

CONSUMER MISCOMPREHENSION:
AN EXPERIMENTAL STUDY OF
AGE GROUP DIFFERENCES

By

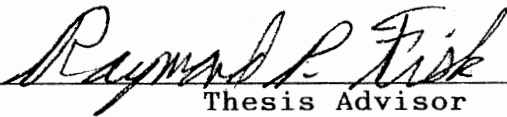
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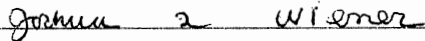
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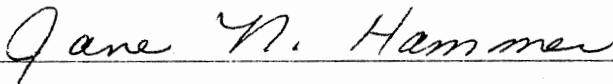
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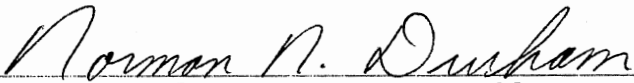


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C O P Y R I G H T

by

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CHAPTER I

STUDY OVERVIEW

Introduction

In 1982, 78 individuals, (33 adults and 45 children), became ill after they mistakenly used a free sample of Sunlight dishwashing liquid as lemon juice. A number of similarities were apparent when researchers compared Sunlight's package and a Minute Maid frozen lemon juice container. Both containers were yellow, pictured a lemon on the label, and smelled like lemons. In addition, the brand name "Sunlight" could have easily applied to either a lemon juice or dishwashing product. In spite of these similarities, consumers might still have read the words "Dishwashing Liquid" on the Sunlight label informing them of the product's intended use (Reiling 1982).

A recent issue of Consumer Reports (September 1987, p. 524) contained a letter from a doctor who had seen several patients with severe eye injuries that resulted when individuals mistakenly used insect repellent as contact lens solution because of package similarities.

These two incidents exemplify a significant problem for marketers and public policy makers: miscomprehension related to the product offering (Gates and Hoyer 1986). This lack of comprehension may manifest itself by miscomprehension of the advertising message (Jacoby and Hoyer 1982), confusion of

"copycat" products with their brand name counterparts (Loken, Ross, and Hinkle 1986), or misinterpretation of product attributes and product use as evidenced by the Sunlight incident. To date, no published study has examined the phenomenon suggested by the Sunlight anecdote: miscomprehension of similarly packaged, yet distinctly different, products.

Public policy makers and marketers are showing increased interest in older adults. Policy makers are concerned due to the elderly's vulnerability to unfair business practices and their tendency to remain silent when problems arise (Zaltman, Srivastava, and Deshpande 1978; McGhee 1983). Meanwhile, this age group's numerical size and buying power presents an attractive segment to marketers who desire to more effectively communicate their product offering to older adults (Greco 1987). Certain characteristics of this population segment suggest that they might be more likely to miscomprehend the attributes of similarly packaged products or to misinterpret physical cues related to the product offering. Therefore, both public policy makers and marketers could benefit from research that investigated age differences in consumer miscomprehension of similarly packaged goods.

Literature Overview

Several bodies of literature need to be examined to provide a theoretical foundation for investigating the phenomenon of confusion among similarly packaged products:

(1) pattern recognition, (2) visual information processing, (3) consumer miscomprehension, and (4) the characteristics of older consumers.

Pattern Recognition

Models of pattern recognition, from an information processing perspective, generally agree on two points. First, individuals engage in a type of matching process in which visual stimuli are compared to stored mental images to see if the stimuli are recognized (Humphreys 1983). Comparison involves an attribute-by-attribute analysis of the stimulus against the attributes of the existing mental image (Weisstein 1973). Second, experience and expectations may influence one's attention to and interpretation of stimulus attributes. One may identify a visual stimulus as a certain entity based on what one expects to see and/or which features of that stimulus are selectively attended to (Neisser 1967).

Visual Information Processing

Closely linked to pattern recognition is the area of visual information processing. In general, individuals find processing pictures easier than processing words (Madigan 1983). Also, pictorial information can draw more attention than words and can serve as a source of distraction (Edell and Staelin 1983). When the pictorial information does not relate to nor complement the written information, the picture can act as a source of distraction thus preventing the individual from critically evaluating the written message. In contrast, when

the picture corresponds to written information, an individual may actually be in a better position to evaluate the printed message (Edell and Staelin 1983).

Stimulus generalization is another aspect of visual information processing that is pertinent to this study. According to Kahneman (1973), most individuals do not attend equally to all attributes of a stimulus. Furthermore, an individual's experiences or expectations may influence which attributes gain the person's attention. Lastly, stimulus generalization is more likely to occur for low-involvement products than high-involvement products (Kerby 1967).

Consumer Miscomprehension

Marketing research into the area of consumer miscomprehension has focused on miscomprehension related to the advertising message and miscomprehension related to some aspect of the product itself. Concerning the latter area of investigation, the few studies that have delved into this area have concentrated on potential trademark infringement resulting from similarities of "copycat" products to a similar name brand product. The general findings of these studies suggest that consumers often confuse the manufacturing origin of similarly packaged products (e.g. Miaoulis and D'Amato 1978; Loken, Ross, and Hinkle 1986) and that they attribute the characteristics of the name brand products to the imitation products (Ward et. al. 1986).

Older Consumers

Older individuals differ from younger ones on a number of dimensions that may increase their likelihood of misunderstanding similarly packaged, yet inherently different, products. For example, older people prefer concrete tasks to abstract tasks (Botwinick 1973). As such, this age group may be more likely to focus on the concrete symbols of a product (such as package/product shape, color, pictorial label information) to provide a basis for evaluation. Additionally, older people allow their personal experience to influence their evaluations of new products (Schiffman 1971).

Older people also have greater difficulty ignoring distracting information (Rabbitt 1965). Thus, if the pictorial and written information do not correlate, an older person will find it harder to assess which of the two information forms is irrelevant and should be ignored. Given older individuals' diminished eyesight and preference for concrete tasks, one would expect older people to focus on pictorial, as opposed to written, information. Additionally, older people have difficulty discerning between similar stimuli, especially when irrelevant information is present (Farkas and Hoyer 1982). Thus, in terms of the present study, one would expect older people to be more likely to generalize the attributes of a more familiar product to a less familiar, yet physically similar, product.

Summary

The tendency of individuals to generalize among products that are similar on some attributes, to allow past consumption behavior and expectations to influence their current product perceptions, and to focus on pictorial information provides some insight into why consumer confusion among similarly packaged products might take place. Additionally, unique characteristics of older adults suggest that this population segment, compared to younger adults, may be at a greater risk to experience consumer confusion.

Direction of Study

The issue of consumers mistaking similarly packaged products will be investigated by focusing on miscomprehension of the product offering. Although the ultimate point of concern to marketers and public policy makers is the product misuse that might result from confusing two similar looking products, an assessment of the behavioral aspect of consumer miscomprehension is beyond the scope of this study. Two considerations influenced this decision.

First, stimulus generalization is most likely to occur in a low-involvement setting (Kerby 1967). The hierarchy of effects for a low-involvement decision-making process occurs in the following sequence: beliefs → behavior → affect (Mowen 1987). In other words, cognitive processes precede observable behavior. Thus, in the case of consumer confusion for low-involvement products, miscomprehension, the cognitive dimen-

sion, should logically precede product misuse, the observable behavior.

Second, previous studies have used cognitive measures as surrogate assessments of behavior. For example, Fishbein and his colleagues developed multiattribute choice models for attitude and behavioral intentions as a means of estimating actual purchase behavior (Mowen 1987). Additionally, Jacoby and his colleagues (e.g. Jacoby and Hoyer 1982) focused strictly on miscomprehension of the advertising message without making any attempt to measure subsequent behavior related to the misunderstood message. Also, the studies that examined product confusion with respect to manufacturer's origin (Ward et. al. 1986; Loken, Ross, and Hinkle 1986) only measured the subjects' cognitive processes (e.g. rating the similarity between imitative brand and name brand) without providing the opportunity for the subject to purchase the imitative product in lieu of the name brand product.

Given the hierarchy of effects for low-involvement situations, previous research, and the lack of published data concerning consumer miscomprehension, this exploratory study focuses on the cognitive aspect of consumer miscomprehension. The study will be delimited to the influence of brand name and label design on consumer miscomprehension. Specifically, this research will attempt to determine whether older adults are more likely than younger adults to miscomprehend similarly packaged products.

Research Questions and Hypotheses

The general orientation of this research is to provide insight to marketers and public policy regarding the following areas:

-- Do individuals miscomprehend products that are similar in physical form and packaging, yet offer distinctly different benefits?

-- Do brand name and/or label design appear to influence consumer miscomprehension?

-- Are older adults more susceptible to miscomprehending similarly packaged products than their younger counterparts?

The following hypotheses are proposed to investigate these areas of concern:

H1: Subjects will experience greater miscomprehension regarding the product offering when the label design incorporates an "unframed" picture.

H2: Subjects will experience greater miscomprehension regarding the product offering when the brand name is vague with respect to the product's intended use or attributes.

H3: Older subjects will experience greater miscomprehension regarding the product offering than older subjects.

Methodology Overview

Two marketing variables will be manipulated: label design and brand name. The study will be conducted as a 2 x 2 factorial design with label design and brand name as the factors and consumer miscomprehension as the dependent variable. Age will be measured on an interval basis and will act as a covariate. Analysis of variance and analysis of

covariance will be performed on the resulting data.

Anticipated Contributions

To date, no published efforts have investigated the phenomenon of consumer miscomprehension of similarly packaged products. Therefore, one of the major contributions of this study will be to provide preliminary findings related to this area of consumer behavior research. Specifically, this study will examine the extent to which label design and brand name can influence consumers' comprehension of the product's usage and attributes. Additionally, this study will investigate whether older consumers are more likely than younger ones to miscomprehend similarly packaged products.

The findings in these areas should contribute to marketing management and public policy. Although the results of this study will pertain to the consumer market as a whole, the primary area of contribution will relate to the older population. As marketers tailor more products toward the elderly, they are in greater need of understanding how older consumers differ from younger consumers with respect to comprehension of marketing communications. This study's results will provide implications for marketers concerning package label design and brand naming such that older adults have maximum comprehension of the product offering.

Policy makers have typically focused their efforts on the more vulnerable segments of our society. Older adults have often been a source of concern to policy makers, especially

with respect to unfair business practices. Therefore, the findings of this study will also be useful to policy makers should the need arise to develop regulations concerning brand names and package label designs.

Plan of Study

This study begins by reviewing related bodies of literature. Specifically, Chapter II discusses pertinent findings concerning pattern recognition, visual information processing and perception, consumer miscomprehension, and unique characteristics of older adults. Chapter III presents the methodology employed in the conducting of this research and enumerates the hypotheses to be investigated. A section is included within this chapter that focuses on the factors taken into consideration for the development of the methodology. These factors are construct-related issues, precautions involved in doing research with older people, the criteria used in the selection of test products, and three pre-test results.

