 2.11, p < .05$, and knowledge, $F(8, 296) = 1.96, p = .05$, measures. Figures 4 and 5 show the pattern of means. For Pre-Label Group participants, post hoc tests using Tukey's Honestly Significant Difference (HSD) procedure showed that the No Ad condition was rated significantly lower in familiarity than each of the other ad exposure conditions which did not differ. On knowledge, the No Ad condition was rated significantly lower than each of the other ad exposure conditions except the Indirect Safety Claim. None of the other conditions differed. For Pre-Recall and Post-Recall participants, there were no significant differences among the means.

The ANOVA on familiarity ratings also showed a significant main effect of Rating Group, $F(2, 74) = 4.21, p < .05$, with Tukey's HSD test ($p < .05$) showing that familiarity ratings were significantly higher for the Pre-Recall Group ($M = 3.24$) than for Post-Recall Group ($M = 2.33$) and Pre-Label Group ($M = 2.36$), which did not differ. This result shows that participants' familiarity beliefs increased significantly after seeing the product

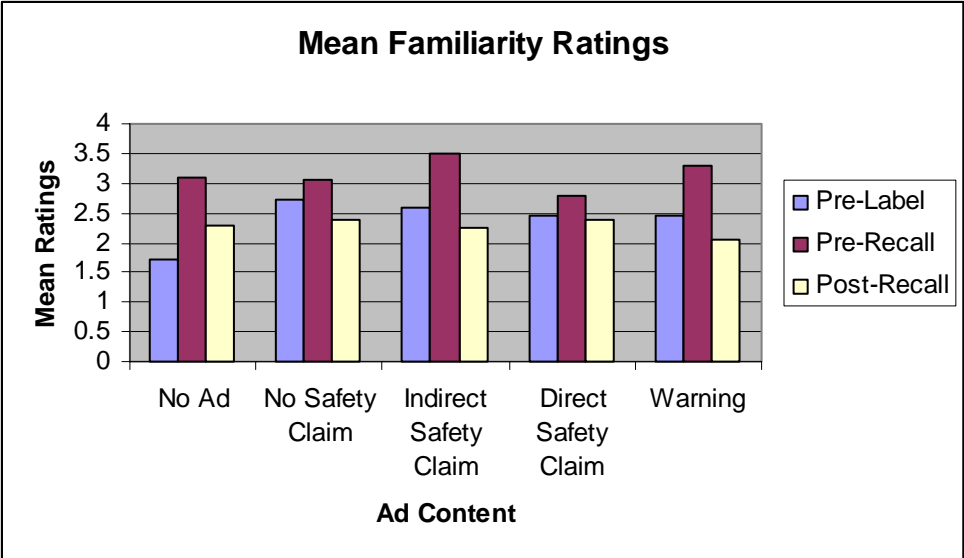


Figure 4. Mean Familiarity Ratings by Rating Group and Ad Content

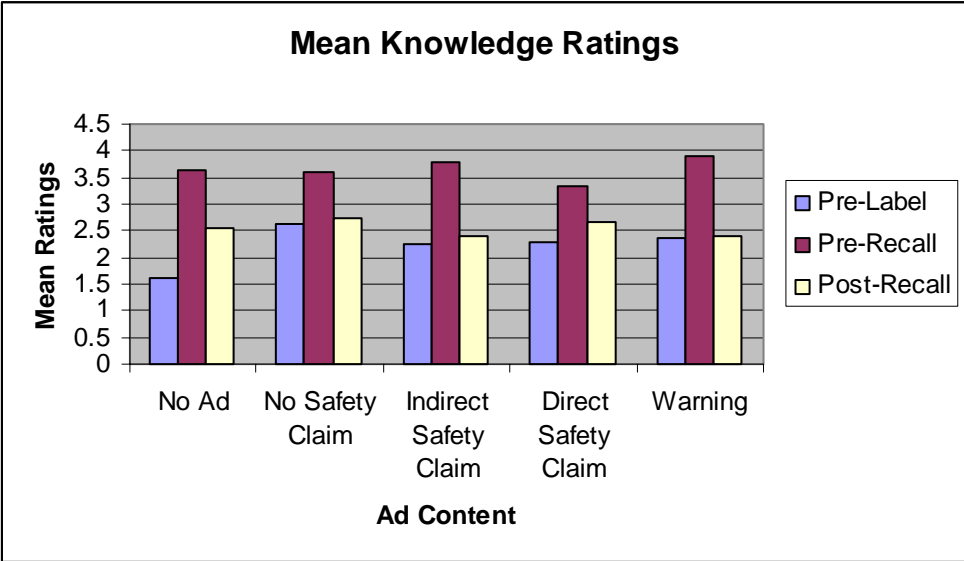


Figure 5. Mean Knowledge Ratings by Rating Group and Ad Content

labels, only to drop back down after being asked to recall some of the information found on the labels.

A similar pattern of results was found for the knowledge ratings. The ANOVA showed a significant main effect of Rating Group, $F(2, 74) = 17.41, p < .001$, with Tukey's HSD test ($p < .05$) again showing significantly higher ratings for the Pre-Recall Group ($M = 3.71$) than for the Post-Recall Group ($M = 2.79$) and Pre-Label Group ($M = 2.62$), which did not differ.

Warning Recall and Comprehension

Following exposure to the product advertisements in the binder, participants were incidentally exposed to product warnings on the package labels and then tested on their recall and comprehension of the warning information. The Recall and Comprehension Test consisted of five, eight question sub-tests – one for each product. One point was awarded for each correct response. Accordingly, each participant earned a score between 0-8 on each sub-test. The individual subtest scores were then summed to compute a Total Recall score. Scoring of the multiple choice and true-false questions was straightforward. A lenient scoring criterion was used for the open-ended and fill-in-the-blank questions in that responses did not have to match the exact wording of the warning instructions. A response was counted correct if it illustrated a basic understanding of the warning information presented on the label. To ensure validity of the scoring procedure, all tests were scored by two independent judges. Inter-rater reliability was calculated to be 95.2%. Discrepancies were discussed and resolved by mutual agreement.

Test scores were analyzed in four different ways. First, sub-test scores were analyzed to get an understanding of how Ad Content (in addition to Rating Group and Warning Quality) affected recall of the warning information contained on the product labels. Next, Total Recall scores were analyzed by Rating Group and Warning Quality conditions. Third, each individual item from each sub-test was analyzed. This analysis was done to determine if any critical items were affected by Rating Group or Warning Quality that might not have been revealed by an analysis of the sub-test and Total Recall scores. Finally, the different types of test items were analyzed. Scores on the multiple choice, true-false, fill-in-the-blank, and open ended items were analyzed separately. The number of questions of each type answered correctly was calculated for each product and overall. These Item Type scores were then analyzed by Warning Quality and Rating Group.

Sub-test scores. Subtest score means and standard deviations by Rating Group, Ad Content, and Warning Quality are shown in Table 14. A 2 (Warning Quality) x 3 (Rating Group) x 5 (Ad Content) mixed ANOVA was performed on sub-test scores. No significant main effects or interactions were revealed, $ps > .05$.

Total Recall scores. Total Recall score was calculated by summing the five sub-test scores. Total Recall scores by Rating Group and Warning Quality are shown in Table 10. A 2 (Warning Quality) x 3 (Rating Group) between subjects ANOVA on Total Recall scores revealed no significant main effects or interactions, $ps > .05$.

Individual sub-test items. For each item on each sub-subtest, the percentage of participants who answered the question correctly was calculated. These percentages were

analyzed using 2 (Warning Quality) x 3 (Rating Group) between subjects ANOVAs. Across all of the individual items only one significant effect was found. For question 8 on the Zap sub-test a significantly higher percentage of Pre-Label participants (0.80) answered the question correctly than did Post-Recall participants (0.30), $p < .05$.

Item types. The number of multiple choice, true-false, free recall, and fill-in-the-blank questions answered correctly was calculated for each product and overall. Separate 2 (Warning Quality) x 3 (Rating Group) between subjects ANOVAs were performed on each Item Type score. Only two significant effects were found. Across all products true-false scores were significantly higher for Pre-Label participants ($M = 5.18$) than for Post-Recall participants ($M = 4.20$), $p < .05$, and on the Zilactin sub-test free recall scores were significantly higher for the Strong warning condition ($M = 2.37$) versus the Weak warning condition ($M = 2.05$), $p < .05$.

Need for Cognition

A Need for Cognition (NFC) score was calculated for each participant by summing the agreement ratings on the 18 Need for Cognition scale items. The mean NFC score for the sample was 82.07. Participants were divided into high- and low-NFC groups by performing a median split on the scores. Participants scoring 81 or higher ($n=41$) were assigned to the High-NFC group while those scoring 80 or lower ($n=39$) were assigned to the Low-NFC group. NFC Score was added to the MANOVA and ANOVA models as an additional between subjects variable with two levels and rating and recall scores were re-analyzed.

Table 14

Warning Recall and Comprehension Scores by Rating Group and Ad Content

	Ad Content						
Rating Group	Label Warning Quality	No Ad	No Safety Claim	Indirect Safety Claim	Direct Safety Claim	Warning	Total Recall
Pre-Label	Weak	3.65 (1.81)	4.00 (1.86)	4.00 (1.34)	3.95 (1.76)	4.00 (1.49)	19.60 (4.97)
	Strong	3.90 (1.25)	4.25 (1.48)	4.05 (1.64)	3.75 (1.86)	3.90 (1.65)	19.85 (3.70)
Pre-Recall	Weak	4.30 (1.25)	3.90 (1.29)	3.60 (1.96)	3.40 (1.43)	4.50 (2.42)	19.70 (3.47)
	Strong	3.80 (1.32)	3.80 (1.93)	3.80 (1.23)	4.20 (1.62)	3.70 (1.57)	19.30 (4.24)
Post-Recall	Weak	2.80 (1.55)	3.70 (1.49)	3.60 (1.84)	3.60 (1.58)	3.40 (1.65)	17.10 (3.67)
	Strong	3.70 (1.49)	3.50 (1.96)	4.70 (2.00)	3.70 (1.89)	4.00 (1.83)	19.60 (3.84)
Total	Weak	3.60 (1.68)	3.90 (1.61)	3.80 (1.60)	3.72 (1.62)	3.97 (1.79)	19.00 (4.37)
	Strong	3.83 (1.30)	3.95 (1.71)	4.15 (1.64)	3.85 (1.78)	3.88 (1.64)	19.65 (3.78)
Total	Total	3.71 (1.49)	3.93 (1.65)	3.97 (1.62)	3.79 (1.69)	3.93 (1.71)	19.33 (4.08)

Note: Sub-test scores are out of 8; Total Recall scores are out of 40.

The MANOVA on rating scores revealed a significant Rating Group x Warning Quality x NFC Score interaction, $F(14, 124) = 1.91, p < .05$. Analyses of simple effects revealed that the source of the interaction was a slight difference in how the timing of the product ratings was influenced by need for cognition. The familiarity and knowledge rating differences between the Pre-Recall group and Pre-Label and Post-Recall groups were greater for High-NFC participants than Low-NFC participants, $ps < .05$. To probe the interaction further univariate ANOVAs were performed on the familiarity, knowledge, and safety ratings. No significant main effects or interactions involving NFC scores were found on any of the individual rating measures, $ps > .05$. NFC scores were also added as an additional between subjects variable to the MANOVA and ANOVA models used to analyze recall scores. As before, no significant main effects or interactions were found on any of the recall measures, $ps > .05$.

Hypothesis Tests

A number of specific hypotheses were made *a priori* about how the content of the product advertisements and the package label information would influence subsequent rating and recall measures. Hypothesis 1 predicted that participants would assign higher ratings of product knowledge, familiarity, and safety to advertised products than to those for which no ad was seen. To test this hypothesis planned comparisons were conducted comparing ratings on these three measures in the No Ad condition versus the average of the remaining (ad exposure) conditions. Results were similar to those of Experiment 2. Familiarity and knowledge ratings were significantly higher for advertised products than

for products for which no ads were presented, $ps < .05$. No significant difference was found on safety ratings, $p > .05$.

Hypothesis 6 predicted that products whose ads include a safety claim would be perceived as safer than products whose ads contained no safety claim or for which no ads were seen. To test this hypothesis a planned comparison was conducted comparing safety ratings in the Direct Safety Claim condition to ratings in the No Ad and No Safety Claim conditions. Results failed to support this hypothesis. Though safety ratings were slightly higher in the Direct Safety Claim condition than the other conditions the differences were not significant, $p > .05$.

Hypothesis 7 predicted that participants would recall less warning information from the labels of products they saw advertised than those they did not see advertised. To test this hypothesis a planned comparison was conducted comparing warning Recall and Comprehension Test scores in the No Ad condition versus the other conditions combined. Results failed to support the hypothesis, $p > .05$. Mean recall scores were very similar across all Ad Content conditions (see Table 15).

Hypothesis 8 predicted that Recall and Comprehension Test scores would be lowest for those products whose ads included a safety claim. To test this hypothesis planned comparisons were conducted comparing test scores in the Direct Safety Claim condition to each of the other experimental conditions. Again, results failed to support this hypothesis, $ps > .05$. Participants' recall of warning information for products whose ads contained a direct safety claim was no different than their recall of other products' warning information.

Table 15

Mean Recall and Comprehension Test Scores by Ad Content Condition

Ad Content Condition	Mean (SD)
No Ad	3.71 (1.49)
No Safety Claim	3.93 (1.65)
Indirect Safety Claim	3.97 (1.62)
Direct Safety Claim	3.79 (1.69)
Warning	3.93 (1.71)

Hypothesis 9 predicted that overall Recall and Comprehension Test scores would be higher for participants who saw products labels that contained Strong versus Weak warnings. To test this hypothesis an independent samples t-test was conducted comparing overall test scores in the Strong Warning versus Weak Warning conditions. Results again failed to support the hypothesis. While participants exposed to strong warnings ($M = 19.65$) recalled slightly more information than those exposed to weak warnings ($M = 19.00$), the difference was not statistically significant, $p > .05$.

Discussion

The main purpose of Experiment 3 was to examine how the presence of safety related information in advertisements affects product familiarity, knowledge, and safety ratings. A further purpose was to determine how advertising content and the quality of warnings presented on product labels affect recall and comprehension of the warning

information. In general, results did not support the experimental hypotheses. Few effects of Ad Content or Warning Quality were revealed.

Significant differences were found on product ratings only among participants (Pre-Label group) who made their ratings before seeing the product labels. For these participants, exposure to advertising led to higher ratings of product familiarity and knowledge compared to products for which no ads were shown. This finding shows that participants attended to the ads and that their presence had an immediate and short-term effect on familiarity and knowledge beliefs.

For participants who rated the products after being exposed to the ads and the product labels (Pre-Recall and Post-Recall groups) no differences were found among the Ad Content conditions on any of the rating measures. The lack of significant findings between the No Ad condition and any of the ad exposure conditions for these groups is interesting. It suggests that once participants were exposed to the labels, prior exposure to advertising was unimportant. Thus the effects of advertising and product exposure on familiarity, knowledge, and safety attitudes and beliefs are not additive. Product exposure effects (even brief exposure like in this experiment) appear to override effects due to advertising very quickly.

Across all rating groups, safety ratings were very similar among the Ad Content conditions. Although ratings were slightly higher in the direct safety claim condition compared to the other conditions, no significant differences were found. Hypothesis 6 predicted that products whose ads included a safety claim (direct or indirect) would be

perceived as less hazardous (or more safe) than products for which no ad was seen or whose ads contained no safety claim. This hypothesis was not supported.

Thus, like Experiment 2 exposure to advertising increased perceived familiarity and knowledge, but did not affect safety attitudes. These findings, combined with the significant familiarity and knowledge effects discussed above, suggest that participants might not have attended to the Ad Content manipulations. While the procedure forced exposure to the ads themselves, attention to the manipulated statements was incidental. It is likely that many participants attended to aspects of the ads other than the text in the ads. The Ad Content manipulation was subtle. Among experimental conditions, only a single line of ad copy was changed. Perhaps a stronger Ad Content manipulation, that included highlighting the safety related information by using a different color or type font, would have yielded more significant results.

The analysis of product ratings also revealed significant main effects of Rating Group on familiarity and knowledge. The pattern of means showed a significant increase in ratings on both measures between the Pre-Label and Pre-Recall conditions, and a significant decrease in ratings between the Pre-Recall and Post-Recall conditions. These findings support the conclusion that product exposure has a much greater influence on familiarity and knowledge beliefs than does advertising. This makes sense given that product labels provide more complete information about the product, thus reducing user uncertainty. In contrast, advertisements typically provide information about only a few product attributes. In addition, consumers are more likely to discount the information

provided in ads because they recognize the purpose of advertising is to influence their attitudes and beliefs in favor of the product.

The product rating results also showed that even the beliefs formed by product label exposure were not very strongly held. When participants were asked to demonstrate their familiarity and knowledge by completing the Recall and Comprehension Test, subsequent ratings of these beliefs (Post-Recall ratings) dropped significantly. Apparently, participants learned they did not know as much about the products as they thought they did.

The lack of significant Recall and Comprehension Test findings was unexpected. Several hypotheses predicted recall differences among Ad Content conditions and between Warning Strength conditions. Hypothesis 9 predicted that Strong warnings on the product labels would lead to higher recall and comprehension scores compared to Weak warnings. While Total Recall scores were slightly higher for the Strong warnings, the difference was not significant. The reason for this result is unclear. Product information was presented for 90 seconds for each product. Pilot testing showed this to be a reasonable time in that it forced participants to choose what information they wanted to read. Pilot test participants reported they were not able to read both the label and the distractor information in this time. Despite the instructions that directed participants to pay attention to the information that would be most useful if they were going to use the products, perhaps most spent the majority of their time on the distractor information which always appeared above the label in the product information binders.

Hypothesis 7 predicted that participants would recall less warning information from the labels of products they saw advertised than from those for which no ads were seen. It was expected that, because of familiarity effects, participants would be less likely to focus attention on the warning information on the labels and instead focus on other label information, such as ingredients and instructions, or on the page of supplemental product information. Results did not support this hypothesis. Despite rating advertised products as more familiar, perceived familiarity did not affect warning recall. This lack of significant findings did not support previous research (Otsubo, 1988) that showed more familiar participants recalled less warning component information and might be attributed to the irrelevancy of the products to the participant population.

Hypothesis 8 predicted that recall scores would be lower for products whose ads contained safety claims. It was expected that for products declared as safe in the ads there would be less motivation for participants to read and retain warning information on the product labels. Results again failed to support this hypothesis. Warnings for “safe” products were just as likely to be recalled as warnings for products in the other Ad Content conditions.

General Discussion

The purpose of this research was to determine whether exposure to advertising can help explain the familiarity effect. Previous research has clearly established that the more familiar an individual is with a product or situation, the less hazardous they consider the product or situation to be and the less likely they will be to notice, seek out, read, recall, or comply with warning communications. Research has also shown that perceived hazardousness (or inversely perceived safety) mediates the relationship between familiarity and measures of warning effectiveness. Further, it has been shown that the familiarity effect cannot be fully explained by past, direct experience. Other factors clearly play a role. It was hypothesized that exposure to product advertising could create a false or exaggerated sense of familiarity, thus influencing attitudes and beliefs about product safety and subsequently reducing warning effectiveness.

Three experiments were conducted to examine the relationships between advertising exposure and perceived familiarity and between perceived familiarity, perceived safety and warning effectiveness. Experiment 1 sought to determine if past, direct experience is sufficient to explain differences in attitudes and beliefs about well-known versus obscure brands of household, consumer products. Experiments 2 and 3 examined how the number of advertising exposures and the safety-related content of advertisements influence product attitudes and beliefs as well as the effectiveness of on product warnings.

Summary of Results

Experiment 1 showed that well-known brands are perceived differently than obscure brands of similar products. As expected, participants rated themselves more familiar with and more knowledgeable of well-known brands. In addition, well-known brands were considered easier to use, higher quality, a better value, and more likely to be purchased than obscure brands. With respect to safety, only the well-known brands of the two personal use products (cold remedies and cold sore ointments) were perceived as safer than their more obscure counterparts. The source of these perceptions was unclear. Results showed that the perceived differences between well-known and obscure products could only be partially explained by past use experience. While participants reported greater experience with the well-known brands, overall experience was low and did not fully predict perceived familiarity or safety. These findings supported the notion that other factors, like advertising, must be at least partially responsible for the familiarity effect.

In Experiments 2 and 3 an attempt was made to manipulate familiarity by using obscure products and then controlling exposure to advertising for the products. Results showed that while participants considered themselves more familiar with and more knowledgeable about products they had seen advertised, effects on safety were relatively small or nonexistent. It is possible that the types of products used in the experiments are at least partially responsible for the lack of significant results. If the products weren't relevant to participants, they might have ignored, or at least not expended much effort processing the information in the ads. That is a risk that must be accepted when using an

incidental exposure paradigm in research. The desire for external validity must be balanced against the possibility that experimental stimuli will not attract and maintain attention.

Experiment 2 examined how the number of ad exposures affects product attitudes and beliefs. Results revealed that both perceived familiarity and perceived knowledge increased linearly with the number of advertising exposures. However, the slopes of the lines were shallow indicating that multiple ad exposures (three or five) were necessary to affect attitude and belief change. These findings offered partial support for Krugman's (1972) hypothesis that three exposures are necessary and sufficient for advertising based attitude change to occur. Results also showed a trend of higher perceived safety with greater numbers of ad exposures, but the differences were not significant.

In Experiment 3 the number of ad exposures was held constant at three while the presence and content of safety related information in the ads was varied. As predicted in Hypothesis 1 and as found in Experiment 2, product familiarity and knowledge ratings were higher when ads were presented compared to the No Ad (control) condition. The presence of ads did not significantly affect safety ratings. No significant main effects of ad content were revealed. The presence of safety claims or warnings in the ads had no impact on perceived familiarity, knowledge, or safety. The only variable that influenced product ratings was the timing of the ratings within the experimental procedure. Familiarity and knowledge ratings were significantly higher when ratings were made after exposure to the product labels but before the warning comprehension and recall test,

compared to when they were made either before label exposure or after the warning comprehension and recall test. The implications of this finding are discussed below.

That the warning and direct safety claim conditions did not influence perceived safety was surprising and suggests one of three possibilities: (1) the ads themselves were ignored, (2) the manipulated portions of the ads were not noticed or read, or (3) the ad information was not processed deeply enough to influence safety attitudes. Given the cover story and the task instructions, participants might not have attended to the ads or paid attention to a very limited degree. Participants were told their task was to evaluate the magazine and were then given only 30 s to look over each two page spread in the magazine. Given these constraints, they might have focused their attention on the non-ad pages or to aspects of the ads that were not relevant to the experiment. The latter seems more likely, given that the presence of ads influenced familiarity and knowledge beliefs in both Experiments 2 and 3.

Thus, it is possible that participants attended to the ads but did not notice, read, or comprehend the ad content manipulation. Again, the task instructions could be partially responsible for this. Participants were instructed to evaluate the likelihood they would stop and read each page in the magazine based on its “style.” Style was defined for them as “the pictures, the graphics, the advertisements, the page layout, the type of font...” Given these instructions participants might not have read the ad copy, or any text for that matter, but rather taken a more gestalt view of the magazine pages. When a similar paradigm was used in the Barlow and Wogalter (1993) and Wogalter et al. (1999) studies,

only the most salient ad conditions effectively communicated risk information about the products.

Thus the subtlety of the ad content manipulation in the present research could have caused participants to not notice or read the manipulated text. Participants might have read some of the ad copy, but missed the manipulated text because it was a single line near the bottom of the ad. Although the font size of the manipulated text was slightly larger than most of the other copy (14 pt. versus 10 or 11 pt.) no attempt was made to make it more salient by using color, borders, or text effects like italics or shading. This was done purposely to increase the validity of the experiment and not attract unrealistic attention to the ads in general and to the manipulated text in particular. Unfortunately, the experimental protocol did not include any means for tracking where in the magazines participants focused their attention, nor were participants queried about what they looked at in the magazine.

A final possible explanation for the lack of significant ad content effects on perceived safety is that the ad information was examined, but not processed. This is likely to occur if the products used in the experiment were not relevant to the participant population. According to the Elaboration Likelihood Model, if the products were not personally relevant the ads would be processed via the peripheral route and would depend on affect and emotion to influence attitudes (Petty & Cacciopo, 1986). Simple statements about product safety or warnings about potential product hazards are unlikely to generate much emotion. Because they are not processed deeply, ads following the peripheral route must allow recipients to make a quick association between key product attributes and the

advertised brand. Again, a single text statement near the bottom of the ads is unlikely to have facilitated such a quick association. Perhaps if photographs or some other more salient manipulation in the ads had suggested something about the safety of the products then safety attitudes would have been more likely to be influenced.

The results of Experiment 3 also failed to show any significant effects of ad content or warning quality on recall and comprehension of the warning information found on the product labels. It was hypothesized that, because of the familiarity effect, less warning information would be recalled for advertised products than for products for which no ads were presented. Previous research (Otsubo, 1988), showed a negative relationship between experience based familiarity and warning recall. In the present research, familiarity due to advertising exposure had no effect on warning recall. In fact, recall and comprehension scores were amazingly consistent across all ad content conditions. The lack of a significant finding is most likely due to the lack of effects of ad content on perceived safety. Wogalter et al. (1991) found that perceived hazard mediates the relationship between familiarity and willingness to read warnings. Thus, if participants did not perceive a difference between the hazardousness, or inversely safety, of the advertised products versus the unadvertised products, they would be no more or less likely to read and recall the product warning information.

That warning quality did not significantly influence warning comprehension and recall scores was quite surprising and did not concur with previous studies (e.g., Young and Wogalter, 1988) which found that increasing the salience of warnings led to greater comprehension and recall. It is possible that, because they were directed to imagine

themselves about to use the products, participants focused on label information other than the warnings. Strawbridge (1986) found that participants were likely to read only the first part of on-product warnings before moving on to the product use information on the label. It is also possible that participants might have focused on the distractor information about the product that was presented concurrently with the product labels. Yet another possibility is that participants read more of the warning information in the high warning quality condition, but were unable to later recall it. As discussed above, the lack of product relevance might have also influenced the warning recall results. Chebat et al. (2003) suggest that less-motivated consumers are unlikely to process ad information deeply enough for it to be stored because they are less likely to relate the information to personal knowledge and experience.

Implications

The timing of the product ratings was critical. Participant ratings of familiarity and knowledge increased significantly following exposure to the product labels. Ratings then decreased after participants were asked to recall warning information from the labels. Because previous research on the familiarity effect has shown a correlation between perceived familiarity and likelihood of reading warnings, it would be advantageous from a safety point of view to decrease consumers' perceived familiarity with hazardous products. One way to do this might be to put some little known facts or trivia about the product on the label to try to reduce perceived familiarity and knowledge. If consumers' perceptions of their familiarity with and knowledge of a product could be reduced by showing them information about the product they do not know, they might be more likely

to read and recall the product warning information. This strategy might also help to counteract habituation to the product due to advertising overexposure or frequent use.

One goal of the present research was to expand the familiarity literature by attempting to manipulate familiarity through exposure to product advertising. This goal was achieved. Participants perceived themselves as more familiar with and more knowledgeable about advertised products than products for which no ads were presented. This research has implications for the study of the familiarity effect. Although seemingly obvious, that the manipulated ad conditions produced higher familiarity ratings is an important finding. In all previous research familiarity had been measured post hoc, using subjective ratings or self-reports of product use and product ownership. In Experiments 2 and 3, an experimental rather than a quazi-experimental method was used to examine familiarity and should be useful in future research.

The results of Experiment 1 suggest that consumers form beliefs and attitudes about product attributes, including product safety, that are based, at least in part, on factors other than direct use experience. Although Experiments 2 and 3 were unable to show that exposure to advertising influences product safety perceptions, the implication for product manufacturers and advertising firms is clear. They should actively manage how the safety of their products is perceived, not only by current users who have access to all relevant information, but also by potential users whose only previous experience with a product might be through advertising, a Web site, in-store display, or other indirect methods of exposure. If these exposures lead consumers to believe that a product is safe, it is unlikely that safety attitudes will be changed when people go from being potential users

to actual users. One can foresee product liability lawsuits brought forth based on what an injured consumer learned about a product through advertising. For example, a plaintiff could argue: “How was I supposed to know I shouldn’t put Scrubbing Bubbles in my child’s bath? The ad for it I saw on TV showed a bunch of cute, little, animated bubble characters whizzing around a bath tub. I thought it was a brand of bubble bath.” It is clear that product attitudes and beliefs acquired through exposure to advertising have the potential to influence later safety behavior.

Directions for Future Research

The present research was clearly exploratory in nature. Almost no previous research had examined the effects of advertising on product safety attitudes and warning effectiveness. The few studies that did exist were focused on ads for products like alcohol and cigarettes where warnings are mandated. Future research in this area should draw on what was learned here - both from the results and from an experimental design standpoint.