Chapter IV presents the findings and results. Chapter V discusses the results and relevant marketing and public policy implications. Chapter V also contains a discussion of this study's contributions to the marketing literature, its limitations, suggestions for future research, and concluding comments.

CHAPTER II

LITERATURE REVIEW

This chapter begins with an overview of the underlying theoretical basis for consumer miscomprehension: pattern recognition. The chapter then addresses the topic of visual information processing and perception as it pertains to the design of packaging and advertising. Next, consumer miscomprehension as it relates to advertising messages and product offerings is discussed. Finally, characteristics of older adults that suggest that they may be at a higher risk of consumer miscomprehension are examined.

Theoretical Perspectives Of Pattern Recognition

Psychologists have investigated the pattern recognition phenomenon from two basic theoretical perspectives: physiological and cognitive. The first perspective involves what may be termed the "neurophysiological paradigm" (Weisstein 1973). This viewpoint focuses on the sensory processing aspects of pattern recognition and examines how visual stimuli effect the neurological functioning of the brain. Also, the individual is seen as having a less active role in the processing of visual stimuli.

The second perspective encompasses an information

processing viewpoint of pattern recognition, and may be considered the "psychophysical paradigm" (Weisstein 1973). This perspective allows the perceiver to play a more active role in the processing of visual stimuli, and subsequently pattern recognition, by taking into account the influence of expectations and focused attention (Neisser 1967).

The information processing perspective was chosen as the basis for this research for two major reasons. First, the other pertinent literature to this study, (i.e. visual information processing and perception, consumer miscomprehension, and the characteristics of older adults), have the information processing paradigm as their foundation. Second, the information processing paradigm is prevalent among other areas of consumer behavior research. Therefore, the information processing approach was selected for this study to provide consistency with and comparability to the body of consumer behavior research.

Commonalities

Although many theories of pattern recognition have been offered within the information processing realm, two assumptions exist. According to Humphreys (1983), "A common assumption of information processing approaches to object recognition is that recognition is achieved by mapping stimulus information into some form of internal representation specifying the properties of the object" (p. 151). In other words, individuals possess some form of internal "perceptual reference frame" against which incoming visual stimuli are

compared. The works of theorists such as Selfridge (1959), Neisser (1967), Sutherland (1968), and Lindsay and Norman (1977) exemplify this approach. Secondly, the influence of one's "perceptual set" (Neisser 1967) is a recurring assumption. Specifically, one's expectations are viewed as influencing the order in which a stimulus' attributes are attended and encoded (Neisser 1967).

Major Models

The major models of pattern recognition within the information processing domain are the Template Matching model, the Feature Analyzing model, and the Analysis-by-Synthesis model. Each of these will be discussed briefly.

The Template Matching model has its theoretical roots in Gestalt psychology. According to this perspective, the individual forms mental images, called templates, prototypes, or canonical forms. As the individual perceives an incoming visual stimulus, s/he "computes a correlation coefficient" between the stimulus input and the internal template and assesses how near 1.0 that resulting coefficient is (Neisser 1967). Additionally, the stimulus input can be "normalized" prior to being compared to the template. In other words, one can mentally focus a blurred object, rotate, or center the stimulus so that it more closely approaches the stored image of the template. Several arguments against this approach exist (see Neisser 1967, pp. 64-65). In general, the template-matching model is seen as too simplistic to account for the

complexities involved in human pattern recognition.

Feature-Analyzing models have been described by Selfridge (1959), Sutherland (1957), and Bruner (1957). This approach assumes a cognitive system whose searching process is hierarchically organized. At the most basic level are "analyzers" that test the stimulus input for various features or attributes for identification purposes (Neisser 1967). The individual attempts to see if any combinations of the stimuli's features are characteristic of a known pattern. Some psychologists (e.g. Uhr 1963) argue that the feature analyzers develop from experience rather than being an innate tendency.

The Analysis-by Synthesis model (Eden 1962) views the individual as taking in "sensory information, selecting some of it as important and discarding some as irrelevant and then, using information from memory, constructing his percept of a ...meaningful pattern" (Mussen and Rozenzweig 1973, p. 606). Research in this area found, however, that once an errant perception was formed, it had to be "dislodged" before the correct perception could be attained (Mussen and Rozenzweig 1973).

Each of the three models possesses its own limitations and flaws. Current research suggests that some form of property-list analysis occurs. However, how individuals specifically recognize patterns is unknown (Weisstein 1973). In general, pattern recognition is considered to be a sequential process of translating a visual stimulus into a mental picture that occurs in the following order:

registration, description, and interpretation (Weisstein 1973).

Visual Information Processing

Basic differences in the ability to process pictorial versus written information, the role of distraction, and stimulus discrimination are three pertinent aspects of visual information processing and perception.

Pictures Versus Words

In general, individuals process pictorial information more easily than written information (Madigan 1983, Edell and Staelin 1983). This tendency occurs because pictorial information is processed simultaneously, whereas written information is processed sequentially (Holbrook and Moore 1981). Additionally, pictures tend to gain more attention than the written word (Edell and Staelin 1983). Consequently, individuals will typically attend to pictures more readily than words (Edell and Staelin 1983). This phenomenon suggests one possible explanation for why consumers may experience confusion regarding similarly packaged products -- they allow the label design (pictorial information) to influence their understanding of the product's attributes rather than focusing on the written product description.

Distraction

Another pertinent aspect of visual processing involves the presence of distraction. In many instances pictures can

serve as a form of distraction. Such distraction can lead consumers to spend less effort thinking about and evaluating product attributes (Edell and Staelin 1983). Edell and Staelin (1983) also proposed that "distracted consumers do not retrieve from memory the criteria normally used to evaluate the advertised brand and thus do less critical thinking" (p. 47).

Given that individuals prefer to process pictorial information and that pictures can distract a person's cognitive processes, the concepts of "framed" and "unframed" pictures are relevant. An "unframed" picture is defined as "an ad in which the verbal message does not relate the picture to the brand" (Edell and Staelin 1983, p.47). In the current context one might visualize the verbal message as the brand name or product description. In other words, an "unframed" picture would involve a picture (on the label) that did not relate to the brand name or product description. Conversely, a "framed" picture (on a label) would be one that did relate to the brand name or description of the product. According to Edell and Staelin (1983), an "unframed" picture serves as a source of distraction and can inhibit consumers from using the appropriate criteria for product evaluation. A "framed" picture, however, helps consumers use appropriate product attributes as a basis for evaluation. As such, the picture functions more like an illustration of the written message than as a potential source of distraction.

Stimulus Discrimination

Kahneman's (1973) discussion of stimulus discrimination provides additional insight to the topic of visual information processing. First, most theories of discrimination learning assume that individuals do not attend equally to all attributes of a stimulus. Often one attribute will be the dominant cue even in the presence of other relevant cues. In a marketing context, Narayana and Duncan (1980) suggested that physical similarities may serve to generate stimulus generalization to a greater extent than semantic similarities. In other words, consumers use physical characteristics as a means of mentally grouping products rather than brand names.

A second aspect of discrimination learning is the influence of prior learning. If one stimulus attribute has proven successful over time as a basis of evaluation, then the individual will typically continue to use that attribute in future situations (Kahneman 1973). For many adults, the label picture, product design, package shape, or fragrance may have served as reliable attributes by which to judge product contents and use in the past. Thus, when consumers evaluate a product similar to one they've used in the past, their experiences may dictate that the same attribute(s) should be used again. As a result, consumers may arrive at a faulty evaluation of the product.

Consumer Miscomprehension

Miscomprehension results "when the receiver extracts

either an incorrect or a confused meaning from a communication" (Jacoby and Hoyer 1982, p.12). This area has been investigated through two basic streams of research: miscomprehension that has occurred with respect to the advertising message and miscomprehension related to some aspect of the product itself.

Advertising

The importance of miscomprehension arose in the late seventies as a result of the attention being paid to the issues of deceptive, misleading, and corrective advertising (Jacoby and Hoyer 1982). The majority of studies that investigated message miscomprehension are found in psychology (e.g. Chaiken and Eagly 1976) and journalism (e.g. Katz, Adoni, and Parness 1977). Recently, Jacoby, Hoyer and their associates have investigated this area from a marketing perspective (e.g. Jacoby, Nelson, and Hoyer 1982; Jacoby, Hoyer, and Zimmer 1982; Hoyer and Jacoby 1985).

The majority of marketing studies on consumer miscomprehension have revolved around television commercials. Jacoby and Hoyer (1982) conducted the first study, which attempted to ascertain the extent of televised message miscomprehension among adult subjects. The authors measured the miscomprehension rate for three categories of televised messages: program excerpts, commercial advertising, and non-commercial advertising. They found that television commercial miscomprehension averaged approximately 28.3 percent. However, in another study, the authors found that the

miscomprehension rate could be as high as fifty percent for corrective advertising messages (Jacoby, Nelson, and Hoyer 1982). Schmittlein and Morrison (1983) criticized Jacoby and Hoyer's (1982) original study by suggesting that the average miscomprehension rate of 28.3 percent may in effect be closer to 46 percent when corrections for guessing and yea-saying were taken into account.

Jacoby, Hoyer and Zimmer (1982) compared the miscomprehension rate of messages via television, broadcast, and print, they found that audio-only messages were the most miscomprehended and print messages were least miscomprehended. Additionally, the mean miscomprehension rate across the three media was 22 percent. The authors noted that this finding may underestimate the true miscomprehension rate of the general public due to the sample. The subjects were college students who, with their higher educational level, may have biased the results.

Products

Research into product misperception has focused on potential trademark infringements resulting from "copycats" of brand name products and the subsequent consumer confusion regarding the manufacturer origin of such products (e.g. Miaoulis and D'Amato 1978; Loken, Ross, and Hinkle 1986) or the attribution of the name brand's product characteristics to the "copycat" products (Ward et. al. 1986). Thus, these studies focused primarily on miscomprehension of attributes for similar

product offerings.

The earliest study of consumer miscomprehension with respect to a brand name product and imitation products was that of Miaoulis and D'Amato (1978). The focal issue of their research was the potential infringement on Tic-Tac's trademark by Dynamints and Mighty Mints. Previous research indicated that consumers had already developed an image of the product concept and benefits. The Tic Tac package design, product shape, and "tree" display together formed a visual cue of the product offering. The other two brands of breath mints imitated these aspects of Tic Tac.

Miaoulis and D'Amato (1978) asked a series of open-ended questions from persons who had just purchased either a package of Dynamints or Mighty Mints in a drug store regarding their expectations of the product's attributes, awareness of similar products, and whether the purchased mints and any other similar products were made by the same manufacturer. They found that the majority of persons who had purchased either the Dynamints or Mighty Mints had done so to obtain the benefits offered by the Tic Tac mints. The researchers also found that respondents who believed that the mints they had purchased were made by the Tic Tac manufacturer cited the similarity of the product package and product appearance as the basis for their belief.