Several recommendations can be made for the design and execution of future studies. First, more attention should be paid to the content of the advertisements. Appropriate advertising content using strong imagery can motivate consumers to spend more time viewing and processing advertisements (Krugman & Fox, 1994). In the present research there was too much dependence on the mere exposure effect. It was presumed that the mere presence of advertisements would be sufficient to induce the familiarity effect and influence safety attitudes. The results of Experiment 2 and 3 showed that mere exposure is not enough. While the ads were capable of altering

familiarity and knowledge beliefs, they did not influence safety attitudes. Greater consideration should have been given to the contents of the ads. The ads used in Experiments 2 and 3 were either existing ads or created based on existing themes. No attempt was made to “prime” safety in the ads. Yi (1997) noted that in order for an inference to be made about a product attribute, it must be accessible. One way to make an attribute accessible is by priming the attribute with visual cues. One area of future research would be to explore ways to prime safety through the visual design of advertisements. Methods for doing this might include showing actors in the ads using personal protective equipment while using the products or clearly showing the on-label warnings in any pictures of the product. Another possibility is to make safety the prime focus of the ad as has been done effectively in ad campaigns for Volvo automobiles and air bags.

In Experiment 3, the only modification to the ads was the inclusion of a single line of safety related text. This subtle manipulation was incapable of influencing product safety attitudes. Future studies might investigate other ad content manipulations, particularly those that would accentuate the affective component of the advertisements. A text statement about the safety of the product might be effective if the product is highly relevant to participants and ads are processed via the central route of the ELM. However, if relevance and involvement are likely to be low, changes that will affect peripheral processing, such as the using of safety related pictures or graphics or using an attractive spokesperson who advocates safety, would be more effective.

Future studies might also investigate advertising effects on safety attitudes under conditions of high and low involvement. One way to manipulate involvement is through product selection. Selecting products that are less relevant to a certain population of participants is fairly straightforward. However, selecting high involvement products is likely to be more challenging, because of the difficulty in finding products that are relevant to a particular participant population yet unfamiliar, so that pre-existing attitudes and beliefs are not an issue. One potential method for manipulating involvement in future studies is through the task instructions. Conzola and Wogalter (1998) used this strategy in a study involving power tool warnings. High involvement participants were told they would be using one of the tools later in the experiment, while no such statement was made to low involvement participants.

Two other factors that warrant additional investigation in this area are temporal effects and effects due to different media channels. The present research considered only print ads found in magazines. While important, magazine advertising accounts for only a small percentage of overall advertising. Familiarity effects due to advertising through other channels such as radio, mail, the Web, and especially television also need to be studied. Research is also needed to investigate how safety attitudes and beliefs formed by advertising change over time. In the present research, all ad exposures were presented within 15 minutes and attitudes and beliefs were measured shortly thereafter. In the real world, advertising exposure is much less regular. Consumers might see a product advertised several times in a single day or several days or weeks might pass between ad exposures. Also, with regard to safety any effects due to exposure to advertising are most

important not immediately following the exposure, but at the point of product use which could be days, weeks, or months later. Thus, it is important to understand how advertising effects on safety persist over time.

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Appendices

Appendix A

Informed Consent Form for Experiment 1

**North Carolina State University
INFORMED CONSENT FORM**

Title: **Evaluating Peoples Beliefs and Perceptions about Prescription Drug Advertisements and Consumer Products**

Principal Investigator: **Eric F. Shaver**

Faculty Sponsor: **Michael S. Wogalter**

You are invited to participate in a research study. The purpose of this study is to ascertain people's perceptions and beliefs about prescription drug advertisements and five consumer products. In this study you will be asked to complete several questionnaires dealing with many varying topics.

INFORMATION

You will complete a survey of questions related to the topics mentioned above.

RISKS

There are no known risks or discomforts associated with this study.

CONFIDENTIALITY

The information in the study records will be kept strictly confidential. Data will be stored securely and will be made available only to persons conducting the study unless you specifically give permission in writing to do otherwise. No reference will be made in oral or written reports that could link you to the study.

COMPENSATION

For participating in this study you will receive **1 credit**. If you withdraw from the study prior to its completion, you will receive 1 credit.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researcher, **Eric Shaver, at POE 740, or 515-8260**. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Matthew Zingraff, Chair of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/513-1834) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148)

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

CONSENT

I have read and understand the above information. If you would like a copy of this form, please ask the investigator. I agree to participate in this study.

Participant's signature _____ Date _____

Print Name _____

Investigator's signature _____ Date _____

Appendix C

Brand Rating Form for Experiment 1

Perceptions of Consumer Products

Instructions: Using the rating scales shown below, please answer the following questions about:

Preen – weed killer

1. How familiar are you with this product? Circle the appropriate number.

1	2	3	4	5	6	7
-----		-----		-----		
Not at all		Somewhat		Very		Extremely
Familiar		Familiar		Familiar		Familiar

2. How knowledgeable are you about this product? Circle the appropriate number.

1	2	3	4	5	6	7
-----		-----		-----		
Not at all		Somewhat		Very		Extremely
Knowledgeable		Knowledgeable		Knowledgeable		Knowledgeable

3. Using the seven-point scale below, please rate your agreement with the following statements. Record your responses on the line next to each statement.

1	2	3	4	5	6	7
-----		-----		-----		
I Disagree			I Neither Agree			I Agree
Completely			Nor Disagree			Completely

- a. _____ This is a high quality product.
- b. _____ This product is easy to use.
- c. _____ This product is a good value.
- d. _____ This product is safe to use.
- e. _____ I am likely to purchase this product in the future.
4. How often do you use this product? Circle the number next to the statement that most closely matches your answer.
- (1) I have never used this product.
- (2) I have used this product a few times in my life.
- (3) I use this product occasionally (a few times per year).
- (4) I use this product regularly (at least once per month).
- (5) I use this product almost every day.

Appendix D

Participant exposure to experimental ads for Experiment 2

<i>P#</i>	<i>No Exposure</i>	<i>Single Exposure</i>	<i>Three Exposures / Single Ad</i>	<i>Three Exposures / Multiple Ads</i>	<i>Five Exposures</i>
1	Zap	Zout - A	Preen - A	Zilactin	Remdex
2	Zout	Zilactin - B	Zap - A	Remdex	Preen
3	Zilactin	Remdex - C	Zout - A	Preen	Zap
4	Remdex	Preen - A	Zilactin - A	Zap	Zout
5	Preen	Zap - B	Remdex - A	Zout	Zilactin
6	Zap	Zout - C	Preen - B	Zilactin	Remdex
7	Zout	Zilactin - A	Zap - B	Remdex	Preen
8	Zilactin	Remdex - B	Zout - B	Preen	Zap
9	Remdex	Preen - C	Zilactin - B	Zap	Zout
10	Preen	Zap - A	Remdex - B	Zout	Zilactin
11	Zap	Zout - B	Preen - C	Zilactin	Remdex
12	Zout	Zilactin - C	Zap - C	Remdex	Preen
13	Zilactin	Remdex - A	Zout - C	Preen	Zap
14	Remdex	Preen - B	Zilactin - C	Zap	Zout
15	Preen	Zap - C	Remdex - C	Zout	Zilactin
16	Zap	Zout - A	Preen - A	Zilactin	Remdex
17	Zout	Zilactin - B	Zap - A	Remdex	Preen
18	Zilactin	Remdex - C	Zout - A	Preen	Zap
19	Remdex	Preen - A	Zilactin - A	Zap	Zout
20	Preen	Zap - B	Remdex - A	Zout	Zilactin
21	Zap	Zout - C	Preen - B	Zilactin	Remdex
22	Zout	Zilactin - A	Zap - B	Remdex	Preen
23	Zilactin	Remdex - B	Zout - B	Preen	Zap
24	Remdex	Preen - C	Zilactin - B	Zap	Zout
25	Preen	Zap - A	Remdex - B	Zout	Zilactin
26	Zap	Zout - A	Preen - C	Zilactin	Remdex
27	Zout	Zilactin - B	Zap - C	Remdex	Preen
28	Zilactin	Remdex - C	Zout - C	Preen	Zap
29	Remdex	Preen - A	Zilactin - C	Zap	Zout
30	Preen	Zap - B	Remdex - C	Zout	Zilactin

Note: A, B, and C refer to the different ads for each product.

Appendix E

Task Instruction Script for Experiments 2 and 3

The purpose of experiment you'll be participating in today is to investigate what makes magazines successful. Each year scores of new magazines are published. Some take right off and quickly build a loyal following of readers and subscribers. Others generate little or no interest among their target audience and cease publication after only a few issues. What we're trying to figure out is what factors determine a magazine's ultimate success or failure. Some experts believe it's all about content. They say that if you fill the magazine with exciting stories about interesting people or topics, the magazine will be read. Other experts, however, contend that a magazine's style, or how the content is presented, is the more important factor.

Today, we're going to ask you to evaluate the style of a successful regional magazine called *Southern Living*. By style we mean things like the pictures, the graphics, the advertisements, the page layout, the type of font – pretty much anything except the words in the articles. We've photocopied several pages from some back issues of the magazine and arranged them in a binder with the pages number coded. I'll give you the binder and a recording sheet and ask you to rate each page in the binder on how well it captures your attention and makes you want to read what's on the page. We don't necessarily want you to try to read the whole page – just look it over to get a sense of its style and appearance. You'll have 30 seconds to look over each two-page spread in the binder. After 30 seconds I'll instruct you to make your ratings and turn to the next two pages. Please rate each page individually, and please don't write anything down until instructed to do so. We'll start with a practice page so you get the idea of what we want you to do.

Do you have any questions before we begin?

Appendix F

Informed Consent Form for Experiments 2 and 3

**North Carolina State University
INFORMED CONSENT FORM**

Title of Study: Understanding Successful Magazines

Principal Investigator: Vincent Conzola, Graduate Student in Psychology

Faculty Sponsor (if applicable): Dr. Michael S. Wogalter, Professor of Psychology

You are invited to participate in a research study. The purpose of this study is to investigate the factors that contribute to the success of certain magazines.

INFORMATION

1. The study procedure will require you to examine a magazine, make ratings about it, and then answer written questions about the magazine's content. You will also be asked to answer questions about yourself and your magazine reading and television viewing habits.
2. The study will consist of one session that will take about an hour.

RISKS

There are no risks involved with this study.

BENEFITS

This study will help psychologists and publishers of magazines to better understand what makes a magazine attractive and interesting to readers.

CONFIDENTIALITY

The information in the study records will be kept strictly confidential. Data will be stored securely and will be made available only to persons conducting the study unless you specifically give permission in writing to do otherwise. No reference will be made in oral or written reports which could link you to the study.

COMPENSATION

For participating in this study you will receive _____ Psychology 200 course credits. Other ways to earn the same amount of credit are to complete other studies listed in Experimentrix. If you withdraw from the study prior to its completion, you will receive one course credit for each half hour completed.

EMERGENCY MEDICAL TREATMENT (if applicable)

Not applicable.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researcher, Vince Conzola, through the Cognitive Ergonomics Lab, 740 Poe Hall, NCSU Campus or at (919) 515-8260. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Matthew Zingraff, Chair of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/513-1834) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148)

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

CONSENT

I have read and understand the above information. I have received a copy of this form. I agree to participate in this study.

Subject's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix G

Demographics questionnaire for Experiments 2 and 3

Demographics

1. What is your gender (check one)? ___ Male ___ Female
2. What is your age? _____ years old
3. What is your **primary** occupation? _____
- If you are a full time student, what is your major? _____
4. What is your living situation?
 _____ Live with my family.
 _____ Live with roommates in a dorm / apartment.
 _____ Live alone in a dorm / apartment.
5. On average, how many hours per week do you spend watching television? _____ hours
 What types of shows do you typically watch (for example, sit coms, dramas, sports, movies, educational programs, etc.)?
6. Do you ever watch “home and garden” shows on television? ___ Yes ___ No
 If “yes” what shows and how often?
7. On average, how many hours per week do you spend reading for pleasure (not work or school-related)? _____ hours
 What types of materials do you typically read (for example, newspapers, magazines, novels, non-fiction books, etc.)?
6. Do you subscribe to or regularly read any magazines? ___ Yes ___ No
 If “yes” what magazines? For each magazine indicate if you (1) read it cover-to-cover, (2) skim through the whole magazine and read only certain articles, or (3) go directly to the articles that interest you and skip the rest.

Appendix I

Sample Product Rating form for Experiments 2 and 3

Instructions: Using the seven-point rating scales shown below, please answer the following questions about:

Zap

1a. How familiar are you with this product? Circle the appropriate number.

1	2	3	4	5	6	7
----- -----		----- -----		----- -----		
Not at all		Somewhat		Very		Extremely
Familiar		Familiar		Familiar		Familiar

b. How knowledgeable are you about this product? Circle the appropriate number.

1	2	3	4	5	6	7
----- -----		----- -----		----- -----		
Not at all		Somewhat		Very		Extremely
Knowledgeable		Knowledgeable		Knowledgeable		Knowledgeable

2. Using the seven-point scale below, please rate your agreement with the following statements. Record your responses on the line next to each statement.

1	2	3	4	5	6	7
----- -----		----- -----		----- -----		
I Disagree			I Neither Agree			I Agree
Completely			Nor Disagree			Completely

- a. _____ This is a high quality product.
- b. _____ This product is easy to use.
- c. _____ This product is a good value.
- d. _____ This product is safe to use.
- e. _____ I am likely to purchase this product in the future.

Appendix J

Familiarity rating form for Experiments 2 and 3

Familiarity Rating Form

Before today, how familiar were you with the types of products presented in this study? For each product please rate your prior familiarity using the scale below.

1. I had never seen or heard of the product.
2. I had seen or heard of the product, but never used it.
3. I had used the product a few times in the past.
4. I use the product occasionally (a few times per year).
5. I use the product regularly (at least once per month).
6. I use the product almost every day.

- _____ **household cleaners**
- _____ **fertilizers / weed killers**
- _____ **laundry stain removers**
- _____ **cold remedies**
- _____ **topical medications**

Before today, how familiar were you with the specific brands presented in this study? For each brand please rate your prior familiarity using the scale below.

1. I had never seen or heard of the brand.
2. I had seen or heard of the brand, but never used it.
3. I had used the brand a few times in the past.
4. I use the brand occasionally (a few times per year).
5. I use the brand regularly (at least once per month).
6. I use the brand almost every day.