Loken, Ross, and Hinkle (1986) further examined the issue of confusion of manufacturer origin between name brand and imitative products. More specifically, their study examined the relationship between the extent of physical similarity

between the name brand and imitative product and the resulting consumer perception of their commonness of origin. Student subjects viewed slides that pictured pairs of shampoo, cold remedies, deodorants, and mouthwashes. One of the products was a name brand, the other product was a private label, or "copycat," product. The subjects rated the degree of similarity in physical appearance of the two products, judged whether the two products had the same manufacturer origin, and indicated the degree of confidence they had in their decision.

Loken, Ross, and Hinkle (1986) found that, as predicted, the greater the similarity in physical appearance between the name brand and private label product, the greater the likelihood that the subject believed the products to have a common manufacturer origin. The authors also noted that this result occurred even when only a moderate level of physical similarity was present.

In a related study, Ward et. al. (1986) examined the extent to which physical similarity between national brands and private brands influenced the generalization of beliefs, attitudes, and purchase intention between the two brand categories. In their study, student subjects viewed slides of fourteen brands of shampoo, which had already been rated by different subjects with respect to physical similarity. The subjects then rated each of the fourteen brands on: 1) salient attributes in the form of belief statements, 2) attitude toward the brand, 3) attitude toward purchasing the brand, 4) purchase intention, and 5) knowledge and usage. Ward et. al.

(1986) found that the greater the perceived similarity in physical appearance between a name brand shampoo and a private label shampoo, the more likely subjects were to attribute the characteristics of the name brand shampoo to the private label shampoo.

Older Consumers

Older consumers differ from younger consumers in a number of ways. Some of these differences suggest that older consumers may be more susceptible to consumer miscomprehension than younger consumers.

Preference for Concrete Tasks

Older consumers typically understand and learn concrete information better than abstract information (Rowe and Schnore 1971, Botwinick 1973). In addition, differences between the ability to learn concrete and abstract information increase with age (Rowe and Schnore 1971). As a result, older consumers prefer concrete tasks over abstract tasks (Botwinick 1973). They also attempt to make information processing tasks as concrete as possible (Botwinick 1973). Furthermore, Park, Puglisi, and Sovacool (1983) found that older persons find pictures easier to recall and recognize compared to words.

These tendencies suggest that older consumers may be more likely than younger consumers to interpret a product's use based on its concrete symbols. Such symbols could include the container shape and/or color, its odor, and any pictures on the label. Older consumers may also be less likely than

younger consumers to read written package information in the presence of these concrete symbols because of their avoidance of abstract processing tasks.

Distraction

A second characteristic of older consumers that may influence their ability to "correctly" perceive the product offering involves the role of distraction. Rabbitt (1965) examined the impact of distraction on experimental task performance for younger (average age 19) and older (average age 67) respondents. He found that the relative performance for the younger and older adults did not change when the number of task-relevant stimuli increased. However, when irrelevant stimuli (irrelevant to the experimental task) were introduced, the decrease in performance was much greater for older adults than for younger adults. Rabbitt's (1965) findings suggest that the elderly's diminished task performance is largely attributable to their inability to ignore irrelevant stimuli and not to their inability to process pertinent information (Phillips and Sternthal 1977).

Layton (1975) provides a review of the literature relating distraction (or perceptual noise) to aging. Layton found general support for the hypothesis that the "decrement in performance due to the presence of irrelevant or interfering stimuli is an increasing function of age" (p.875). Thus, older consumers may be less able to correctly perceive a product's appropriate function if stimuli related to the

product (i.e. packaging, color, smell, label design) were irrelevant, or "unframed" to use Edell and Staelin's (1983) terminology, thus acting as a form of distraction. On the other hand, when the pictorial information is "framed," or relevant, one would expect product perceptions of older and younger consumers to converge.

The Role of Experience

A third relevant characteristic of the elderly is their tendency to rely on their own experience as a source of information and as a basis for judging a product (Schiffman 1971; Mason and Smith 1974). This tendency to engage in internal information search has been attributed to older consumers' acquisition of "preconceived likes and dislikes during the years they have been making consumption decisions" (Schiffman 1971, p.37). Phillips and Sternthal (1977) commented that although the speed at which older persons process information diminishes, the older individual may compensate by forming larger "chunks" of information based on experience. For older persons, some processing tasks are routine and therefore put little demand on short-term memory.

With regard to product perception, older consumers may tend to judge new products from the perspective of personal experience. Thus, if a product smelled like a lemon, came in a yellow container, and had a picture of a lemon on it, then experience would tend to interpret the product as lemon juice rather than a new brand of dishwashing liquid.

Visual Information Processing

A final characteristic of the elderly that may influence their ability to correctly perceive a product involves the decline in visual information processing ability. As one ages, one experiences a decrease in visual acuity (Ross 1982). According to Mason and Bearden (1979), reading package and label information may present a problem for many older consumers. Both quality and legibility of written package information is considered poor (Ross 1982). Thus, the elderly may be forced to "read" the package pictures rather than the written information.

The results of Rabbitt's (1965) study, previously discussed, suggested that older people have greater difficulty to ignoring irrelevant information than younger people. Studies by Hoyer and Plude (1980, 1982) found that the form of visual information processing required influenced these performance differences. Specifically, one study found that when "target" visual stimuli were highly discriminable from "nontarget" irrelevant visual stimuli, age differences in the ability to ignore irrelevant information disappeared (Farkas and Hoyer 1980). However, when a "target" visual stimulus and a "nontarget" visual stimulus were difficult to discriminate (i.e. easily confusable), older persons had a more difficult time ignoring the nontarget (irrelevant information) compared to younger people (Farkas and Hoyer 1980).

Summary

This chapter discussed four areas of literature: pattern recognition, visual information processing and perception, consumer miscomprehension, and the characteristics of older consumers. The findings in these fields provide some insight into why people may confuse similarly packaged, yet inherently different, products. In general, individuals tend to generalize among stimuli that are similar on some attributes, to allow their expectations to influence their evaluations and interpretations of stimuli, and to prefer pictorial information to written information. Additionally, unique characteristics of older people may make them more susceptible to confusing similarly packaged products than younger adults.

CHAPTER III

METHODOLOGY

Introduction and Overview

The purpose of this research is to investigate the phenomenon of consumers miscomprehending similarly packaged, yet inherently different products. Specific attention will be focused on whether older people are more likely to miscomprehend similarly packaged products. This study investigates the impact of the physical cues of label design and brand name on consumers' comprehension of the product offering.

This research attempts to examine consumer miscomprehension via a 2 x 2 factorial experiment with brand name specificity and label picture specificity as the two factors (see Figure 1). The two levels of brand name specificity are: specific brand name (i.e. the brand name conveys the product's intended use or attributes) or vague brand name (i.e. the brand name does not convey the product's intended use or attributes). The two levels of label picture specificity are framed (i.e. the picture relates to product usage or attributes) and unframed (i.e. the picture does not relate to product usage or attributes). The dependent measure is consumer miscomprehension. Subject age will be measured as a possible covariate. Analysis of variance and analysis of covariance will be performed on the resulting data.

Factor One: Label Design

	Framed	Unframed
<u>Factor Two:</u>		
Brand Name		
Specific		
Vague		

Figure 1. Experimental Design

Testing the Hypotheses

The following hypotheses are postulated:

Main Effect: Label Design

H1: Subjects will experience greater miscomprehension regarding the product offering when the label design incorporates an "unframed" picture.

Because unframed pictures can serve as a source of distraction and inhibit the consumer from critically evaluating the product description (Edell and Staelin 1983), miscomprehension of the product offering should be greater when the label incorporates an unframed picture than when a framed label picture is used.

Main Effect: Brand Name

H2: Subjects will experience greater miscomprehension regarding the product offering when the brand name is vague with respect to the product's intended use.

Consumers' expectations often serve as a basis for evaluating product attributes and usage (Schiffman 1971; Kahneman 1973). Therefore, if the brand name were specific in that it connoted product usage or attributes, the consumer's expectations would be influenced to evaluate the product along a certain line of thought. One would expect consumers to have a higher comprehension level of the product's identity and function when the brand name is specific than when the brand name was vague.

Age as a Covariate

H3: Older subjects will experience greater miscomprehension regarding the product offering than younger subjects.

Given older individuals' diminished cognitive abilities (Botwinick 1973) and declining ability to ignore distracting information (Rabbitt 1965), one would expect older subjects to experience more miscomprehension than the younger subjects.

Sample

A total of 146 adults from Stillwater and Cushing, Oklahoma were interviewed for this research. Six interviews from the older sample were discarded due to vision and/or hearing impairments, or failure to report their age, resulting in 140 usable interviews. Table I describes this sample with respect to age, gender, educational level, race, and location of data collection.

TABLE I
CHARACTERISTICS OF SUBJECTS

Characteristic	n	%
AGE:		
18 - 54	72	51.4
55 and older	<u>68</u>	<u>48.6</u>
TOTAL	140	100.0
GENDER		
Male	39	27.5
Female	<u>101</u>	<u>72.5</u>
TOTAL	140	100.0
EDUCATIONAL LEVEL		
Grade School	15	10.7
Some High School	6	4.3
High School Graduate	20	14.3
Some College or Trade School	51	36.4
College Graduate	27	19.3
Some Graduate Work	6	4.3
Graduate Degree	<u>15</u>	<u>10.7</u>
TOTAL	140	100.0
LOCATION OF DATA COLLECTION		
Woodridge Village	6	4.3
First United Methodist Church	7	5.0
Stillwater Christian Villa	3	2.1
The Hair Chair (Cushing, OK)	6	4.3

TABLE I (Continued)

Characteristic	n	%
LOCATION (Continued)		
Elderly Nutrition Site	24	17.1
American Association of Retired Persons -- Payne County Chapter	3	2.1
Roxie Weber Plaza	16	11.4
Frontier Engineering, Inc.	61	43.6
Freewill Baptist Church (Cushing, OK)	<u>14</u>	<u>10.0</u>
TOTAL	140	100.0

Instrument and Procedure Development

Several factors were taken into account in the development of the research instrument and experimental procedure. Measurement considerations with respect to the miscomprehension construct and working with older subjects are presented. Next, the criteria for selection of the test products is given. Finally, pretest results are discussed.

Measurement Considerations

Measurement considerations fall into two categories: construct-related and subject-related.

Construct-Related. Ford and Yalch (1982) pointed out the distinction between measuring recall and comprehension.

These authors recommended that multiple choice questions and open-ended questions with a probe be used conjunctively to assess miscomprehension. Gates and Hoyer (1986) suggested that one could develop the answers to the multiple choice questions by conducting a pretest of the message in question and using the "wrong" answers that the pretest subjects give.

Subject-Related. Many unique problems arise when one conducts studies involving older subjects. For example, interviewer bias (Kalish 1982) and subject acquiescence (Nilsson and Persson 1984) may occur more frequently when one uses older subjects. Whenever subjective methods of data collection, such as coding responses to open-ended questions, are employed one runs the risk of introducing interviewer bias. However, Kalish (1982) suggested that this source of error may pose an even greater threat in gerontological research due to the interviewer's preconception or stereotype of how an older person "ought" to respond.