- _____ **Zap**
- _____ **Preen**
- _____ **Zout**
- _____ **Remdex**
- _____ **Zilactin**

Appendix K

Sample Remdex ads for each ad exposure condition

1. No Safety Claim
2. Indirect Safety Claim
3. Direct Safety Claim
4. Warning



Discover What Others Have Known for 2000 Years

Remdex™ is made with Andropan™, a unique extract of the plant *Andrographis paniculata* that has been clinically proven to promote upper respiratory health and wellness and make you feel



better faster. Over 2000 years of use of this natural product in Chinese and Indian medical systems has demonstrated its effectiveness.

Stops colds before they really start

www.naturalsource.com 1.800.314.4372



Discover What Others Have Known for 2000 Years

Remdex™ is made with Andropan™, a unique extract of the plant *Andrographis paniculata* that has been clinically proven to promote upper respiratory health and wellness and make you feel



better faster. Over 2000 years of use of this natural product in Chinese and Indian medical systems has demonstrated its effectiveness.

All natural relief from cold symptoms

www.naturalsource.com 1.800.314.4372



Discover What Others Have Known for 2000 Years

Remdex™ is made with Andropan™, a unique extract of the plant *Andrographis paniculata* that has been clinically proven to promote upper respiratory health and wellness and make you feel



better faster. Over 2000 years of use of this natural product in Chinese and Indian medical systems has demonstrated its effectiveness.

Safe, effective, non-drowsy cold relief

www.naturalsource.com 1.800.314.4372



Discover What Others Have Known for 2000 Years

Remdex™ is made with Andropan™, a unique extract of the plant *Andrographis paniculata* that has been clinically proven to promote upper respiratory health and wellness and make you feel



better faster. Over 2000 years of use of this natural product in Chinese and Indian medical systems has demonstrated its effectiveness.

CAUTION: Not for use by pregnant women

www.naturalsource.com 1.800.314.4372

Appendix L

Sample Preen labels showing Strong and Weak Warnings

1. Strong
2. Weak

**PREVENTS WEEDS
AND FERTILIZES**

Greenview

Preen

'nGreen


GARDENS & BEDS
 around flowers, bulbs, roses,
 shrubs, trees & vegetables.

Effective Weed Control
Prevents weeds all season long - eliminates the need for hand weeding.

High Quality Fertilizer
Provides rich color and vigorous growth.

Easy to Apply
Just sprinkle on. Apply any time throughout the growing season.

WEEDS & FEEDS A MINIMUM OF 500 SQ. FT.



Handy Built-in Applicator!

Keep out of reach of children.

CAUTION

See this panel for additional precautionary statements.

ACTIVE INGREDIENT 0.14%
 OTHER INGREDIENTS 99.86%
 TOTAL 100.00%

Net for Use on Lawns
 Net Wt. 6 lbs., 4 oz. (2.94 kg)

For Use on Vegetables

For removal of existing weeds, then lightly rake in product to a smooth soil surface. Uniformly mix Preen in Greenview to the top 1-2 inches of soil immediately after application, using care not to damage any emerging crops. Rate of application depends on type of soil. Apply at 1 lb. per 200 sq. ft. for heavy clay-type soils, at 1 lb. per 400 sq. ft. for medium loam soils, and at 1 lb. per 600 sq. ft. for light soils.

BEFORE SOWING: Broccoli, Brussels Sprouts, Cabbage, Carrots, Cauliflower, Celery, Collard, Black-Eye Peas, Field Peas, Green Peas, Kale, Lettuce, Lima Beans, Mustard Greens, Onions, Radish, Southern Peas (Cow Peas), Snap Beans, "Tump Beans."

AFTER SOWING or Transplanting: Cantaloupes, Cucumbers, Watermelons. Apply when plants have developed 5 or more leaves.

AFTER Planting: Potatoes (except in Idaho). May be applied after planting, before or after emergence. Use care not to damage seed plants in mulching or after treated soil to contact emerged plant foliage.

BEFORE Transplanting: Celery, Cresset, Broccoli Sprouts, Collards, Cauliflowers, Eggplant, Peppers, Onions, Tomatoes, Potatoes (except in Idaho).

Perennial Vegetables: Asparagus. Apply prior to sprouting emergence of established plants.



LawnOneSeed Corporation
 guarantees you will be satisfied with the performance of this product when used as directed, or your money back. If not satisfied, describe the nature of your problem, and send with proof of purchase to LawnOneSeed Corporation, 1600 East Commonwealth Dr., Leasport, PA 17042.

The manufacturer makes no warranties, expressed or implied, concerning the product or its use, which extend beyond the description on the label hereof. All statements made concerning this product apply only when used as directed. Information regarding the contents and levels of metals in this product is available on the Internet at <http://www.regulatory.com>

EPA Reg. No. 951-283 EPA Cal. Reg. PA-0-061-E-01
Supersedees used in the label of October, 1998.

Greenview

LEASPORT SEASOARD CORPORATION
 1600 EAST COMMONWEALTH STREET
 LEASPORT, PA 17042
 800-620-0480 www.greenview.com

LAG No. 1042-09-6
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50101
 PROOF OF PURCHASE



Precautionary Statements

Hazards to Humans and Domestic Animals

⚠ CAUTION

For mild irritation:

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

For mild irritation:

- Have person to flush air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if you are able.
- Call a poison control center or doctor for treatment advice.

Avoid Contact with Skin or Clothing:

- If remove clothing immediately if pesticide gets inside.
- If trace skin immediately with plenty of water for 15-20 minutes.
- Put on clean clothing.
- Call a poison control center or doctor for treatment advice.
- Prolonged or frequent repeated skin contact may cause allergic reaction in some individuals. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Causes or exacerbates Eye Irritation:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing eyes.
- Call a poison control center or doctor for treatment advice.

*Have this product container or label with you when calling a poison control center or doctor, or going for treatment.

Environmental Hazards

This pesticide is extremely toxic to fish, water marine, and estuarine fish and aquatic invertebrates including shrimp and oyster. Do not apply in a manner which will directly or indirectly pollute creeks, lakes, streams, ponds, marshes or estuaries or tidal flats. Do not contaminate water when disposing of equipment washwaters. Do not apply directly to water.

Storage and Disposal

Do not contaminate water, food, or feed by storage and disposal. **Storage:** Keep container closed and away from food, feedstuffs and domestic water supplies. Do not store near children or unauthorized persons.

Pesticide Disposal: Securely wrap unused product in several layers of newspaper and discard in trash.

Container Disposal: Do not re-fill the container with anything but Preen 'n Green. Do not discard container in trash.

**PREVENTS WEEDS
AND FERTILIZES**

Preen nGreen

Greenview


Effective Weed Control
Prevents weeds all season long - eliminates the need for hand weeding.

High Quality Fertilizer
Provides rich color and vigorous growth.

Easy to Apply
Just sprinkle on. Apply any time throughout the growing season.

WEEDS & FEEDS A MINIMUM OF 500 SQ. FT.

GARDENS & BEDS
around flowers, bulbs, roses, shrubs, trees & vegetables.



Handy Built-in Applicator!

ACTIVE INGREDIENTS:
 TRIFLURALIN 1.25%
 OTHER INGREDIENTS 36.75%
 TOTAL 38.00%

Not for Use on Lawns
 Net Wt. 8 lbs., 4 oz. (3.64 kg)

Keep out of reach of children.
CAUTION
 See side panel for additional precautionary statements.

For Use on Vegetables

The removal of existing weeds, beneficial grasses and weeds on soil surfaces. Uniformly mix Preen nGreen into the top 1-2 inches of soil (incorporate after application, using any tool to burrow any amendments). Rate of application depends on type of soil. Apply at 1 lb. per 1000 sq. ft. for heavy clay-type soils, at 1 lb. per 400 sq. ft. for medium-textured soils, and at 1 lb. per 240 sq. ft. for light soils.

BEFORE Sowing: Beans, Bushes, Sprouts, Cabbage, Carrots, Cauliflower, Celery, Calfart, Chard, Leaf Lettuce, Field Peas, Green Peas, Kale, Lentils, Lima Beans, Mashed Potatoes, Onions, Spinach, Southern Peas (Green Peas), Snap Beans, Tomato Beans.

AFTER Sowing or Transplanting: Cereals, Cucumbers, Melons, Peas, Potatoes, Pumpkins, Squash, Tomatoes, Watermelons. Apply after plants have developed 3 or more leaves.

AFTER Planting: Melons (except in fields) may be applied after sowing, before or after transplanting. Use only for the average soil grade in sowing and transplanting to avoid smothering plant roots.

BEFORE Transplanting: Celery, Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Eggplant, Peas, Potatoes, Tomatoes, Watermelon, Vegetables, Squash. Apply after in your emergency established plants.

Labeling/Disclaimer: Precautionary statements you will be notified with the performance of this product when you are notified, describe the nature of your problem, and send with proof of purchase to: Greenview Corporation, 1000 East Cumberland St., Lebanon, PA 17040.

The manufacturer makes no warranty, expressed or implied, concerning the product or its use, which extends beyond the description on the face hereof. All customers make themselves responsible for proper application when used as directed.

Information regarding the contents and analysis of this product is available in the Manual of Registration Regulatory Information.

EPA Reg. No. 241-024 EPA Reg. No. 241-024 S, D
 Registered in the State of Pennsylvania

Greenview
 LEBANON SEASOARD CORPORATION
 1000 EAST CUMBERLAND STREET
 LEBANON, PA 17040
 800-222-9428 www.greenview.com



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 PREEN nGREEN

Precautionary Statements
Poisons to Fishes and Corals/Insects
CAUTION: Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash skin if contact with clothing immediately if possible gets inside. Then wash thoroughly with soap and water. Rinse and change clothes if necessary. Wash hands before eating, drinking, smoking, using tobacco or using the toilet.
PESTICIDE: If in contact with eyes and skin, wash immediately and gently with water for 15-20 minutes. Remove contact lenses, if present, after the 5 minutes, then continue washing eyes. Call a poison control center or doctor for treatment advice. If SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person. IF ON SKIN OR CLOTHING: Take off contaminated clothing. Wash skin thoroughly with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. IF IRRITATED: Wash person to flush skin. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for treatment advice. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
ENVIRONMENTAL HAZARDS: This product is extremely toxic to freshwater turtles, and sensitive fish and aquatic invertebrates including shrimp and crayfish. Do not apply in a stream which will directly expose snails, leeches, slugs, ponds, streams or estuaries in rural areas. Do not contaminate water when disposing of equipment washwaters. Do not apply directly to water.
STORAGE AND DISPOSAL: Do not contaminate water, food, or feed by storage and disposal. **STORAGE:** Keep container closed and away from heat, sunlight and domestic water supply. Do not store near children, animals, petroleum products, pesticides. **POSTUSE DISPOSAL:** Empty cans should be placed in special boxes of newspaper and placed in trash. **CONTAINER DISPOSAL:** Do not fill the container with anything but Preen nGreen. Check container for leaks.

Appendix M

The short form of the Need for Cognition scale

Self-Perception Inventory

DIRECTIONS: Read each statement below and indicate your agreement with it by writing your response on the line to the right. There are no "right" or "wrong" answers. Please respond according to the following 7-point scale.

- 1 = strongly disagree
- 2 = moderately disagree
- 3 = slightly disagree
- 4 = neither agree or disagree
- 5 = slightly agree
- 6 = moderately agree
- 7 = strongly agree

- _____ 1. I would prefer complex to simple problems.
- _____ 2. I like to have the responsibility of handling a situation that requires a lot of thinking.
- _____ 3. Thinking is not my idea of fun.
- _____ 4. I would rather do something that requires little thought than something that is sure to challenge my thinking abilities.
- _____ 5. I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
- _____ 6. I find satisfaction in deliberating hard and for long hours.
- _____ 7. I only think as hard as I have to.
- _____ 8. I prefer to think about small, daily projects to long-term ones.
- _____ 9. I like tasks that require little thought once I've learned them.
- _____ 10. The idea of relying on thought to make my way to the top appeals to me.
- _____ 11. I really enjoy a task that involves coming up with new solutions to problems.
- _____ 12. Learning new ways to think doesn't excite me very much.
- _____ 13. I prefer my life to be filled with puzzles that I must solve.
- _____ 14. The notion of thinking abstractly is appealing to me.
- _____ 15. I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought.
- _____ 16. I feel relief rather than satisfaction when I complete a task that required a lot of mental effort.
- _____ 17. It's enough for me that something gets the job done; I don't care how or why it works.
- _____ 18. I usually end up deliberating about issues even when they do not affect me

Appendix N

Warning Recall and Comprehension Test questions for each product

1. Zilactin
2. Preen
3. Remdex
4. Zap
5. Zout

Instructions: Please answer the following questions as best you can. If you are unsure about an answer, please give your best guess. Be sure to answer every question. Please do not leave any questions blank.



Zilactin

1. Fill in the blanks. If you accidentally swallow Zilactin you should _____ or _____.
2. Which of the following is **not** true about Zilactin? Circle the correct answer.
 - a. It is safe for use by children of all ages.
 - b. Its active ingredient is lidocaine.
 - c. It is flammable.
 - d. It is for external use only.
3. True or False. Zilactin can also be used to treat animal bites and burns.
_____ True
_____ False
4. True or False. Zilactin should not be used by people who are allergic to benzocaine.
_____ True
_____ False
5. You should stop using Zilactin and ask a doctor if any of three things occur. What are they?
 - a. _____
 - b. _____
 - c. _____

Instructions: Please answer the following questions as best you can. If you are unsure about an answer, please give your best guess. Be sure to answer every question. Please do not leave any questions blank.



Preen

1. Which of the following is **not** true about Preen? Circle the correct answer.
 - a. It is toxic to some types of marine animals.
 - b. Prolonged skin contact may cause allergic reactions.
 - c. It should not be mixed with other fertilizers.
 - d. Unused product should be wrapped in newspaper before discarding.
2. What three steps should be taken if you get Preen on your skin or clothing?
 - a. _____
 - b. _____
 - c. _____
3. Fill in the blank in the sentence below.

If you get Preen in your eyes, you should rinse them with water for _____ minutes.
4. What is the first thing you should do if someone has inhaled Preen?

5. True or False. If Preen is swallowed you should immediately induce vomiting.

_____ True

_____ False
6. Fill in the blank. Preen should not be stored near products containing _____.

Instructions: Please answer the following questions as best you can. If you are unsure about an answer, please give your best guess. Be sure to answer every question. Please do not leave any questions blank.



Remdex

1. Fill in the blanks. Remdex should not be used by people who are _____, _____, or _____.
2. Circle the correct answer. Remdex can cause reactions in people who are allergic to...
 - a. yeast
 - b. andrographis
 - c. gluten
 - d. lactose
3. Fill in the blank in the sentence below.