Hoinville (1983) provided several considerations to keep in mind when interviewing older people. First, interviewing often takes longer with this age group for several reasons. The interviewer may need extra time to build rapport with the respondent. Additionally, most older people are not accustomed to the research setting and may require help in their role as respondent. The interviewer may also need to further explain or repeat questions due to the older respondent's decreasing ability to concentrate. This diminished concentration, coupled with vision or hearing problems, may also

effect the quality of the respondent's answers.

To remedy some of these difficulties, Hoinville (1983) offered the following suggestions:

- (1) Avoid complex questions
- (2) Phrase questions such that they do not appear threatening (i.e. make the older respondent look "bad" compared to a younger respondent)
- (3) Use consistency checks in your measurement instrument, if appropriate
- (4) Show acceptance of the older respondent and his answers

In their discussion of information processing deficits in older adults, John and Cole (1986) noted that caution should be exercised in the use of unaided recall because older individuals often have difficulty retrieving information from memory. Recognition methods may be a more appropriate means of assessing the dependent variable given that recognition does not depend upon retrieval abilities (White and Cunningham 1982).

Younger adults learn information at a faster pace than older adults. However, when older adults are allowed to learn information at their own rate, these learning differences disappear (Phillips and Sternthal 1977). Thus, to avoid handicapping the older subjects, research tasks should be self-paced to allow the older person to process the experimental stimuli at his/her own rate (Phillips and Sternthal 1977; John and Cole 1986).

Selection of the Test Products

Several criteria influenced the selection of test products. These considerations included:

Physical Similarity. The key criterion, given the purpose of the research, was to find products that might realistically be confused with other more familiar products. Additionally, the resulting product pairs should already exist in similar packaging or lend themselves to being packaged in identical containers.

"Neutrality." The products should be age and gender "neutral." In other words, both sexes, regardless of age, might be interested in and potentially use the products. Also, the products should be affordable by all subjects.

Low-Involvement. According to Kerby (1967), stimulus generalization is most likely to occur in a low-involvement situation. As previously discussed, product confusion often results from stimulus generalization. Thus, the test products should be "relatively" low-involvement.

Experience Level. Ford and Yalch (1982) noted that the subject's expertise with the product category could impact on the amount of miscomprehension that occurred. Specifically, the more experience the person has with the product category, the less miscomprehension should occur from a message about the product category. Thus, subjects should have the same experience level with the test products.

External Validity. A final consideration was that the findings approximate reality. In other words, the test

products should have the potential of being confused in the retail or home environment.

Pretest 1

A pretest was conducted to (1) validate the belief that consumers form product perceptions based on package shape, (2) gain insight into the development of the experimental procedure for the main study, and (3) determine which products should serve as test products. Student and older (mean age = 71 years) subjects viewed slides consisting of nine pairs of similarly packaged, yet distinctly different products (See Table 1 for product pairs).

A fictitious label replaced the true label on each product. The fictitious label was solid-colored with a nonsense word as a brand name written in black. One of each of the product pairs was randomly assigned to a slide set. Subjects answered the pretest questionnaire while viewing the slides (shown in Appendix A). This questionnaire used two formats to assess product perceptions: free-response and multiple choice. Appendix A displays the modal responses to the question "What product do you think is being shown in the slide" for the free-response and multiple choice formats for both older and younger subjects.

With respect to the first objective of the pretest, the responses presented in Appendix A demonstrate that consumers do indeed form perceptions of product offerings based solely on package shape. Subjects tended to recognize products such

as chewing gum and Spam without their original labels to act as cues. Package shapes that lend themselves to a variety of products, such as the mousse dispenser and aerosol can, tended to lead to a greater diversity in responses and a lower frequency for the modal response.

More interesting, however, is the extent to which the subjects thought that a bottle of saccharin tablets was aspirin and that a vaporizer inhalant (designed to be added to the water in a vaporizer) was perceived to be cough syrup. In both cases, not only were the misperceived products similarly packaged, but the physical products themselves were visible and almost identical. These results suggest that certain products exist that lend themselves to confusion with other, vastly different, products.

With respect to age differences, the older respondents also appear to have mental product images. However, these mental images may not be as easily tapped as those of younger subjects as suggested by the lower frequencies for the modal responses. As predicted by the literature, the older subjects had more difficulty providing free responses. In many cases, they would simply answer "don't know" rather than hazard a guess (avoidance of risk). When the multiple choice format (recognition) was used, the younger versus older responses began to converge.

The older participants also appeared to have difficulty adjusting to their role as subjects. The testing procedure, which took 15 minutes with the younger subjects, took twice as long for the older subjects. Additionally, the younger

subjects understood the scoring procedure more easily, followed directions better, and answered the questionnaire without talking to others. In contrast, the seniors needed the instructions repeated several times, did not follow certain directions even when reminded -- specifically, they flipped through the test booklet rather than waiting until instructed to turn the page, and often looked on their neighbor's questionnaire or talked aloud before providing their response.

Therefore, in conjunction with the second goal of this pretest, the following considerations will be taken into account in the development of the experimental procedure:

- 1) Older subjects should be dealt with on an individual basis so as to provide that person's own response as opposed to a "group effort."

- 2) An interviewer should record the older subject's responses rather than having the subject compose a written answer. This strategy would also prevent the subject from viewing subsequent questions prematurely.

- 3) More than one sample question should be used to provide the older subject more time to become acquainted with the testing procedure and his/her role as a subject.

The final purpose of the pretest was to select four test products. In addition to criteria previously discussed, test products were to be chosen based on an existing high level of confusion with another, similar product. Upon consideration of the predetermined criteria and the pretest results, the

four test products selected were the antacid gum, the saccharin tablets, the vaporizer inhalant, and the muscle liniment. Each of these products closely resembled the following products respectively: Chiclets chewing gum, aspirin tablets, cough syrup, and stick form deodorant. As previously noted, two of the criteria were that the test products be gender and age "neutral," and that product experience level be relatively the same for all subjects. Frequency of use for the products depicted in the slides was measured during the pretest and subsequently analyzed via a t-test for comparing two means for gender (male/female) and age (young/old). None of the four test products nor their confusing counterparts revealed any significant gender or age differences regarding frequency of use.

Pretest 2

The purpose of the second pretest was to determine appropriate brand names and label designs to represent the factor levels. Each product needed a vague and specific brand name and a framed and unframed picture to be associated with it. Two possibilities for each level of brand name and label design were created for each product. The pretest 2 instruments are presented in Appendix B.

Student subjects participated in the second pretest. Students were read the instructions given at the top of the brand name pretest instrument. Two versions were constructed such that the student evaluated four specific names and four vague names. The responses were recorded as a "hit," i.e.

correctly naming the product suggested by the brand name, or "miss," i.e. incorrect naming the product suggested by the brand name. Results of the brand name pretest are given in Appendix B. The specific name with the highest hit rate was chosen as the name to be used in designing the test stimuli. Because the majority of vague brand names resulted in misses, the researcher selected the names to be used in the test stimuli.

A similar approach was used to pretest the label design. Two possible label designs were created for each product for both the framed and unframed conditions resulting in a total of sixteen drawings. These sixteen pictures were divided into four versions such that the students only saw one picture representing each of the four test products. Two of the labels incorporated framed pictures and two labels incorporated unframed pictures. The students were read the instructions given at the top of the pretest shown in Appendix B. Students were allowed one minute to complete the task. The intent of the limited time was to capture only the person's first impressions rather than allowing him/her time to contemplate the stimuli.

Responses to the label design pretest were scored as a hit or miss as previously described. Appendix B shows the pretest results.

The vaporizer inhalant measures did not produce the expected results for either the specific brand name or the framed label design. It is believed that this group of

subjects may not have readily retrieved such a product from their evoked set, especially given the free response format of the pretests. Therefore, another pretest was conducted in which a framed label (the vaporizer) was tested in conjunction with specific brand names (Vapomist and Breathing Again). The resulting hit rate with the Vapomist name was 30 percent compared to 18 percent for Breathing Again. Therefore, Vapomist was chosen as the specific brand name.

Pretest 3

The purpose of pretest 3 was to determine the length of time the subject should be exposed to the test stimuli slides. Two rates were selected to be tested: a three second exposure rate and a five second exposure rate. Student subjects viewed a total of four slides representing each of the four products and experimental conditions. Specific descriptions of the slides are given in Appendix C. After being exposed to the slide for either three or five seconds, the subject answered the corresponding pages in the pretest 3 instrument (shown in Appendix C). The entire procedure took about seven minutes.

Previous pretesting of this procedure revealed that the student subjects quickly "figured out" the aspects of the test slides on which they should focus in order to answer the pretest questions. Therefore, the original pretest 3 instrument was modified to include two "decoy" questions designed to distract the subject, in addition to measures of the dependent variable, consumer miscomprehension. The "decoy" questions involved asking subjects to recall the name

of the fictitious product and the label design.

In order to evaluate whether or not any significant difference existed between the three or five second exposure rate, a t-test of two means was performed. Each condition had four measures of consumer miscomprehension: asking the subject specify the type of product and its usage in a free response format (questions 5 and 7) and in a multiple choice format (questions 8 and 10). A correct response was scored as a "hit" and assigned a value of one. An incorrect response was scored as a "miss" and assigned a value of zero. A comprehension score was constructed based on the sum of these four values, resulting in a comprehension score ranging from zero (maximum miscomprehension) to four (maximum comprehension). A t-test for each of the four conditions revealed that there was no significant difference in the comprehension score based on the exposure rate. Therefore, the five-second exposure rate was selected as the appropriate rate to be implemented during the experimental procedure. This decision was made in consideration of the differences between the pretest sample (students) compared to the experimental sample (non-student younger adults and older adults).

Research Instrument

The research instrument, Appendix D, was designed to measure a variety of information relating to product confusion. The specific questions used to assess this topic are discussed below.

Measuring the Dependent Variable

The dependent variable, consumer miscomprehension, was assessed via a series of four measures: questions 4 and 6 and questions 8 and 10. Questions 4 and 6 were an unaided recall measure of comprehension of the advertised product and its intended use. Questions 8 and 10 were an aided recall measure (multiple choice) of comprehension of the advertised product and its intended use.

Each of these four questions was evaluated on a dichotomous scale of correct (hit) or incorrect (miss). Other psychological studies that have investigated pattern recognition have borrowed the hit/miss terminology from Signal Detection Theory (e.g. Park, Puglisi, and Smith 1986). Correct responses (i.e. hits) were assigned a value of one (1). Incorrect responses (i.e. misses) were assigned a value of negative one (-1). If the person could not generate an unaided recall response, i.e. responded "don't know," or would not select a multiple choice answer, the subject's response was assigned a value of zero (0).

Questions 5, 7, 9, and 11 assessed how confident the subject was in his/her response on a one (low confidence) to six (high confidence) scale. If the person did not provide a response to a free response or multiple choice question, the respective certainty rating was assigned a value of zero (0). Loken, Ross, and Hinkle (1986) also assessed the respondent's certainty in his/her answer as a means of developing an index more suitable for statistical analysis in their investigation

of consumer confusion with respect to manufacturer origin of physically similar products.

Assessment of the subject's comprehension of each test product was calculated by multiplying the person's response value (hit = 1, miss = -1, "don't know" = 0) by the respective certainty value (1=low certainty, 6=high certainty). Thus, the comprehension value for each of the four measures ranged from -6 (incorrect identification of product and usage, yet very confident in his/her response) to +6 (correct identification of product and usage, very confident in his/her response). The dependent variable, consumer miscomprehension, was the sum of the four comprehension values, resulting in a comprehension score that ranged from -24 to +24.

Manipulation Checks

Two of the criteria for the test products were that the products be ones that most of the subjects would have similar experience/likelihood of usage levels and that the products might be confused in the retail or home environment (external validity). Question 14 of the research instrument attempted to measure the subject's experience level with the test products and their more familiar counterparts by asking how frequently the individual uses the products. Question 15 tries to measure whether or not the product might be confused in the home environment by asking where the person might keep or store the product if s/he owned it.

Respondent Information

Apart from measuring age (the covariate), gender (as a means of describing the sample), and educational level (as a possible confounding variable), and race (as a means of describing the sample), other respondent characteristics deemed appropriate to measure were the person's general shopping behavior (Questions 16 - 19) and awareness of product confusion (Questions 20 and 21). Because all of the test products could be bought at any of the stores mentioned in the questionnaire, it was believed that the person's frequency of going shopping might be related to their likelihood of confusing similar products. Additionally, because this study is exploratory in nature, the person will be asked if they know of anyone who has ever confused similar products. Using the third person approach to measure potentially embarrassing information should reduce nonresponse bias. Next, the person will be asked if s/he has ever confused products, and if so, which ones. This author's personal experience in the course of developing this research has revealed that most people have confused products, have a good story to tell, and are willing to share that story. Potentially, older people may relate fewer product confusion examples for fear of appearing incompetent.

Gender, age and educational measures will be provided by having the subject complete this information on the last page of the research instrument rather than being asked to verbally respond to an interviewer. Since interval, as opposed to categorical, data were desired for analysis purposes, the

person is directly asked for his/her age. For some individuals, especially the older subjects, this may appear as sensitive information. Allowing the subject, rather than the interviewer, to write in the response is an attempt to add a sense of anonymity to the question.

Other Measures

Because visual acuity plays a large role in perception and pattern recognition, it was thought appropriate to somehow assess that aspect. After discussing the situation with a local optometrist, the Contemporary Near Point Eye Chart (Appendix E) was selected as the means to measure the subject's vision. This chart is designed to measure the person's reading vision and is held at a similar distance as one might hold a product prior to or during its use. The subject was asked to read the smallest type s/he possibly could. The interviewer recorded the corresponding type size (Question 22). The subject was also asked to subjectively assess how well they perceived that they could see with corrected vision (Question 27).

Finally, the length of time required to complete the interview was recorded. Older adults often take longer to complete cognitive tasks than younger adults (Phillips and Sternthal 1977). Due to the self-paced nature of the experimental procedure, it is conceivable that the miscomprehension rates between the two age groups could be similar. Thus, time required to complete the interview could act as a confounding variable and was measured as a precaution against

nonsignificant age difference effects.

Test Stimuli

Test advertisements were developed that portray fictitious brands of each of the four test products (antacid chewing gum, saccharin tablets, vaporizer inhalant, and muscle liniment). Photographs of the test stimuli are presented in Appendix F. The advertisements are dominated by a black and white line drawing of the product. Minimal copy is used to avoid distracting the subject from the picture or to provide other physical cues apart from the two cues that are manipulated. For each of the test products, advertisements were made to represent each of the four treatment conditions depicted in the experimental design, resulting in a total of 16 possible test advertisements (four test products x four treatment conditions). The labels on the test products were "mocked up" to represent the treatment conditions, yielding four possible versions for each product. The label also contained the product description in small type.

The sixteen test stimuli were arranged according to a Latin Square design such that each product and each experimental treatment would be exposed to the subjects in all four possible orders. This arrangement was taken as a precaution against any type of order effect that might occur. More specifically, the Latin Square design minimizes the possible impact of learning the experimental task on the dependent variable, consumer miscomprehension. Four black and white slide sets were made,

each containing two sample slides and the four test slides to be used during the interview.

Experimental Procedure

Subjects were told ahead of time that they would be participating in an experiment regarding advertising evaluation and that there were no right or wrong answers, only the subject's opinion. This cover story was based on the approach used by Gaeth and Heath (1987) in their assessment of how young and older adults process misleading advertisements.

At the time of the experiment, subjects were individually interviewed. The interviewer noted the time in hours and minutes that the subject began the interview. Prior to exposure to the test advertisements, the subject observed two sample advertisements and completed the corresponding sample questions to acquaint the subject with the experimental procedure. Next, the interviewer showed the subject one of the four possible slide set versions. The version that the subject viewed was randomly assigned.

The subject viewed each test advertisement for five seconds. This time interval was selected based on the results of Pretest 3. After exposure to each test advertisement, the interviewer read the questions from the research instrument to the subject and recorded his/her responses until all four test advertisements have been viewed. Next, the interviewer asked the subject questions regarding frequency of product usage, product storage locations, and shopping frequency. These questions and any relevant scales were printed on large cue

cards to show the subject as the instrument was being administered. Finally, the interviewer assessed the subject's reading vision via the Contemporary Near Point Eye Chart and allowed the subject to complete a demographic section. At the conclusion, the interviewer recorded the time in hours and minutes that the interview was completed, thanked the person for his/her cooperation, and provided compensation.

Summary

This chapter discussed the methodology to be used in the investigation of consumer miscomprehension of similarly packaged products. The study was conducted as a 2 x 2 factorial design with brand name specificity and label picture specificity as the factors. Age was measured as a possible covariate. Subjects were exposed to a series of test advertisements and responded to questions that measured consumer miscomprehension, possible confounding variables, and personal information.

CHAPTER IV

ANALYSIS AND RESULTS

Introduction

Data obtained from the experiment were analyzed using the General Linear Model Procedure from the Statistical Analysis System software package. Analysis of covariance was performed on the three approaches used to assess the influence of label design and brand name on the dependent variable, consumer miscomprehension, for each of the four test products. Those three approaches were: (1) SCOREA - computed as the sum of the free response answers multiplied by their respective certainty levels, (2) SCOREB - computed as the sum of the multiple choice responses multiplied by their respective certainty levels and, (3) SCORE - computed as the sum of the free response and multiple choice responses multiplied by their respective certainty levels (SCOREA + SCOREB). The dependent variable SCORE, therefore, incorporates four measures of consumer miscomprehension and was the primary dependent variable with respect to hypothesis testing. The resulting model was:

DEPENDENT VARIABLE = LABEL NAME LABEL*NAME AGE

LABEL = Label Design Specificity (Framed vs. Unframed)
NAME = Brand Name Specificity (Specific vs. Vague)
AGE = Subject's Age in Years

This chapter begins by presenting the results for each hypothesis. The chapter then discusses the treatment of the "don't know" response. Additionally, this chapter explores possible alternative explanations for the experimental results via analysis of covariance and correlation analysis.

Hypotheses Tests

In general, the two main effects of label design and brand name and the age covariate were significant. The interaction between label design and brand name was not significant for any of the four test products.

Hypothesis 1: Label Design

The first hypothesis explored the effect that the label design would have on the consumer's comprehension of the product's identity and usage. Specifically, the hypothesis stated that consumers would experience greater miscomprehension of the product offering when the label design incorporated an "unframed" picture, i.e. one that did not illustrate the product's use or attributes, compared to a "framed" picture, i.e. one that did illustrate the product's use or attributes.

Hypothesis 1 is marginally supported for the dependent variable SCORE. Only one of the products, antacid gum, was significant at $\alpha=0.05$, as shown in Tables II and III. However, the treatment means, shown in Table IV, occurred in the predicted direction across the four products for label

TABLE II
ANOVA FOR THE FOUR TEST PRODUCTS
DEPENDENT VARIABLE = SCORE

PRODUCT: MUSCLE LINIMENT

SOURCE	DF	F VALUE	PR>F
Label Design	1	3.58	0.0607
Brand Name	1	19.73	0.0001 (a)
Label * Name	1	0.87	0.3518
Age	1	19.00	0.0001 (a)

PRODUCT: SACCHARIN TABLETS

SOURCE	DF	F VALUE	PR>F
Label Design	1	1.50	0.2226
Brand Name	1	37.17	0.0001 (a)
Label * Name	1	0.24	0.6221
Age	1	26.08	0.0001 (a)

PRODUCT: ANTACID GUM

SOURCE	DF	F VALUE	PR>F
Label Design	1	17.70	0.0001 (a)
Brand Name	1	38.90	0.0001 (a)
Label * Name	1	1.29	0.2587
Age	1	1.69	0.1953

PRODUCT: VAPORIZER INHALANT

SOURCE	DF	F VALUE	PR>F
Label Design	1	0.42	0.5194
Brand Name	1	5.43	0.0213 (b)
Label * Name	1	2.45	0.1201
Age	1	44.70	0.0001 (a)

(a) Significant at $\alpha=0.01$

(b) Significant at $\alpha=0.05$

TABLE III
ANALYSIS OF VARIANCE BY HYPOTHESIS
DEPENDENT VARIABLE = SCORE

H1:	Label Design	F VALUE	PR>F
	Muscle Liniment	3.58	0.0607
	Saccharin Tablets	1.50	0.2226
	Antacid Gum	17.70	0.0001 (a)
	Vaporizer Inhalant	0.42	0.5194
H2:	Brand Name		
	Muscle Liniment	19.73	0.0001 (a)
	Saccharin Tablets	37.17	0.0001 (a)
	Antacid Gum	38.90	0.0001 (a)
	Vaporizer Inhalant	5.43	0.0213 (b)
H3:	Age		
	Muscle Liniment	19.00	0.0001 (a)
	Saccharin Tablets	26.08	0.0001 (a)
	Antacid Gum	1.69	0.1953
	Vaporizer Inhalant	44.70	0.0001 (a)

(a) Significant at $\alpha=0.01$

(b) Significant at $\alpha=0.05$

design. For each product, the unframed label design yielded a lower overall comprehension score than the framed label design.