The standard serving size for Remdex is _____ tablet(s).
4. Fill in the blank in the sentence below.

Individuals using prescription medications should _____ before taking Remdex.
5. True or False. Color variation is normal in Remdex.

_____ True
_____ False
6. Fill in the blank. If you don't feel better after taking Remdex for _____ days you should consult your doctor.

Instructions: Please answer the following questions as best you can. If you are unsure about an answer, please give your best guess. Be sure to answer every question. Please do not leave any questions blank.



Zap!

1. Fill in the blanks. If you accidentally swallow Zap! you should drink lots of water followed by _____, _____, or _____.

2. Which of the following is **not** true about Zap? Circle the correct answer.

- a. It should be used in a well ventilated area.
- b. It contains muratic acid.
- c. It is highly flammable.
- d. Empty containers should be rinsed before discarding.

3. To avoid toxic fumes Zap! should not be mixed with certain other chemicals or cleaning agents.

Name two such cleaning agents.

- a. _____
- b. _____

4. Fill in the blank in the sentence below.

If you get Zap! on your skin, you should flush with water then wash with

_____.

5. True or False. Zap! contains sulfuric acid.

_____ True

_____ False

Instructions: Please answer the following questions as best you can. If you are unsure about an answer, please give your best guess. Be sure to answer every question. Please do not leave any questions blank.



Zout

1. Fill in the blanks. If you get Zout in your eyes you should flush them with water for _____ minutes and _____.
2. Which of the following is **not** true about Zout? Circle the correct answer.
 - a. It is biodegradable.
 - b. It contains chlorine.
 - c. It contains sodium carbonate.
 - d. It won't damage most fabrics.
3. Fill in the blanks in the sentence below.

If you accidentally swallow Zout you should drink a large glass of _____ or _____ and then seek medical attention.
4. True or False. It is safe to treat a garment with Zout while you're wearing it.

_____ True
_____ False
5. Fill in the blank. To avoid the creation of harmful gases you should never mix Zout with products containing _____.
6. True or False. If you accidentally swallow you should induce vomiting.

_____ True
_____ False

Appendix O

Participant assignments to experimental conditions for Experiment 3

<u>Subject #s</u>	<u>Ratings Group</u>	<u>Warning Quality</u>	<u>Latin Square Row</u>
1 – 4	Before Label Exposure	Strong	X1
5 – 8	Before Label Exposure	Strong	X2
9 – 12	Before Label Exposure	Strong	X3
13 – 16	Before Label Exposure	Strong	X4
17 – 20	Before Label Exposure	Strong	X5
21 – 22	After 1 Label Exposure	Strong	X1
23 – 24	After 2 Label Exposure	Strong	X1
25 – 26	After 1 Label Exposure	Strong	X2
27 – 28	After 2 Label Exposure	Strong	X2
29 – 30	After 1 Label Exposure	Strong	X3
31 – 32	After 2 Label Exposure	Strong	X3
33 – 34	After 1 Label Exposure	Strong	X4
35 – 36	After 2 Label Exposure	Strong	X4
37 – 38	After 1 Label Exposure	Strong	X5
39 – 40	After 2 Label Exposure	Strong	X5
41 – 44	Before Label Exposure	Weak	X1
45 – 48	Before Label Exposure	Weak	X2
49 – 52	Before Label Exposure	Weak	X3
53 – 56	Before Label Exposure	Weak	X4
57 – 60	Before Label Exposure	Weak	X5
61 – 62	After 1 Label Exposure	Weak	X1
63 – 64	After 2 Label Exposure	Weak	X1
65 – 66	After 1 Label Exposure	Weak	X2
67 – 68	After 2 Label Exposure	Weak	X2
69 – 70	After 1 Label Exposure	Weak	X3
71 – 72	After 2 Label Exposure	Weak	X3
73 – 74	After 1 Label Exposure	Weak	X4
75 – 76	After 2 Label Exposure	Weak	X4
77 – 78	After 1 Label Exposure	Weak	X5
79 – 80	After 2 Label Exposure	Weak	X5

Appendix P

ANOVA Tables 1 – 15

ANOVA Table 1

Experiment 1 - Familiarity Ratings. Two (Group: Group 1, Group 2) x five (Product Type: Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, Laundry Stain Removers) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Group	29.58	1	29.58	7.75	.008
Error	183.22	48	3.82		
Within					
Product Type	5.92	4	1.48	.69	.600
Product Type x Group	374.82	4	93.70	43.62	.000
Error	412.46	192	2.15		

ANOVA Table 2

Experiment 1 - Knowledge Ratings. Two (Group: Group 1, Group 2) x five (Product Type: Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, Laundry Stain Removers) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Group	14.88	1	14.88	4.31	.043
Error	165.68	48	3.45		
Within					
Product Type	2.84	4	.71	.41	.799
Product Type x Group	243.26	4	60.81	35.65	.000
Error	327.52	192	1.71		

ANOVA Table 3

Experiment 1 - Quality Ratings. Two (Group: Group 1, Group 2) x five (Product Type: Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, Laundry Stain Removers) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Group	2.12	1	2.12	1.83	.183
Error	55.57	48	1.16		
Within					
Product Type	.71	4	.18	.24	.916
Product Type x Group	61.66	4	15.42	20.96	.000
Error	141.23	192	.74		

ANOVA Table 4

Experiment 1 – Ease of Use Ratings. Two (Group: Group 1, Group 2) x five (Product Type: Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, Laundry Stain Removers) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Group	3.14	1	3.14	2.47	.122
Error	60.86	48	1.27		
Within					
Product Type	4.76	4	1.19	1.03	.395
Product Type x Group	98.34	4	24.59	21.22	.000
Error	222.50	192	1.16		

ANOVA Table 5

Experiment 1 – Value Ratings. Two (Group: Group 1, Group 2) x five (Product Type: Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, Laundry Stain Removers) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Group	4.62	1	4.62	2.69	.108
Error	82.56	48	1.72		
Within					
Product Type	2.14	4	.54	.67	.615
Product Type x Group	42.18	4	10.54	13.14	.000
Error	154.08	192	.80		

ANOVA Table 6

Experiment 1 – Safety Ratings. Two (Group: Group 1, Group 2) x five (Product Type: Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, Laundry Stain Removers) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Group	2.92	1	2.92	2.08	.155
Error	67.17	48	1.40		
Within					
Product Type	36.82	4	9.21	9.46	.000
Product Type x Group	63.46	4	15.87	16.30	.000
Error	186.91	192	.97		

ANOVA Table 7

Experiment 1 – Likelihood or Purchase Ratings. Two (Group: Group 1, Group 2) x five (Product Type: Weed Killers, Cold Remedies, Tub and Tile Cleaners, Cold Sore Ointments, Laundry Stain Removers) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Group	10.82	1	10.82	3.20	.080
Error	162.16	48	3.38		
Within					
Product Type	6.54	4	1.63	.92	.453
Product Type x Group	153.70	4	38.43	21.64	.000
Error	340.96	192	1.78		

ANOVA Table 8

Experiment 2 – Familiarity Ratings. Ad Exposure five level (No Exposure, One Exposure, Three Exposures - Single Ad, Three Exposures - Multiple Ads, Five Exposures) within subjects ANOVA.

Source	SS	df	MS	F	p
Ad Exposure	40.07	4	10.02	6.62	.000
Error	175.53	116	1.51		

ANOVA Table 9

Experiment 2 – Knowledge Ratings. Ad Exposure five level (No Exposure, One Exposure, Three Exposures - Single Ad, Three Exposures - Multiple Ads, Five Exposures) within subjects ANOVA.

Source	SS	df	MS	F	p
Ad Exposure	18.47	4	4.62	4.39	.002
Error	121.93	116	1.05		

ANOVA Table 10

Experiment 2 – Safety Ratings. Ad Exposure five level (No Exposure, One Exposure, Three Exposures - Single Ad, Three Exposures - Multiple Ads, Five Exposures) within subjects ANOVA.

Source	SS	df	MS	F	p
Ad Exposure	1.89	4	0.47	0.90	.466
Error	60.91	116	0.53		

ANOVA Table 11

Experiment 3 - Familiarity Ratings. Three (Rating Group: Pre-Label, Pre-Recall, Post-Recall) x two (Warning Quality: Strong, Weak) x five (Ad Content: No Ad, No Safety Claim, Indirect Safety Claim, Direct Safety Claim, Warning) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Rating Group	48.41	2	24.20	4.21	.019
Warning Quality	0.26	1	0.26	0.45	.833
Rating Group x Warning Quality	4.61	2	2.30	0.40	.671
Error	425.46	74	5.75		
Within					
Ad Content	7.36	4	1.84	1.73	.144
Ad Content x Rating Group	17.98	8	2.25	2.11	.035
Ad Content x Warning Quality	1.90	4	0.48	0.45	.775
Ad Content x Rating Group x Warning Quality	3.93	8	0.49	0.46	.883
Error	315.54	296	1.07		

ANOVA Table 12

Experiment 3 - Knowledge Ratings. Three (Rating Group: Pre-Label, Pre-Recall, Post-Recall) x two (Warning Quality: Strong, Weak) x five (Ad Content: No Ad, No Safety Claim, Indirect Safety Claim, Direct Safety Claim, Warning) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Rating Group	139.05	2	69.52	17.41	.000
Warning Quality	1.52	1	1.52	0.38	.539
Rating Group x Warning Quality	5.89	2	2.94	.737	.482
Error	295.53	74	3.99		
Within					
Ad Content	5.89	4	1.47	1.58	.179
Ad Content x Rating Group	14.61	8	1.83	1.96	.050
Ad Content x Warning Quality	1.39	4	0.35	0.38	.826
Ad Content x Rating Group x Warning Quality	3.37	8	0.42	0.45	.888
Error	275.12	296	0.93		

ANOVA Table 13

Experiment 3 - Safety Ratings. Three (Rating Group: Pre-Label, Pre-Recall, Post-Recall) x two (Warning Quality: Strong, Weak) x five (Ad Content: No Ad, No Safety Claim, Indirect Safety Claim, Direct Safety Claim, Warning) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Rating Group	6.43	2	3.21	1.25	.292
Warning Quality	0.04	1	0.04	0.01	.906
Rating Group x Warning Quality	1.15	2	0.57	0.22	.800
Error	189.80	74	5.14		
Within					
Ad Content	3.04	4	0.76	0.57	.687
Ad Content x Rating Group	4.39	8	0.55	0.41	.915
Ad Content x Warning Quality	2.64	4	0.66	0.49	.741
Ad Content x Rating Group x Warning Quality	5.52	8	0.69	0.52	.845
Error	396.60	296	1.34		

ANOVA Table 14

Experiment 3 – Recall and Comprehension Test Scores. Three (Rating Group: Pre-Label, Pre-Recall, Post-Recall) x two (Warning Quality: Strong, Weak) x five (Ad Content: No Ad, No Safety Claim, Indirect Safety Claim, Direct Safety Claim, Warning) mixed ANOVA.

Source	SS	df	MS	F	p
Between					
Rating Group	5.21	2	2.60	0.77	.467
Warning Quality	2.21	1	2.21	0.65	.422
Rating Group x Warning Quality	4.85	2	2.42	0.72	.492
Error	250.57	74	3.39		
Within					
Ad Content	3.43	4	0.86	0.33	.857
Ad Content x Rating Group	9.75	8	1.22	0.47	.877
Ad Content x Warning Quality	3.45	4	0.86	0.33	.856
Ad Content x Rating Group x Warning Quality	12.96	8	1.62	0.63	.757
Error	767.48	296	2.59		

ANOVA Table 15

Experiment 3 – Total Recall and Comprehension Test Scores. Three (Rating Group: Pre-Label, Pre-Recall, Post-Recall) x two (Warning Quality: Strong, Weak) between subjects ANOVA.

Source	SS	df	MS	F	p
Between					
Rating Group	26.03	2	13.01	0.77	.467
Warning Quality	11.05	1	11.05	0.65	.422
Rating Group x Warning Quality	24.23	2	12.11	0.72	.492
Error	1252.85	74	16.93		

Appendix Q

Experiment 1 Data – Product Ratings

<u>Participant</u>	<u>Group</u>	<u>Weed Familiarity</u>	<u>Weed Knowledge</u>	<u>Weed Quality</u>	<u>Weed Ease</u>	<u>Weed Value</u>	<u>Weed Safety</u>	<u>Weed Purchase</u>
1	1	7	4	4	6	5	4	5
2	1	5	4	6	6	6	6	5
3	1	3	2	4	4	4	3	1
4	1	7	7	7	7	7	4	7
5	1	3	3	4	5	4	3	4
6	1	6	5	6	6	6	4	6
7	1	2	3	5	4	4	3	3
8	1	5	3	4	4	4	4	4
9	1	5	5	6	6	6	5	7
10	1	6	6	7	7	4	4	7
11	1	3	3	4	5	4	3	4
12	1	4	3	5	6	5	6	6
13	1	4	4	5	6	4	2	6
14	1	7	6	5	6	5	5	6
15	1	2	1	6	5	5	4	4
16	1	7	7	6	3	6	4	7
17	1	5	5	6	6	6	5	6
18	1	7	5	7	6	6	6	7
19	1	4	3	4	6	5	4	7
20	1	3	3	4	3	3	5	4
21	1	1	1	4	4	4	4	4
22	1	3	1	4	4	4	4	4
23	1	5	4	5	5	6	4	4
24	1	6	6	7	7	7	5	7
25	1	3	3	3	3	3	2	4
26	2	1	1	4	4	4	4	1
27	2	1	1	4	4	4	4	5
28	2	3	3	7	7	7	4	7
29	2	1	2	4	5	4	4	2
30	2	3	2	4	4	4	4	1
31	2	1	1	4	4	4	4	4
32	2	5	4	4	5	5	5	5
33	2	1	1	4	4	4	4	1
34	2	5	3	6	6	5	7	6
35	2	1	1	4	4	4	4	4
36	2	1	1	4	4	4	4	4
37	2	1	1	4	4	4	4	4
38	2	1	1	4	4	4	4	2
39	2	2	3	4	5	4	2	2
40	2	1	1	4	4	4	4	4
41	2	5	5	1	4	2	1	1
42	2	3	3	5	5	5	4	4
43	2	1	1	4	4	4	4	4
44	2	1	1	4	4	4	4	4
45	2	1	1	4	4	4	4	4
46	2	1	1	4	4	4	4	4
47	2	1	1	4	4	4	4	4
48	2	1	1	4	4	4	4	4
49	2	5	3	3	4	4	4	4
50	2	2	1	4	4	4	4	4