Appendix G gives the analyses for SCOREA (free response) and SCOREB (multiple choice) as dependent variables. When the two formats for assessing comprehension were analyzed separately, results similar to those for SCORE were found: label design had a marginally significant effect on consumer miscomprehension, and the treatment means were in the predicted

TABLE IV
TREATMENT MEANS BY PRODUCT

MUSCLE LINIMENT

Label Design	
Unframed	15.29 **
Framed	17.85
Brand Name	
Vague	13.68
Specific	20.11

SACCHARIN TABLETS

Label Design	
Unframed	5.95
Framed	8.25
Brand Name	
Vague	-0.21
Specific	13.25

ANTACID GUM

Label Design	
Unframed	3.06
Framed	12.47
Brand Name	
Vague	1.90
Specific	15.10

VAPORIZER INHALANT

Label Design	
Unframed	6.44
Framed	8.54
Brand Name	
Vague	4.61
Specific	9.87

** Comprehension Score ranged from was -24 to 24.
Calculation of scores is described in Chapter III.

direction. The one difference is the additional significance of label design for the free response measures for muscle liniment.

One explanation for the moderate level of significance for the muscle liniment, saccharin tablets, and vaporizer inhalant, may be attributable to the weakness of the manipulation for the framed treatment condition. Pretest 2, whose purpose was to determine specific label designs to use as treatment conditions, revealed that framed pictures for saccharin tablets and vaporizer inhalant yielded a lower comprehension level compared to the framed pictures for the antacid gum and muscle liniment (see Appendix B). In other words, of the four products, the framed treatment conditions for antacid gum and muscle liniment resulted in a higher comprehension level. These pretest findings are mirrored in the actual experimental results.

Additionally, subjects may have experienced a ceiling effect with respect to the muscle liniment. Examination of the comprehension score means across products for all four treatments revealed that muscle liniment yielded a comprehension score more than double the average scores for saccharin tablets, antacid gum, and vaporizer inhalant.

Hypothesis 2: Brand Name

The second hypothesis investigated the impact that brand name specificity had on consumer comprehension of the product offering. It was postulated that a vague brand name, i.e. one that did not suggest product use or attributes, would result in

greater consumer miscomprehension than a specific brand name, i.e. one that did suggest product use or attributes.

Hypothesis 2 is supported. Brand name was significant at $\alpha = 0.05$ for each of the four products with SCORE as the dependent variable (Table III). The means for brand name across the four products, Table IV, shows that the direction was as predicted: a vague brand name resulted in greater consumer miscomprehension than a specific brand name.

Analysis with SCOREA and SCOREB as the dependent variables (Appendix G) yielded similar findings to those for SCORE. The only departure was the marginal significance for SCOREA (free response) for the vaporizer inhalant ($\alpha = 0.08$).

Hypothesis 3: Age As A Covariate

The third hypothesis tested whether or not older adults had greater difficulty comprehending the product offering compared to younger adults. Hypothesis 3 is supported with SCORE as the dependent variable. As shown in Table III, age as a covariate was significant at $\alpha = 0.05$ for muscle liniment, saccharin tablets, and vaporizer inhalant. The correlation analysis for each product, given in Appendix H, shows that the relationship between age and comprehension score was as predicted: the older the subject, the lower the comprehension of the product offering. In other words, the older subjects experienced greater miscomprehension of the product offering compared to the younger subjects. Even though age did not surface as a significant variable in comprehension of the

antacid gum, the direction of the relationship was inverse as predicted by Hypothesis 3.

Analyses for SCOREA and SCOREB as the dependent variables yielded the same pattern of results as those of SCORE with the exception of the antacid gum (Appendix G). Age surfaced as a significant variable when the comprehension of the antacid gum was assessed via the multiple choice method (SCOREB), but remained insignificant when assessed via a free response method (SCOREA). These findings may at first appear counterintuitive. One would expect that if age differences were to surface between the two formats they would occur when the free response, unaided recall method was used. Numerous researchers have cited the difficulty older people have in generating unaided recall answers compared to some form of aided recall (e.g. White and Cunningham 1982; John and Cole 1986). Apparently, both older and younger subjects experienced similar amounts of understanding or confusion with respect to providing an unaided recall of the antacid gum's identity. However, when the respondents were presented with an aided recall format, the younger subjects appeared more willing to select one of the choices even if they weren't confident of their responses. The elderly, on the other hand, often refused to select a multiple choice response when they could not provide a free response even though previous experience in the research procedure suggested that the "right" answer was one of the multiple choice responses. This behavior is consistent with previous findings on the elderly and their tendency to be more risk-averse than younger people when faced with uncertainty

(Botwinick 1973). The emergence of a "don't know" response, especially among the elderly subjects, led to further investigation into the effect "don't know" could be having on the analyses and results.

The "Don't Know" Response

One of the findings of Pretest 1 was that older people tended to respond "don't know" if they were uncertain about a product's identity rather than make an attempt to name the product (see Appendix A). Therefore, one of the modifications of the pretest procedure was to not offer the subject the opportunity to provide "don't know" as a response. During the actual experiment, however, some subjects insisted on giving "don't know" as their response even when the interviewer probed for a product identification and encouraged the subjects to provide a response even if they weren't certain.

The tendency to provide a "don't know" response surfaced predominantly with the older subjects and in the unframed label/vague brand name condition. The analyses upon which the original hypothesis testing was planned includes the "don't know" response as the midpoint (zero) of the comprehension scale that ranges from -24 to 24. After further consideration, it was decided that the "don't know" response was somehow conceptually different from misidentifying the product (miscomprehension). Therefore, separate analyses were run on the data after deleting the "don't know" responses to see whether the results would remain consistent (shown in Appendix

I). Because a dichotomous scale (hit/miss) would result after elimination of the "don't know" responses, the individual's certainty rating was omitted from calculation of the comprehension score. Therefore, the values for SCORE with the "don't know" responses removed ranged from -4 to +4. The range of values for SCOREA and SCOREB was from -2 to +2.

In general, the findings with respect to the hypotheses remain the same with the "don't know" responses removed. The only observable distinction is that label design attains or approaches significance for the muscle liniment, saccharin tablets, and antacid gum. Only the vaporizer inhalant remains insignificant. These results provide greater support to Hypothesis 1: label design has a significant effect on consumer comprehension with a "framed" design resulting in greater comprehension than an "unframed" design.

Exploration of Alternative Explanations

This section investigates alternative explanations for the results apart from those hypothesized. Possible alternative explanations that will be discussed are the subject's learning of the experimental task, the influence of the subject's educational level, experience with the test product, and general shopping experience. Additionally, the the elderly subject's lack of task comprehension, subject acquiescence, subject's vision, and interview duration are addressed as possible explanations for the results.

Learning the Experimental Task

The possibility of the subjects figuring out the experimental task (reactive error) is a potential concern for any researcher. Certain precautions were taken in this research to account for and minimize any learning that might occur. First, the order of test stimuli presentation was randomized based on a Latin Square design such that each of the four products and each of the four experimental treatments were simultaneously rotated across order position. Appendix F displays the test stimuli from which the four slide sets were made. An inspection of the treatment means suggests that subjects experienced fatigue rather than learning of the experimental task as evidenced by the general decline in comprehension means across order (see Appendix J). Additionally, subject fatigue was independent of treatment condition since each treatment condition was shown in all four order positions equally as specified by the Latin Square design.

Second, Pretest 3 revealed that student subjects quickly figured out the experimental tasks when the only questions they were asked focused on naming the product's identity and usage via free response and multiple choice formats. Therefore, questions that were irrelevant to the research were asked prior to and following the measures of the dependent variable in an attempt to better disguise the true purpose of the research. These questions included evaluations of the advertisement, estimating the product's price, and specifying the in-store location of the product. Based on the above observations,

learning of the experimental task was discounted as a possible explanation for the subject's miscomprehension level.

The Influence of Educational Level

Jacoby and Hoyer (1982) found that educational level had a slight, though statistically significant, effect on the person's miscomprehension score with respect to television programming. Specifically, better educated individuals experienced less miscomprehension than those who were not well educated (Jacoby and Hoyer 1982).

Analysis of covariance was conducted to determine education's impact on the individual's miscomprehension score as measured by this study. As shown in Appendix K, education was not a significant covariate for any of the four test products. These results suggest that the subject's educational level did not significantly affect ability to comprehend the product offering.

The Influence of Experience

An individual's product knowledge and/or experience with the product may be another potential source of influence on the level of consumer miscomprehension apart from the hypothesized variables. Alba (1983) suggested that individuals who are very familiar with the product category are more adept at comprehending, organizing, and recalling new information related to that product. Therefore, miscomprehension might in part be influenced by the person's product experience, or lack of it, rather than manipulations of the label design or brand

name. Additionally, the elderly often compensate for declining information processing abilities by relying on past consumer experiences to aid in new product evaluation (Schiffman 1971; Mason and Smith 1974).

Analysis of covariance (Appendix K) shows that experience, as measured by the individual's perceived frequency of product usage, was nonsignificant for all four test products. These findings suggest that the individual's experience with the test product did not effect the extent of miscomprehension.

The Influence of Shopping Experience

The extent to which the individual is an active consumer in the marketplace was conjectured as an a priori influence on comprehension. Individuals with limited shopping experience, and therefore less familiarity in evaluating products, might experience higher levels of miscomprehension independent of product label design, brand name, or subject age. Four measures of shopping experience were taken: the subject's perceived frequency of shopping at (1) grocery stores, (2) drugstores (3) convenience stores, and (4) discount stores. All four test products could have been bought at a grocery, drug or discount store.

Analysis of covariance was conducted for the four measures of shopping experience (Appendix K). In general, shopping experience was not significantly related to consumer miscomprehension. The few exceptions that occurred were the significance of shopping at a convenience store for the muscle

liniment, saccharin tablets, and vaporizer inhalant. Additionally, shopping at a discount store was significantly related to comprehension of the antacid gum.

Given the significant negative correlations between age and frequency of shopping at a grocery store, convenience store, and discount store, stepwise regression was used to analyze whether shopping experience or age was affecting the subject's comprehension score. The results of the stepwise regression, shown in Appendix L, show that age was the only significant variable to enter the model. Therefore, shopping experience did not significantly affect comprehension.

Failure to Comprehend the Task

Research that involves elderly subjects must always address the issue of whether or not the results may be attributed to age related factors or failure on the part of the aged subjects to comprehend the experimental task. Two observations suggest that the older subjects did in fact comprehend this study's task. First, the actual experimental procedure and methodology were developed based on the results of Pretest 1, a preliminary study that involved both elderly and younger subjects. Observation of student and elderly subjects participating in the first pretest led the researcher to believe that a common methodology could be used for both groups after modifications were made to the pretest procedure.

Specifically, two sample slides were used rather than one to acquaint the older subjects with the experimental procedure. These test slides were designed such that the product's

identity and usage would be obvious, thus facilitating the subject's understanding of the research procedure (see Appendix F). Overall frequency tabulations revealed that 98.6% of the subjects correctly identified the first sample product (coffee) and its usage, and that 99.3% correctly identified the second sample product (milk) and its usage. All 140 subjects correctly identified one or both sample products. These comprehension levels across subjects suggest that both the young and older adults understood the procedure and adapted to their role as subject. Additionally, the researcher's personal observation of the older subject's ability to handle the experimental task led the researcher to believe that the elderly subjects were not somehow disadvantaged due to lack of comprehension of the experimental task.