<u>Participant</u>	<u>Group</u>	<u>Weed Experience</u>	<u>Cold Familiarity</u>	<u>Cold Knowledge</u>	<u>Cold Quality</u>	<u>Cold Ease</u>	<u>Cold Value</u>	<u>Cold Safety</u>
1	1	2	1	1	4	4	4	4
2	1	3	1	1	4	4	4	4
3	1	1	1	1	4	4	4	4
4	1	2	2	2	4	4	4	4
5	1	2	1	1	4	4	4	4
6	1	3	2	2	4	4	4	4
7	1	1	2	2	4	4	4	5
8	1	2	1	1	4	4	4	4
9	1	3	1	1	4	4	4	4
10	1	1	1	1	4	4	4	4
11	1	1	1	1	4	4	4	4
12	1	2	1	1	4	4	4	4
13	1	2	1	1	4	4	4	4
14	1	4	1	1	4	4	4	4
15	1	1	1	1	4	4	4	4
16	1	4	1	1	4	4	4	4
17	1	3	2	2	4	4	4	4
18	1	4	3	3	4	5	5	4
19	1	3	1	1	4	4	4	4
20	1	2	3	3	5	6	4	5
21	1	1	1	1	4	4	4	4
22	1	1	1	1	4	4	4	4
23	1	2	1	1	4	4	4	4
24	1	3	3	4	4	6	5	5
25	1	1	2	2	4	3	4	3
26	2	1	5	4	6	7	6	5
27	2	1	3	3	5	6	4	6
28	2	2	3	3	4	5	6	7
29	2	1	4	3	6	5	3	5
30	2	1	6	5	5	7	5	7
31	2	1	3	3	5	5	5	4
32	2	3	5	4	5	7	6	5
33	2	1	7	7	7	7	7	7
34	2	2	7	7	5	7	6	6
35	2	1	7	5	5	6	4	5
36	2	1	5	3	7	7	5	5
37	2	1	5	3	6	6	5	6
38	2	1	3	3	4	6	4	6
39	2	2	5	6	6	7	5	4
40	2	1	5	4	6	6	6	6
41	2	1	7	7	7	7	7	7
42	2	1	5	5	6	6	6	6
43	2	1	4	3	5	7	6	6
44	2	1	3	2	4	4	4	4
45	2	1	7	5	5	5	5	5
46	2	1	4	3	5	5	5	4
47	2	1	5	5	5	7	5	6
48	2	1	3	3	4	5	4	5
49	2	2	5	5	6	6	6	4
50	2	1	4	3	4	6	4	5

<u>Participant</u>	<u>Group</u>	<u>Cold Purchase</u>	<u>Cold Experience</u>	<u>Cleaner Familiarity</u>	<u>Cleaner Knowledge</u>	<u>Cleaner Quality</u>	<u>Cleaner Ease</u>	<u>Cleaner Value</u>
1	1	4	1	3	2	4	4	4
2	1	4	1	3	3	4	4	4
3	1	1	1	1	1	4	4	4
4	1	2	1	1	1	4	4	4
5	1	4	1	3	3	4	5	3
6	1	4	1	1	1	4	4	4
7	1	2	1	1	2	4	7	5
8	1	4	1	6	5	5	7	6
9	1	4	1	5	5	6	7	7
10	1	4	1	1	1	4	4	4
11	1	4	1	5	3	5	5	5
12	1	4	1	3	1	4	4	4
13	1	4	1	1	1	4	4	4
14	1	4	1	4	4	5	6	4
15	1	4	1	3	3	4	5	6
16	1	4	1	7	7	6	6	6
17	1	4	1	1	1	4	4	4
18	1	5	2	1	1	4	4	4
19	1	4	1	1	1	4	4	4
20	1	4	2	1	1	4	4	4
21	1	1	1	3	2	4	6	4
22	1	4	1	1	1	4	4	4
23	1	4	1	1	1	4	4	4
24	1	7	3	5	4	6	6	5
25	1	2	1	3	2	4	5	4
26	2	7	3	1	1	4	4	4
27	2	6	1	4	4	7	7	7
28	2	7	3	3	3	4	4	4
29	2	3	2	5	4	6	6	6
30	2	6	2	1	1	4	4	4
31	2	5	2	2	2	4	4	4
32	2	6	2	3	3	5	5	3
33	2	7	3	5	4	6	7	6
34	2	7	3	4	4	6	5	6
35	2	6	3	7	7	6	6	4
36	2	5	3	3	3	4	5	5
37	2	7	3	4	4	6	7	6
38	2	5	1	3	2	5	4	4
39	2	6	4	4	4	4	5	4
40	2	6	3	3	2	7	7	7
41	2	7	3	1	1	4	4	4
42	2	6	3	2	3	5	4	5
43	2	7	3	4	5	6	6	5
44	2	4	1	4	3	5	6	4
45	2	5	4	5	6	5	5	5
46	2	5	3	6	3	7	7	4
47	2	6	3	3	1	4	5	4
48	2	5	3	2	2	4	4	4
49	2	6	2	4	4	5	7	6
50	2	3	2	4	3	4	2	3

<u>Participant</u>	<u>Group</u>	<u>Cleaner Safety</u>	<u>Cleaner Purchase</u>	<u>Cleaner Experience</u>	<u>Cold Sore Familiarity</u>	<u>Cold Sore Knowledge</u>	<u>Cold Sore Quality</u>	<u>Cold Sore Ease</u>
1	1	5	3	1	7	6	5	7
2	1	5	5	1	5	4	7	7
3	1	4	7	1	3	3	4	4
4	1	5	2	1	6	4	5	4
5	1	5	1	2	3	3	4	5
6	1	4	4	1	3	2	5	5
7	1	4	3	2	5	4	6	4
8	1	7	5	3	5	4	5	6
9	1	6	4	3	5	5	6	6
10	1	4	4	1	7	7	7	7
11	1	5	3	1	6	5	5	5
12	1	4	4	1	3	3	4	7
13	1	4	4	1	6	5	6	6
14	1	5	5	3	7	5	6	7
15	1	6	4	2	5	3	7	7
16	1	4	6	4	5	4	6	7
17	1	4	4	1	2	2	4	4
18	1	4	4	1	5	3	5	7
19	1	4	4	1	5	4	5	7
20	1	4	4	1	2	3	3	6
21	1	4	5	2	3	1	4	7
22	1	4	4	1	7	6	6	7
23	1	4	4	1	3	4	6	6
24	1	5	6	2	7	7	7	7
25	1	4	3	1	2	2	4	4
26	2	4	4	1	1	1	4	4
27	2	7	7	2	1	1	4	4
28	2	4	2	1	1	1	4	4
29	2	4	6	2	3	2	5	5
30	2	4	4	1	1	1	4	4
31	2	4	4	1	2	2	5	5
32	2	5	5	2	3	3	5	6
33	2	5	5	4	2	1	4	3
34	2	5	6	3	3	3	4	6
35	2	6	5	2	1	1	4	4
36	2	5	5	1	1	1	4	4
37	2	7	7	3	1	1	4	4
38	2	3	4	1	1	1	4	4
39	2	6	4	2	2	2	4	3
40	2	2	7	2	1	1	4	4
41	2	4	4	1	5	5	4	7
42	2	4	6	2	1	1	4	4
43	2	5	5	4	1	1	4	4
44	2	5	5	2	1	1	4	4
45	2	5	3	3	2	1	4	4
46	2	2	4	3	1	1	4	4
47	2	4	4	1	1	1	4	4
48	2	4	4	1	1	1	4	4
49	2	5	7	2	1	1	4	4
50	2	4	3	3	1	1	4	4

<u>Participant</u>	<u>Group</u>	<u>Cold Sore Value</u>	<u>Cold Sore Safety</u>	<u>Cold Sore Purchase</u>	<u>Cold Sore Experience</u>	<u>Laundry Familiarity</u>	<u>Laundry Knowledge</u>	<u>Laundry Quality</u>
1	1	6	6	6	3	4	3	4
2	1	7	7	7	3	4	4	6
3	1	4	4	1	1	3	3	4
4	1	4	5	5	1	2	2	4
5	1	4	4	5	3	5	5	5
6	1	4	4	5	1	4	3	4
7	1	3	6	6	2	5	4	6
8	1	5	6	5	3	6	5	5
9	1	6	6	6	2	3	3	5
10	1	7	7	7	3	7	7	7
11	1	5	5	5	4	5	4	4
12	1	4	7	6	2	5	4	6
13	1	3	6	6	4	3	3	5
14	1	6	7	5	3	6	5	6
15	1	7	7	7	3	5	3	6
16	1	6	5	7	4	5	3	5
17	1	4	4	4	1	2	3	4
18	1	5	7	6	3	5	3	5
19	1	4	7	6	3	4	3	5
20	1	4	6	6	1	1	1	4
21	1	6	7	4	3	7	5	6
22	1	3	7	6	4	5	3	5
23	1	7	6	6	2	6	5	6
24	1	7	7	7	5	7	5	6
25	1	4	4	4	1	3	3	5
26	2	4	4	1	1	4	4	7
27	2	4	4	2	1	3	4	6
28	2	4	4	7	1	1	1	4
29	2	3	5	2	1	1	1	4
30	2	4	4	1	1	1	1	4
31	2	4	4	5	2	1	1	4
32	2	5	5	6	2	1	1	3
33	2	6	4	1	1	6	5	6
34	2	4	4	2	1	1	1	4
35	2	4	4	4	1	1	1	4
36	2	4	4	4	1	5	3	3
37	2	4	4	4	1	1	1	4
38	2	4	4	1	1	3	3	4
39	2	3	4	2	1	5	5	5
40	2	4	4	4	1	1	1	4
41	2	4	4	1	1	7	7	4
42	2	4	4	4	1	1	1	4
43	2	4	4	4	1	1	1	4
44	2	4	4	4	1	7	5	6
45	2	4	4	4	1	1	1	4
46	2	4	4	4	1	2	2	4
47	2	4	4	4	1	1	1	4
48	2	4	4	4	1	1	1	4
49	2	4	4	4	1	5	5	6
50	2	4	4	4	1	1	1	4

<u>Participant</u>	<u>Group</u>	<u>Laundry Ease</u>	<u>Laundry Value</u>	<u>Laundry Safety</u>	<u>Laundry Purchase</u>	<u>Laundry Experience</u>
1	1	4	4	4	4	1
2	1	6	6	6	6	2
3	1	5	4	4	5	2
4	1	4	4	4	4	1
5	1	6	4	3	6	4
6	1	4	5	6	4	2
7	1	6	5	6	7	4
8	1	6	6	6	6	3
9	1	4	4	5	4	1
10	1	7	7	7	7	4
11	1	5	5	3	5	2
12	1	7	6	7	7	4
13	1	6	4	3	4	2
14	1	6	6	6	5	3
15	1	7	7	6	6	2
16	1	7	6	7	7	4
17	1	5	5	6	4	2
18	1	5	5	5	5	3
19	1	6	4	4	6	2
20	1	3	5	4	2	1
21	1	6	7	7	7	4
22	1	7	6	7	4	3
23	1	6	6	6	6	3
24	1	7	7	6	7	5
25	1	5	4	6	4	2
26	2	6	6	7	7	2
27	2	7	4	7	5	2
28	2	4	4	4	7	1
29	2	5	4	5	2	1
30	2	4	4	4	1	1
31	2	4	4	4	4	1
32	2	2	2	3	1	1
33	2	7	7	7	7	4
34	2	4	4	4	4	1
35	2	4	4	4	4	1
36	2	3	2	7	1	1
37	2	4	4	4	4	1
38	2	7	4	7	5	2
39	2	5	5	7	6	4
40	2	4	4	4	4	1
41	2	6	4	4	4	1
42	2	4	4	4	4	1
43	2	4	4	4	4	1
44	2	7	6	6	7	3
45	2	4	4	4	4	1
46	2	5	5	5	5	1
47	2	4	4	4	4	1
48	2	4	4	4	4	1
49	2	6	6	6	6	2
50	2	4	4	4	2	1

Appendix R

Experiment 2 Data – Product Ratings

<u>Participant</u>	<u>Sex</u> 0-M, 1-F	No <u>Exposure</u> <u>Familiarity</u>	No <u>Exposure</u> <u>Knowledge</u>	No <u>Exposure</u> <u>Quality</u>	No <u>Exposure</u> <u>Ease</u>	No <u>Exposure</u> <u>Value</u>	No <u>Exposure</u> <u>Safety</u>
1	1	2	2	4	4	4	4
2	0	1	1	4	4	4	4
3	1	1	1	4	4	4	4
4	1	1	1	4	4	4	4
5	1	1	1	4	4	4	4
6	0	4	4	4	5	5	4
7	0	1	1	4	6	4	4
8	0	2	2	4	5	4	4
9	0	2	3	4	4	4	5
10	1	1	1	4	4	4	4
11	1	1	1	4	4	4	4
12	0	1	1	4	4	4	4
13	0	1	1	4	4	4	4
14	1	1	1	4	4	4	5
15	1	1	1	4	4	4	4
16	1	1	1	4	4	4	4
17	0	1	1	4	4	4	4
18	1	1	1	4	6	4	4
19	1	1	1	4	4	4	4
20	0	1	1	4	4	4	4
21	0	1	1	4	4	4	4
22	1	1	1	4	5	4	4
23	0	2	2	4	4	4	4
24	1	1	1	3	7	5	7
25	0	4	4	4	4	4	4
26	0	3	3	4	6	4	6
27	1	1	1	4	4	4	4
28	1	1	1	4	4	4	4
29	1	2	2	4	5	5	3
30	1	5	5	5	6	6	7

<u>Participant</u>	<u>No Exposure Purchase</u>	<u>1 Exposure Familiarity</u>	<u>1 Exposure Knowledge</u>	<u>1 Exposure Quality</u>	<u>1 Exposure Ease</u>	<u>1 Exposure Value</u>	<u>1 Exposure Safety</u>
1	2	1	1	4	4	4	4
2	4	1	1	4	4	4	5
3	4	1	1	4	4	4	4
4	1	1	1	4	4	4	4
5	4	3	4	5	6	4	6
6	5	4	3	4	5	4	4
7	1	1	1	4	7	4	4
8	4	2	2	5	5	5	5
9	3	1	1	4	4	4	4
10	1	5	4	5	6	5	4
11	1	1	1	4	4	4	4
12	5	1	1	4	4	4	4
13	4	2	2	4	4	4	6
14	1	2	1	4	5	4	4
15	4	3	3	4	4	4	4
16	4	1	1	4	4	4	4
17	1	3	4	4	6	4	4
18	2	1	1	5	7	4	6
19	3	4	2	5	5	5	6
20	4	1	1	4	4	4	4
21	4	1	1	4	4	4	4
22	2	1	1	4	5	4	4
23	2	2	2	4	4	4	4
24	3	1	1	2	2	2	4
25	1	5	4	4	5	4	5
26	5	1	1	4	6	4	4
27	4	3	3	5	4	4	4
28	2	1	1	4	5	4	4
29	3	2	2	2	3	4	2
30	7	1	1	4	5	4	5

<u>Participant</u>	<u>1 Exposure Purchase</u>	<u>3 Exp / 1 Ad Familiarity</u>	<u>3 Exp / 1 Ad Knowledge</u>	<u>3 Exp / 1 Ad Quality</u>	<u>3 Exp / 1 Ad Ease</u>	<u>3 Exp / 1 Ad Value</u>	<u>3 Exp / 1 Ad Safety</u>
1	1	3	3	5	5	4	4
2	5	4	4	5	7	5	4
3	4	1	1	4	4	4	4
4	1	1	1	4	4	4	4
5	3	3	2	4	5	3	6
6	4	1	1	4	4	4	4
7	3	1	1	3	5	4	4
8	4	2	2	5	5	5	3
9	4	2	2	4	4	4	4
10	4	3	2	4	5	3	4
11	1	1	1	4	4	4	4
12	5	2	2	4	4	4	4
13	4	4	3	5	6	4	5
14	1	2	1	4	4	4	5
15	5	4	4	4	5	4	5
16	1	3	2	3	4	4	2
17	1	6	3	2	5	3	4
18	4	1	1	4	6	5	4
19	4	1	1	4	4	4	4
20	3	1	1	4	4	4	4
21	4	4	3	7	7	3	4
22	2	3	3	4	5	3	5
23	2	2	2	4	4	4	4
24	1	3	2	4	5	4	6
25	1	2	1	4	4	4	5
26	4	3	3	6	5	5	6
27	4	3	2	5	5	4	4
28	4	1	1	3	4	4	4
29	2	5	3	5	4	4	5
30	5	4	4	4	4	4	5

<u>Participant</u>	<u>3 Exp / 1 Ad Purchase</u>	<u>3 Exp / Mult Ads Familiarity</u>	<u>3 Exp / Mult Ads Knowledge</u>	<u>3 Exp / Mult Ads Quality</u>	<u>3 Exp / Mult Ads Ease</u>	<u>3 Exp / Mult Ads Value</u>	<u>3 Exp / Mult Ads Safety</u>
1	1	2	2	4	4	4	4
2	6	7	5	5	7	6	5
3	4	1	1	4	4	4	4
4	5	1	1	4	4	4	4
5	3	4	4	5	6	5	6
6	4	3	3	4	5	4	4
7	3	1	1	4	4	4	4
8	4	3	3	6	4	5	4
9	4	4	4	5	5	5	5
10	2	3	3	4	5	5	4
11	1	1	1	4	4	4	4
12	5	2	2	4	4	4	5
13	5	3	3	5	4	5	5
14	5	3	2	4	6	4	5
15	6	2	2	4	4	4	4
16	4	1	1	4	4	4	4
17	1	5	2	4	5	4	4
18	3	1	1	4	3	4	4
19	4	2	1	4	4	4	4
20	1	1	1	4	4	4	4
21	5	3	3	4	6	4	4
22	2	1	1	4	4	4	4
23	2	3	3	4	4	4	4
24	3	7	5	6	6	6	6
25	1	4	4	4	5	4	5
26	1	3	3	4	6	4	6
27	3	2	2	4	4	4	5
28	2	2	1	4	4	4	3
29	5	3	2	2	4	3	4
30	5	4	4	5	7	5	6

<u>Participant</u>	<u>3 Exp / Mult Ads Purchase</u>	<u>5 Exposures Familiarity</u>	<u>5 Exposures Knowledge</u>	<u>5 Exposures Quality</u>	<u>5 Exposures Ease</u>	<u>5 Exposures Value</u>	<u>5 Exposures Safety</u>	<u>5 Exposures Purchase</u>
1	2	1	1	4	4	4	4	1
2	6	7	4	4	5	4	3	3
3	4	1	1	4	4	4	4	3
4	1	3	2	4	4	4	4	1
5	6	1	1	4	4	4	4	4
6	4	3	3	4	4	4	4	4
7	3	4	3	7	5	5	7	7
8	5	3	3	5	5	5	5	5
9	5	3	3	5	5	5	4	5
10	3	3	2	4	5	4	5	2
11	1	3	2	5	4	4	4	5
12	2	1	1	4	4	4	4	4
13	2	5	4	5	6	4	4	5
14	2	3	2	3	6	5	6	3
15	4	4	4	4	5	4	5	6
16	1	2	2	4	4	4	4	1
17	1	6	2	4	4	4	4	1
18	1	4	4	6	6	6	5	5
19	3	3	3	4	5	4	6	3
20	3	1	1	4	4	4	4	1
21	1	1	1	4	4	4	4	2
22	1	3	3	4	2	4	3	2
23	3	2	2	4	4	4	4	2
24	7	5	5	3	6	6	7	3
25	1	7	7	4	4	4	5	1
26	6	2	2	4	7	4	7	2
27	6	1	1	3	4	4	4	2
28	1	1	2	4	5	4	4	2
29	2	3	2	2	5	4	5	1
30	6	2	3	3	4	4	5	5

Appendix S

Experiment 3 Data – Product Ratings and Recall Scores

<u>Participant</u>	<u>Sex</u> 0-M, 1-F	<u>Rating</u> <u>Group</u>	<u>Warning</u> <u>Quality</u>	<u>NFC</u> <u>Score</u>	<u>No Ad</u> <u>Familiarity</u>	<u>No Ad</u> <u>Knowledge</u>	<u>No Ad</u> <u>Quality</u>	<u>No Ad</u> <u>Ease</u>
1	1	1	1	90	1	1	4	4
2	1	1	1	75	1	1	4	5
3	1	1	1	96	1	1	4	4
4	1	1	1	61	1	1	4	5
5	0	1	1	91	1	2	4	6
6	0	1	1	102	3	3	4	3
7	0	1	1	70	1	1	2	3
8	1	1	1	70	1	1	4	4
9	1	1	1	77	2	1	5	5
10	0	1	1	75	3	2	4	5
11	1	1	1	63	1	1	4	4
12	1	1	1	110	2	2	4	5
13	1	1	1	72	1	1	4	6
14	0	1	1	69	3	3	4	5
15	0	1	1	70	3	3	4	6
16	0	1	1	93	1	1	6	6
17	1	1	1	60	1	1	4	4
18	0	1	1	99	2	3	6	5
19	0	1	1	95	1	1	4	4
20	0	1	1	62	1	1	4	4
21	0	2	1	67	3	2	4	4
22	1	2	1	85	1	3	4	3
23	0	3	1	95	4	5	5	5
24	0	3	1	60	6	6	7	7
25	0	2	1	59	5	4	4	6
26	1	2	1	103	1	1	5	5
27	0	3	1	75	1	1	3	5
28	1	3	1	90	1	4	3	6
29	1	2	1	84	1	2	5	7
30	1	2	1	77	4	4	6	6
31	1	3	1	69	5	5	5	7
32	1	3	1	72	4	4	4	5
33	1	2	1	65	3	4	5	5
34	1	2	1	106	3	3	5	6
35	0	3	1	87	5	5	6	6
36	0	3	1	103	1	5	4	5
37	1	2	1	80	3	3	5	5
38	1	2	1	45	2	3	4	4
39	1	3	1	68	1	1	4	4
40	0	3	1	91	3	3	4	3

<u>Participant</u>	<u>No Ad Value</u>	<u>No Ad Safety</u>	<u>No Ad Purchase</u>	<u>No Safety Familiarity</u>	<u>No Safety Knowledge</u>	<u>No Safety Quality</u>	<u>No Safety Ease</u>	<u>No Safety Value</u>
1	4	4	4	1	1	4	4	4
2	4	4	4	2	2	4	6	4
3	4	4	4	4	4	4	6	4
4	4	4	1	2	1	4	6	4
5	4	4	2	2	3	4	4	4
6	4	4	3	2	3	4	5	4
7	4	4	4	3	3	4	4	4
8	4	4	4	2	2	4	6	5
9	4	5	2	2	1	4	7	5
10	4	6	2	3	2	5	6	4
11	4	4	4	1	1	4	4	4
12	4	4	5	2	3	4	4	4
13	5	6	5	4	2	3	3	4
14	4	4	5	3	3	4	3	4
15	5	6	6	1	1	4	4	4
16	7	4	7	1	1	5	3	3
17	4	4	4	4	5	5	5	5
18	4	5	4	3	4	6	5	4
19	4	4	1	3	3	4	5	4
20	4	4	4	3	3	4	6	4
21	4	4	5	1	1	4	4	5
22	5	3	4	1	4	5	6	5
23	5	2	2	7	7	7	7	7
24	4	6	4	6	5	7	7	4
25	4	3	3	4	4	4	6	4
26	5	5	2	3	3	5	6	5
27	4	5	1	1	3	4	6	5
28	4	3	3	1	2	2	7	4
29	5	5	4	1	1	4	7	4
30	6	6	6	4	4	6	6	5
31	4	4	4	2	1	4	3	5
32	4	6	4	4	4	4	6	4
33	6	6	6	4	4	5	5	4
34	6	5	5	1	1	4	4	4
35	4	7	6	5	5	4	7	4
36	5	5	3	1	5	4	4	4
37	4	5	5	2	3	4	5	4
38	4	1	1	4	4	4	4	3
39	4	3	1	2	3	4	7	4
40	4	3	2	3	3	4	5	4

<u>Participant</u>	<u>No Safety Safety</u>	<u>No Safety Purchase</u>	<u>Indirect Safety Familiarity</u>	<u>Indirect Safety Knowledge</u>	<u>Indirect Safety Quality</u>	<u>Indirect Safety Ease</u>	<u>Indirect Safety Value</u>	<u>Indirect Safety Safety</u>
1	4	4	1	1	4	4	4	4
2	4	4	1	1	4	4	4	4
3	4	6	4	2	4	4	4	4
4	4	1	2	1	4	4	4	4
5	4	1	2	2	4	6	4	4
6	4	4	3	3	5	5	4	4
7	4	4	3	2	4	4	4	4
8	5	5	2	2	5	6	5	3
9	4	3	3	1	4	6	5	4
10	5	4	1	1	4	5	4	4
11	4	4	6	4	7	7	7	7
12	5	3	2	3	4	4	4	4
13	2	1	6	3	5	6	4	5
14	3	3	1	2	4	5	4	4
15	4	2	2	2	4	5	4	5
16	4	1	1	1	5	6	5	4
17	5	5	3	2	6	6	5	4
18	5	4	4	4	6	5	5	5
19	4	5	2	2	4	6	4	4
20	5	5	3	3	4	7	4	5
21	4	4	3	3	4	2	4	1
22	6	5	1	2	2	1	4	1
23	7	7	5	5	4	5	4	5
24	4	7	5	5	5	4	6	4
25	3	3	4	4	5	6	4	3
26	6	5	2	2	6	3	5	5
27	4	3	3	4	4	4	4	6
28	5	2	4	3	6	5	3	2
29	4	2	3	2	6	7	5	5
30	6	6	4	3	5	5	4	5
31	6	1	5	4	4	5	3	2
32	6	3	3	3	4	2	4	2
33	3	4	3	4	4	5	5	5
34	5	2	2	2	5	5	4	5
35	6	1	5	5	5	5	4	5
36	4	4	1	5	4	5	4	4
37	4	3	3	3	3	2	2	4
38	2	2	1	2	4	4	1	4
39	5	4	2	2	4	7	4	5
40	3	2	3	3	5	5	4	6

<u>Participant</u>	<u>Indirect Safety Purchase</u>	<u>Direct Safety Familiarity</u>	<u>Direct Safety Knowledge</u>	<u>Direct Safety Quality</u>	<u>Direct Safety Ease</u>	<u>Direct Safety Value</u>	<u>Direct Safety Safety</u>	<u>Direct Safety Purchase</u>
1	4	1	1	4	4	4	4	4
2	4	1	1	4	4	4	4	4
3	1	4	4	4	5	4	4	3
4	1	2	1	4	5	4	4	2
5	2	3	3	4	6	4	4	3
6	3	1	1	3	4	4	4	4
7	4	3	3	5	6	6	4	5
8	5	3	2	5	6	6	6	6
9	5	1	1	5	2	4	1	1
10	4	1	1	3	4	4	4	1
11	7	5	1	4	4	4	4	4
12	5	2	3	4	4	4	5	5
13	6	3	3	3	5	4	3	4
14	4	3	3	4	5	4	3	4
15	5	2	2	4	5	4	5	6
16	5	1	1	4	4	3	4	1
17	4	4	4	6	6	7	7	6
18	5	3	4	6	6	5	5	5
19	5	3	3	4	5	4	4	5
20	5	3	3	4	6	4	6	4
21	1	1	2	4	5	4	5	4
22	1	1	2	4	5	4	5	3
23	1	3	4	5	3	3	6	2
24	4	6	5	5	7	6	7	4
25	3	4	4	5	6	4	5	5
26	2	2	2	5	7	5	6	2
27	2	1	2	4	4	5	3	1
28	5	1	4	3	5	5	3	2
29	6	1	1	4	7	5	3	4
30	5	3	3	4	6	4	4	3
31	5	3	2	6	7	5	2	3
32	1	3	2	4	4	4	2	1
33	6	5	5	5	6	6	5	6
34	2	2	2	4	5	4	5	2
35	1	5	5	6	6	4	6	6
36	5	1	5	4	4	4	5	5
37	1	3	2	4	4	4	5	3
38	1	1	3	4	4	4	3	2
39	4	3	3	4	5	4	6	4
40	4	2	2	4	5	4	4	1