The Influence of Subject Acquiescence

Once the researcher is confident that the elderly subject sufficiently comprehends the experimental task, another concern to address is the possibility of subject acquiescence (Nilsson and Persson 1984). In other words, older people are more prone to tell the researcher what the subject thinks the researcher wants to hear. Given the purpose of this study, to investigate age differences related to consumer miscomprehension as influenced by label design and brand name, it is unlikely that the older people "figured out" the experimental task and adjusted their responses to yield the hypothesized results. Additionally, the "decoy" questions, whose primary purpose was

to disguise the purpose of the research, also yielded empirical support to the notion that the older subjects did not give their responses merely to please the interviewer.

T-tests for age differences were conducted on the "decoy" questions that assessed the subject's evaluation of the test advertisements. No significant differences were found with respect to age concerning the subjects' evaluation of the extent to which the advertisement was informative. Significant age differences did surface when the amount of clutter in the advertisement and the advertisement's attractiveness were evaluated. Older subjects viewed the advertisements as more cluttered and more attractive than the younger subjects. However, the means for all three evaluation criteria, informativeness, clutter, and attractiveness, were on the negative end of the scale. In many cases, both older and younger subjects apologized because they didn't particularly care for the advertisement, but wanted to give their honest impressions anyway. Therefore, subject acquiescence does not appear to have influenced comprehension score.

The Influence of Vision

Another potential explanation for this study's findings is that a person's comprehension of the product offering is more a function of vision rather than age. Therefore, two measures were taken to assess whether or not the subject's sight related to his/her comprehension score. First, an objective measure of the person's reading vision was assessed using a Contemporary Near Point Eye Chart (Appendix E). Second, a subjective

measure of the person's vision was taken by asking the person to evaluate how well s/he sees. Analysis of covariance shows that vision was not significantly related to comprehension for the muscle liniment, antacid gum, nor vaporizer inhalant and was only marginally significant for the saccharin tablets (Appendix K). Additionally, the subject's perception of how well they see was not a significant covariate for any of the four products. Therefore, the subject's sight did not appear to exert a significant influence on his/her ability to comprehend the product offering.

The Influence of Reaction Time

Given the self-paced nature of the experimental task, a priori concerns were also voiced concerning the influence of interview length on comprehension score. It was postulated that older and younger subjects might experience similar levels of miscomprehension because the older individuals would be allowed as much time as desired to answer the interviewer's questions. Analysis of covariance shows that time was not significantly related to comprehension score for any of the four products (Appendix K). Even though the elderly subjects took a significantly longer time to participate in the research, as revealed by the correlation between age and time (Appendix H), they still experienced more miscomprehension than the younger adults.

Summary

This chapter presented the study's analysis and findings. In general, all three hypotheses were supported with the results occurring in the predicted direction. Subjects had greater miscomprehension when an unframed label was used compared to when a framed label was used. A vague brand name resulted in greater miscomprehension compared to a specific brand name. Additionally, older subjects exhibited greater miscomprehension than younger subjects.

This chapter also investigated possible explanations for the findings apart from those hypothesized. Analyses of covariance showed that product experience, shopping experience, subject vision, and subject reaction time were not significantly related to consumer miscomprehension. Additionally, measures were taken in the development of the experimental design and procedure to minimize any learning of the experimental task, encouraging subject acquiescence, or hampering the elderly subjects with respect to task comprehension. Therefore, the subjects' miscomprehension scores appear to be result from the manipulations of the label design and brand name, or be a function of age, as hypothesized.

CHAPTER V

DISCUSSION AND IMPLICATIONS

Introduction

This chapter discusses implications for marketers and public policy makers based on this study's results. Specifically, implications are given for the development of package label design and product brand name such that consumer miscomprehension is reduced. Additionally, consumer miscomprehension as it relates to the elderly age segment and the consumer market as a whole are examined. This chapter then specifies this study's contributions to the marketing literature. Finally, the chapter concludes with limitations of the study and suggestions for future research.

The Influence of Label Design And Brand Name

One of the goals of this study was to investigate the influence that label design and brand name have on consumer comprehension of product identity and usage. These two marketing variables were chosen because they are easily controlled by marketers. The findings of this study suggest that both the picture on the label design and the choice of brand name effect the consumer's comprehension of the product offering. Of the two, selection of an appropriate brand name

appeared to have the strongest influence on consumer comprehension.

Label Design

When the "don't know" response was deleted from the analyses, label design surfaced as a significant variable for muscle liniment and antacid gum, and was marginally significant for the saccharin tablets. Additionally, the treatment means of all four products occurred in the predicted direction based on the research of Edell and Staelin (1983). These authors stated that an "unframed" picture can serve as a source of distraction and thus inhibit the consumer from critically evaluating pertinent information (Edell and Staelin 1983). Accordingly, this study found that an "unframed" label design, one whose illustration did not relate to product identity or usage, resulted in a lower comprehension level than a "framed" label design, one whose illustration was suggestive of product identity or usage.

Schneider's (1977) study provides a potential explanation of why the label design was not consistently significant across the four products: the intended "framed" condition for some of the products may have been perceived as vague from the subject's perspective. Schneider (1977) examined the effect different illustrations had on communicating to children that a substance was poison. He found that the symbol adults readily associate with poison, i.e. the skull and crossbones, conveyed the image of pirates and adventure to children. In

this study's terms, the label design was "unframed" from the children's point of view. However, when another symbol was chosen that the children saw as depicting the product's identity and attributes, i.e. a "framed" illustration, the children's comprehension of poisonous products increased (Schneider 1977). With respect to this study, some of the manipulations of the "framed" treatment condition may actually have been perceived as rather vague, or "unframed," for some of the subjects.

Results from this study and Schneider's (1977) research provide guidance for marketers: "framed" illustrations aid in consumer comprehension of the product's identity and usage. However, care should be taken to select a label design that is considered "framed" from the target market's perspective.

Brand Name

The importance of a product's brand name is evidenced by the energy marketers often devote to selecting the appropriate brand name (McNeal and Zeren 1981) and the value that the consumer places on the brand name (Anderson and Engledow 1977). The brand name can be used as a "surrogate indicator of product characteristics" (Cohen 1972) and thus function as an information chunk in decision-making (Jacoby, Szybillo, and Busato-Schach 1977). Indeed, a product's brand name is often the single most valued piece of information (Jacoby, Szybillo, and Busato-Schach 1977).

This study found that brand name specificity exerted a significant impact on the consumer's ability to comprehend the

product offering. As suggested by the relative F-values, the brand name appeared to have a stronger influence on the subject's comprehension than the label design. In some cases, the brand name even appeared to have a greater influence than age as suggested by a large F-value.

As predicted, this study found that a specific brand name resulted in greater comprehension of the product offering than a vague brand name as suggested by Kahneman's (1973) discussion of stimulus discrimination. Kahneman (1973) stated that one attribute often dominates other cues during stimulus discrimination. For many subjects, the brand name appeared to be such a salient cue that other cues, such as label design or even product description, could be ignored. Additionally, one's expectations can influence the means by which the stimulus is evaluated. With respect to this research, the brand name could have also influenced their expectations such that they tended to correctly evaluate the product's identity if the brand name were specific, and incorrectly evaluate the product if the brand name were vague.

Kahneman (1973) also noted that one's prior learning could influence which stimulus would serve as the dominant cue. Specifically, individuals will continue to use the same attribute as a basis for evaluation if that attribute has proven successful over time (Kahneman 1973). Therefore, the subjects' experience in the marketplace may have taught them that the brand name could serve as a reliable attribute by which to judge the product's identity.

Public policy makers are turning increased attention to the potential of deception in brand names (Reece and Ducoffe 1987). Reece and Ducoffe (1987) also claimed that when confusion resulting from brand names "causes reasonable consumers to be misled to their detriment, deception occurs (p.101)." Therefore, marketers could benefit from research that provides insight in selecting brand names that could minimize their likelihood of being perceived as deceptive in the public's eye.

Based on the results of this study, marketers should select specific brand names that accurately and effectively convey the product's identity and/or usage to their target market to minimize potential accusations of deceptiveness. As with package illustrations, research should be conducted to ensure that the target market correctly perceives the product's identity and usage as conveyed by the brand name.

Age Differences In Miscomprehension

Almost every aspect of our society is touched by the "Graying of America." Marketers are showing an increased interest in understanding the differences between young and older consumers' wants and needs, both in terms of physical goods and services, and in terms of communication. Although this study sought to investigate the realm of consumer miscomprehension as a whole, its specific purpose was to gain an understanding of how the elderly compare to young adults and what marketers could do to aid the older person in overcoming any apparent deficits.

Because of older adults' declining information processing ability (Botwinick 1973), their decreasing ability to ignore distracting information (Rabbitt 1965, Layton 1975), and their diminishing visual information processing skills (Hoyer and Plude 1980, 1982), it was hypothesized that older adults would show more miscomprehension of the product offering than younger adults. As predicted, this study found that older subjects experienced greater miscomprehension than younger subjects across experimental treatments. Alternative explanations such as vision, education, shopping experience, and reaction time were rejected as being contributory causes of differences in miscomprehension scores. The findings of this study are consistent with those of Reece and Ducoffe (1987) who found that older subjects experienced more miscomprehension than the younger ones regarding brand names that incorporated nonstandardized terms (e.g. "diet," or "natural").

In order to determine if being exposed to a specific brand name and/or a "framed" label design would significantly reduce the miscomprehension gap between young and older adults, interactions between age and the two independent variables were examined. The age covariate was collapsed into two age categories. Fifty-five and older delineated the "elderly" subjects, and 54 and younger were considered the "young" subjects. Appendix M shows the results of these analyses. In general, there were no significant interactions between age category and label design or brand name. Both age

groups benefitted from a framed label design compared to an unframed label design, and with a specific brand name compared to a vague brand name.

This researcher had conjectured that using a framed label design and/or a specific brand name would significantly aid in minimizing the miscomprehension gap between the two age groups. Why then were none of the interactions significant when age as a covariate was significant? What aspect of aging might explain the overall lower comprehension scores for the elderly?

The gerontological literature and this researcher's observations provide some insight into these findings. As one ages, it becomes more difficult for the person to ignore irrelevant information and to discern what information is pertinent for decision-making (Rabbitt 1965). This researcher observed that while all four test slides and two sample slides contained a product description beneath the label design, the older subjects were less likely to scan the advertisement to detect that piece of information. Conversely, the younger subjects would often look for the product description if it were not immediately clear from either the label design or brand name what product was being advertised. This observation is consistent with the work of Cole and Gaeth (1988) who found that elderly subjects had greater difficulty extracting relevant nutritional information for decision-making when it was embedded in other information. Even when the elderly subjects were instructed to highlight the pertinent nutritional information, their ability to make a

"good" choice did not attain the level exhibited by the younger subjects (Cole and Gaeth, 1988).