<u>Participant</u>	<u>Warning Familiarity</u>	<u>Warning Knowledge</u>	<u>Warning Quality</u>	<u>Warning Ease</u>	<u>Warning Value</u>	<u>Warning Safety</u>	<u>Warning Purchase</u>
1	1	1	4	4	4	4	4
2	3	2	4	4	4	4	4
3	4	4	4	5	4	4	5
4	1	1	4	7	4	4	1
5	1	1	4	4	4	4	2
6	2	2	4	3	4	3	4
7	4	4	5	5	5	7	6
8	1	1	4	5	4	4	4
9	2	1	3	2	5	2	1
10	1	1	4	5	4	4	5
11	5	3	5	6	6	5	5
12	2	3	4	4	4	5	4
13	5	4	4	5	6	6	7
14	3	4	5	5	4	3	4
15	1	1	4	4	4	4	2
16	1	1	4	7	7	3	2
17	3	3	5	4	4	5	5
18	3	4	7	5	4	6	4
19	3	3	5	6	4	4	4
20	2	3	4	4	4	6	4
21	1	1	4	4	4	4	4
22	1	2	1	2	4	4	1
23	4	5	5	6	6	6	4
24	6	6	4	4	4	7	4
25	3	3	4	5	4	2	2
26	1	1	5	3	5	2	2
27	2	3	4	6	5	5	2
28	1	3	3	1	4	1	1
29	2	2	4	7	5	5	5
30	3	3	5	5	4	5	3
31	5	4	4	6	5	3	7
32	3	3	4	4	4	5	2
33	5	5	5	6	6	5	6
34	2	2	4	5	4	5	3
35	5	5	6	6	4	4	5
36	1	5	4	5	4	5	5
37	2	3	5	5	5	5	3
38	1	3	4	4	4	2	1
39	3	3	5	6	4	6	5
40	3	2	4	5	3	4	2

<u>Participant</u>	<u>No Ad Recall</u>	<u>No Safety Recall</u>	<u>Indirect Safety Recall</u>	<u>Direct Safety Recall</u>	<u>Warning Recall</u>	<u>Total Recall</u>
1	3	6	4	6	5	24
2	2	4	2	5	3	16
3	1	5	3	4	7	20
4	5	5	5	6	5	26
5	5	3	2	3	4	17
6	4	3	2	3	4	16
7	3	5	1	2	1	12
8	5	6	4	5	4	24
9	5	7	6	5	2	25
10	4	6	5	3	1	19
11	4	6	4	3	2	19
12	6	5	6	5	2	24
13	5	4	5	1	5	20
14	3	3	6	5	4	21
15	3	2	4	1	4	14
16	5	3	5	0	6	19
17	3	3	4	3	6	19
18	4	4	4	3	4	19
19	3	3	7	5	4	22
20	5	2	2	7	5	21
21	2	6	5	5	3	21
22	2	3	3	6	2	16
23	4	5	3	5	2	19
24	3	2	3	4	2	14
25	4	5	2	4	3	18
26	5	6	2	5	7	25
27	5	5	2	4	3	19
28	4	6	3	5	5	23
29	6	2	7	4	2	21
30	6	3	5	3	4	21
31	6	3	5	4	2	20
32	4	7	6	4	4	25
33	3	3	4	1	4	15
34	3	0	6	0	7	16
35	1	1	3	3	3	11
36	3	3	4	2	6	18
37	3	2	5	4	3	17
38	3	5	8	5	5	26
39	4	4	4	3	6	21
40	4	2	5	8	4	23

<u>Participant</u>	<u>Sex</u> 0-M, 1-F	<u>Rating</u> <u>Group</u>	<u>Warning</u> <u>Quality</u>	<u>NFC</u> <u>Score</u>	<u>No Ad</u> <u>Familiarity</u>	<u>No Ad</u> <u>Knowledge</u>	<u>No Ad</u> <u>Quality</u>	<u>No Ad</u> <u>Ease</u>
41	0	1	0	103	1	1	4	6
42	1	1	0	109	1	1	4	4
43	1	1	0	77	1	1	4	6
44	0	1	0	65	4	3	5	5
45	1	1	0	81	3	2	4	4
46	0	1	0	66	4	5	4	6
47	1	1	0	103	1	1	4	4
48	1	1	0	94	1	1	4	4
49	0	1	0	64	4	3	6	5
50	0	1	0	65	1	1	4	6
51	1	1	0	72	4	3	2	5
52	1	1	0	102	4	4	5	6
53	1	1	0	64	1	1	3	6
54	1	1	0	116	1	1	4	4
55	1	1	0	78	1	1	5	7
56	1	1	0	84	1	1	4	4
57	1	1	0	92	1	1	4	4
58	1	1	0	73	1	1	4	4
59	1	1	0	95	1	1	4	4
60	0	1	0	106	1	1	4	4
61	1	2	0	81	1	2	4	2
62	0	2	0	61	1	2	4	3
63	0	3	0	97	5	5	4	5
64	0	3	0	73	1	4	6	7
65	1	2	0	53	3	3	4	6
66	0	2	0	96	1	2	4	6
67	1	3	0	103	3	5	4	7
68	0	3	0	92	4	3	5	5
69	1	2	0	100	3	3	5	4
70	0	2	0	104	5	3	4	6
71	1	3	0	72	3	3	5	7
72	1	3	0	115	3	3	5	5
73	0	2	0	96	1	2	4	5
74	1	2	0	78	1	2	2	3
75	0	3	0	84	3	3	4	5
76	0	3	0	96	3	3	4	7
77	0	2	0	81	1	1	4	4
78	0	2	0	50	3	2	3	3
79	1	3	0	81	2	2	4	5
80	0	3	0	63	4	3	5	7

<u>Participant</u>	<u>No Ad Value</u>	<u>No Ad Safety</u>	<u>No Ad Purchase</u>	<u>No Safety Familiarity</u>	<u>No Safety Knowledge</u>	<u>No Safety Quality</u>	<u>No Safety Ease</u>	<u>No Safety Value</u>
41	4	6	1	3	3	4	7	5
42	4	4	4	5	5	5	5	5
43	4	4	5	3	3	4	6	4
44	4	4	5	2	3	4	5	4
45	4	4	2	7	7	6	6	6
46	6	5	7	4	4	5	6	5
47	4	4	3	2	1	4	4	4
48	4	4	4	2	1	4	4	4
49	5	3	5	3	2	2	7	4
50	4	4	2	3	3	4	6	4
51	4	2	2	5	3	6	5	4
52	6	6	3	2	2	4	6	4
53	4	6	4	1	1	3	2	3
54	4	4	4	1	1	4	4	4
55	4	7	7	1	1	4	4	4
56	4	4	4	3	2	4	4	4
57	4	4	1	1	1	4	4	4
58	4	4	4	4	4	5	7	5
59	4	4	4	4	6	4	6	4
60	4	4	4	5	4	6	6	4
61	4	3	4	1	2	4	5	4
62	5	5	2	3	3	5	6	3
63	4	3	2	5	5	5	5	4
64	5	5	3	1	5	6	7	5
65	6	4	1	3	3	5	5	5
66	4	2	1	1	2	4	6	4
67	5	6	5	1	3	4	5	4
68	5	5	5	4	4	6	6	5
69	4	3	2	1	1	4	7	6
70	4	5	2	5	5	4	5	4
71	5	5	5	2	2	1	1	1
72	5	5	4	3	3	5	5	5
73	4	6	3	2	3	4	5	5
74	3	3	2	2	2	4	5	4
75	4	4	3	5	5	5	5	4
76	4	4	2	2	2	4	4	4
77	4	4	4	2	2	4	4	4
78	4	3	2	3	3	3	2	4
79	4	4	4	3	3	5	6	5
80	6	4	6	3	2	4	3	5

<u>Participant</u>	<u>No Safety Safety</u>	<u>No Safety Purchase</u>	<u>Indirect Safety Familiarity</u>	<u>Indirect Safety Knowledge</u>	<u>Indirect Safety Quality</u>	<u>Indirect Safety Ease</u>	<u>Indirect Safety Value</u>	<u>Indirect Safety Safety</u>
41	7	3	2	3	5	5	4	6
42	4	5	1	1	4	4	4	4
43	4	5	1	1	4	4	4	4
44	4	5	1	2	4	4	4	4
45	6	7	5	4	4	5	4	4
46	5	5	6	6	5	7	5	6
47	4	3	2	1	4	4	4	4
48	4	4	1	1	4	4	4	4
49	2	2	2	1	4	6	4	5
50	4	2	2	3	4	6	4	4
51	4	5	5	3	3	6	4	5
52	6	4	2	2	4	5	5	4
53	3	1	1	1	4	5	3	5
54	4	4	4	3	4	6	5	6
55	3	1	1	1	7	7	7	3
56	4	3	1	1	4	4	4	4
57	4	1	4	4	4	7	4	4
58	6	6	5	4	5	4	4	4
59	6	6	2	3	4	6	4	5
60	4	6	3	3	4	4	4	4
61	5	4	1	1	4	2	4	3
62	6	5	2	1	3	4	4	2
63	3	3	4	5	6	3	3	4
64	5	2	1	3	6	7	4	3
65	5	5	3	3	4	5	5	5
66	2	1	1	2	4	6	4	2
67	4	3	2	4	4	5	5	3
68	5	6	5	4	5	6	5	5
69	4	3	1	3	4	7	4	4
70	5	4	4	4	4	6	4	5
71	1	1	7	7	7	7	7	7
72	5	5	4	4	5	5	5	5
73	2	1	1	1	5	6	5	5
74	4	1	1	2	3	5	4	4
75	5	5	4	3	4	5	4	4
76	4	2	4	4	5	5	4	5
77	4	4	2	2	4	5	4	4
78	4	3	3	2	3	4	5	6
79	6	6	2	2	4	5	4	4
80	3	4	1	1	4	7	4	3

<u>Participant</u>	<u>Indirect Safety Purchase</u>	<u>Direct Safety Familiarity</u>	<u>Direct Safety Knowledge</u>	<u>Direct Safety Quality</u>	<u>Direct Safety Ease</u>	<u>Direct Safety Value</u>	<u>Direct Safety Safety</u>	<u>Direct Safety Purchase</u>
41	2	1	1	4	6	4	7	2
42	4	2	2	4	5	4	4	4
43	1	4	5	4	6	5	5	7
44	2	3	3	4	4	4	4	2
45	5	2	2	4	4	4	4	4
46	7	5	5	5	4	4	5	5
47	3	2	1	4	4	4	4	3
48	4	2	1	4	4	4	4	4
49	3	2	1	3	4	4	4	3
50	2	1	1	4	4	4	4	2
51	5	5	4	5	4	5	3	5
52	3	2	2	4	5	4	5	2
53	3	2	2	4	7	3	4	4
54	5	3	3	4	6	4	4	5
55	7	1	1	5	7	7	7	7
56	4	3	2	4	5	4	4	5
57	1	1	1	4	4	4	4	1
58	4	2	2	4	4	4	4	5
59	5	3	3	4	6	4	6	5
60	2	4	4	4	5	4	4	5
61	4	1	2	4	5	4	5	1
62	1	1	1	4	5	4	5	3
63	6	4	4	5	3	4	5	2
64	3	1	3	4	6	5	5	2
65	1	3	3	4	5	5	5	1
66	1	1	2	4	6	4	3	2
67	3	2	4	4	7	3	5	2
68	5	4	3	4	5	4	5	3
69	1	1	2	4	5	4	5	1
70	3	5	5	6	6	6	6	6
71	7	3	4	4	5	5	1	4
72	5	3	3	4	4	4	4	3
73	2	4	4	3	6	4	4	1
74	3	2	2	4	4	5	4	2
75	4	2	3	4	4	4	5	6
76	4	3	3	5	5	4	5	4
77	4	3	3	5	5	4	3	4
78	4	4	3	4	4	3	3	4
79	4	2	2	4	6	5	5	5
80	1	4	4	6	4	5	6	5

<u>Participant</u>	<u>Warning Familiarity</u>	<u>Warning Knowledge</u>	<u>Warning Quality</u>	<u>Warning Ease</u>	<u>Warning Value</u>	<u>Warning Safety</u>	<u>Warning Purchase</u>
41	1	1	4	5	4	7	1
42	3	3	4	5	4	4	4
43	3	3	5	4	4	4	6
44	2	3	4	4	4	4	6
45	1	1	4	4	4	2	3
46	3	2	3	3	2	1	1
47	4	2	5	5	4	2	3
48	1	1	4	4	4	4	4
49	4	2	5	7	4	6	3
50	3	3	4	6	4	4	2
51	3	3	3	6	4	6	4
52	3	3	5	5	5	3	3
53	1	1	2	7	4	4	4
54	1	1	4	4	4	4	4
55	1	1	7	7	7	7	7
56	3	2	4	5	4	4	4
57	6	7	7	6	4	7	6
58	3	3	4	4	4	4	5
59	1	1	4	4	4	4	5
60	4	4	5	6	4	6	5
61	1	2	4	6	4	5	4
62	1	1	4	6	4	5	1
63	5	5	4	6	4	6	5
64	1	5	6	7	5	7	1
65	1	2	4	4	4	3	4
66	1	2	4	3	4	2	1
67	3	4	4	5	7	6	5
68	4	4	5	4	4	4	5
69	1	2	4	7	4	3	1
70	5	4	5	5	5	5	4
71	5	5	1	5	2	1	1
72	2	2	5	5	4	5	4
73	5	4	5	7	6	5	4
74	1	2	4	5	4	4	2
75	3	3	4	5	5	4	3
76	4	4	5	5	4	5	4
77	2	2	4	5	4	4	4
78	2	2	2	3	3	5	3
79	3	3	5	6	5	5	5
80	3	4	4	5	6	4	6

<u>Participant</u>	<u>No Ad Recall</u>	<u>No Safety Recall</u>	<u>Indirect Safety Recall</u>	<u>Direct Safety Recall</u>	<u>Warning Recall</u>	<u>Total Recall</u>
41	1	5	4	5	5	20
42	3	6	4	5	3	21
43	7	6	4	5	6	28
44	1	5	4	5	3	18
45	2	2	1	2	2	9
46	2	4	3	5	7	21
47	7	7	6	5	4	29
48	3	6	3	1	2	15
49	3	3	3	2	2	13
50	4	3	5	5	3	20
51	4	3	4	2	2	15
52	4	8	4	6	4	26
53	5	3	3	2	5	18
54	6	4	7	3	5	25
55	5	3	3	1	4	16
56	5	4	5	3	3	20
57	1	3	4	5	6	19
58	4	1	3	5	4	17
59	3	2	4	5	5	19
60	3	2	6	7	5	23
61	4	6	3	5	7	25
62	0	3	4	6	2	15
63	3	5	6	5	8	27
64	3	5	1	4	4	17
65	4	4	1	3	4	16
66	5	4	1	1	3	14
67	5	5	2	5	3	20
68	6	3	2	2	1	14
69	1	3	6	4	1	15
70	4	6	5	4	2	21
71	6	5	4	4	3	22
72	5	3	5	5	2	20
73	3	3	4	1	4	15
74	3	3	6	4	4	20
75	3	5	2	2	8	20
76	4	4	4	1	6	19
77	2	4	2	4	4	16
78	2	1	4	4	3	14
79	5	2	3	3	4	17
80	3	2	7	3	6	21