Age-related findings of this research have implications for public policy. The elderly are often viewed as a "vulnerable" population segment (McGhee 1983), and therefore deserving of special attention from policy makers. One characteristic of the elderly that renders them more vulnerable to miscomprehension involves their disinclination to complain when dissatisfied (Zaltman et. al. 1978, Bernhardt 1981). Therefore, one would anticipate that the elderly would be less likely to report product miscomprehension or misuse to the manufacturer than younger adults.

Numerous explanations have been proposed for the elderly's lack of complaining behavior. Krishnan and Valle (1979) found that complaining is most likely to occur when external attribution for the problem is made. The elderly often have lowered self-esteem and may tend to blame product-related problems on their own inability to function well as consumers (self-attribution), rather than on the product itself or the marketer (external attribution) (McGhee 1983). Bernhart's (1981) survey of complaint behavior lends support to this view. He found that older consumers often did not complain because they believed their complaining wouldn't be worth the effort.

McGhee (1983) recommended that an educational program be implemented as a means of reducing the older consumer's vulnerability. One such approach that public policy could

undertake to limit the amount of consumer miscomprehension, and potential product misuse, would be in the form of televised public service announcements. Older adults tend to rely more on television as a source of entertainment and information as compared to other media forms (Stephens 1981). Additionally, Cole and Houston (1987) found that because television incorporates stimuli that appeal to a variety of the senses, older people are better able to encode the individual pieces of information presented in this format, especially when compared to the elderly's ability to encode print information. The authors further stated that memory for information presented via television would be superior to information presented via print (Cole and Houston 1987). They recommended that "television should be a greater portion of the media mix for firms marketing to the elderly than for those marketing to younger consumers" (Cole and Houston, 1987, p.63).

Care must be taken, however, in the development of public service announcements to show that everyone has the potential of confusing products, not merely the elderly. McGhee (1983) cautioned that any type of educational program should "emphasize that under certain circumstances everyone is vulnerable...to help reduce feelings of guilt resulting from a perceived sense of personal inadequacy" (p.236).

Consumer Miscomprehension

Because of the exploratory nature of this study, two questions on the research instrument sought to measure the

extent that consumers miscomprehend physically similar, yet inherently different products. The subjects were asked if (1) they had ever heard of anyone confusing products that were packaged alike; and if (2) they had ever personally confused products that were similarly packaged yet had different intended uses. Frequency responses to these questions revealed that sixty percent of the subjects knew of someone who had confused products and that fifty-two percent of the sample had personally confused products. These findings suggest that the Sunlight anecdote was not an isolated incident (discussed in Chapter I), but rather only one example of the extent to which consumers confuse similarly packaged, yet inherently different products. Subjects were also asked to recall the products that had been confused. For those who could specifically remember the products, a number of categories appeared ranging from confusing salt with sugar in unmarked containers to hairspray for deodorant to different types of over-the-counter and prescription drugs.

These findings have broad-based implications for both marketers and public policy makers. First, when marketers are developing product packaging, marketing research could include an analysis of other products that physically resemble their product and an assessment of the existing consumer confusion regarding that product independent of product labels. Such a procedure would allow the marketer to establish a baseline confusion rating, thus suggesting the extent to which precautions could be taken to minimize confusion. These

precautions could also be cited as evidence that the marketer tried to minimize any potential product misuse that might result from failure to communicate the product's identity and/or usage.

As public policy makers continue to monitor for potentially deceptive marketing practices, they are taking into account the role that miscomprehension plays in deception (Jacoby and Hoyer 1982, Preston and Richards 1986). Although the majority of work that has investigated the relationship between miscomprehension and deception has focused on advertising, the results could reasonably be applied to packaging variables.

This study also provides more narrowly focused implications regarding consumer miscomprehension. When subjects were asked to recall products that they had personally confused, a few individuals cited prescription drugs. Although both young and older respondents mentioned this product category as a problem, more elderly named this category than did younger adults. Most prescription drugs have the product name and description written in type that is too small for the elderly to easily read, contain no illustrations to suggest the product's identity or usage, and use medical brand names that are difficult to pronounce, let alone convey the product's identity and usage.

Marketers of pharmaceutical products could assist consumers, especially elderly consumers, by calling their attention to the need to carefully read product labels. Drug stores could post signs stating that "We at _____ care

about your health. Please read all product labels before purchase and usage." Pharmacies could also provide reminder stickers to post in the consumer's home along with the local poison control center's and the pharmacy's telephone number.

The results of this research suggest some additional alternatives for marketers or public policy makers to pursue. For example, one possible means that could be used to minimize product confusion and/or misuse would focus on clarifying the product identity in some fashion on the label design. Currently, drugs that cause drowsiness often have a sticker attached to the product that illustrates a sleepy man. Developing stickers that pictorially suggest what part of the body the medication is designed to effect or be applied to would be one method that might aid consumer comprehension given that this study found that "framed" pictures enhance comprehension over "unframed" pictures.

The findings from this research also suggest that brand name has an even stronger influence than package illustration on the consumer's ability to correctly identify product identity and usage. A "specific" brand name that described or related to the product's attributes or usage resulted in a higher level of comprehension than a vague brand name. Therefore, another means by which public policy makers or marketers could aid consumer comprehension of prescription drugs would be to associate a brand name that connotes the product's usage or attributes, or product description "in layman's terms," along with the pharmaceutical brand name.

Contributions to the Literature

This research made three primary contributions to the marketing literature. First, it provided an exploratory examination of the phenomenon of consumer miscomprehension regarding similarly packaged, yet inherently different products. The results of this study suggest that consumer miscomprehension, and potential product misuse, are phenomena that occur with enough regularity to warrant concern and further investigation from both marketers and public policy makers. Additionally, this study provides suggestions concerning how marketers and public policy makers might attempt to reduce the amount of consumer miscomprehension associated with a specific product category, prescription drugs.

Second, this study explored the impact that two controllable marketing variables, label design and brand name, could have in facilitating or hindering the consumer's comprehension of the product offering. This study provided insight to marketers on how they could minimize the amount of miscomprehension associated with their products by selecting label illustrations and brand names that effectively communicate the product's identity. Such an offensive strategy could lessen the likelihood of the public's perception of the marketer as deceptive.

Finally, this study adds to the growing body of literature that focuses on marketing issues related to the elderly. This study found that age as a covariate had the

greatest influence on miscomprehension independent of alternative explanations, such as educational level, visual acuity, shopping or product experience, or reaction time. This study's results provide practical suggestions for marketers concerning the selection of label design and brand name for products aimed at this population segment. Furthermore, this study suggested an approach public policy makers could use to create public awareness of the potential for confusing and misusing products.

Limitations

The limitations of this research concern the sample characteristics and aspects of the experimental procedure. Female respondents comprised nearly three-fourths of the sample. However, given that the majority of household consumer purchases are made by women, that the majority of the elderly are women, and that t-tests based on gender did not reveal any significant differences in miscomprehension, this imbalance of female to male subjects does not appear to bias the findings of this research.

Other limitations based on sample characteristics include the underrepresentation of racial minorities and poorly educated young adults. All of the 21 subjects who had not completed high school were elderly. Thus the finding that educational level did not exert an independent significant influence on consumer miscomprehension may be due to sample characteristics. Finally, this research was confined to a

specific geographic area and may be biased due to regional based characteristics of the subjects. Replication in other regions of the United States and in other countries is desirable.

The other form of research limitations concerns to the experimental procedure. The artificial conditions under which miscomprehension was assessed may have inflated the level of comprehension for the four test products. Because subjects were instructed to look at the slides, more attention and mental processing was probably allocated to comprehending the product offering during the experimental task than would actually be allocated in the home environment where product misuse might take place.

Another limitation that has already been mentioned is the manipulation of the label design conditions. Although the "framed" and "unframed" designs used in this research were based on pretest results, the intended "framed" design conditions may not have been sufficiently salient to the research subjects. Because no manipulation checks for the independent variables were made during the course of the experiment, the researcher is unable to confirm this explanation.

A final limitation relating to the research procedure is the occurrence of the "don't know" response. Although the research instrument was originally designed to omit "don't know" as a possible response, reluctance on the part of many subjects to provide a product identity when they were completely baffled forced the presence of "don't know"

responses in the data. Previous literature on miscomprehension does not address the issue of "don't know," therefore it was unclear how the "don't know" response should have been treated conceptually. Two methods were used in reporting this study's results.

Suggestions for Future Research

The findings of this study provide suggestions for future research. First, the anecdotal evidence that prompted this study described actual confusion and/or misuse regarding similarly packaged products. This study's attempt to influence consumer confusion was done in the form of print advertising -- not direct product experience. Therefore one additional research avenue would be to allow the subjects to examine, or have the opportunity to purchase, products that incorporate the manipulations of label design and brand name that were used in this study. In other words, further research should move from the cognitive to the behavioral domain in an attempt to measure product misuse.

This study found that the mean comprehension score for muscle liniment was more than double that for the other three products. Therefore, a second path of research could be conducted that attempts to establish baseline confusion levels for different product categories much in the same way that Jacoby and Hoyer (1982) found that alternate forms of television material (i.e. advertising, public service announcements, and news stories) resulted in different levels

of miscomprehension. Research along this line would help public policy makers establish a level of "tolerable" miscomprehension above which investigation and regulation might be warranted.

Another area of research could focus on the complaint behavior and/or repurchase of products that had been confused or misused as other products. Additionally, one could examine the attitudes toward advertisements for these products or attitudes toward the manufacturer.

With respect to consumer characteristics, future research should investigate the role that education may play by including poorly educated young adults and by comparing the well educated with the poorly educated elderly. This study, along with most previous studies that examine age differences, focused on the dichotomy of young-old. Many researchers (e.g. Gelb 1980, Rice and Taylor 1984, Barak 1987) note that the over 55 age group is not homogeneous with respect to cognitive abilities, socio-economic status, or health. A newer approach to examining age differences divides the senior market into the "young-old," ages 55 to 74, and the "old-old," ages 75 plus (Greco 1987). The extent of consumer miscomprehension as it relates to age could also be measured by comparing these two sub-groups of the older consumer market.

The presence of the "don't know" response provides another area for exploration. Miscomprehension was conceived in this research as a continuum along which there were degrees of comprehension based on the person's correct or incorrect identification of the product and the extent to which the

person was confident in his/her evaluation. Research needs to be conducted to determine where "don't know" responses fit conceptually. If the person is so baffled by the label design and brand name that s/he cannot even speculate on the product's identity, has the person experienced miscomprehension to the same degree as the individual who incorrectly identifies the product, yet feels very confident in his/her evaluation? Additionally, should "don't know" be viewed as the midpoint of a comprehension/miscomprehension continuum, or a separate construct perhaps termed "confusion?"

A final suggestion for future research was prompted by an example of product confusion given by one of the elderly respondents. This person had been preparing a meal and opened a generic-labeled product only to find that the can did not contain what she specifically wanted nor even intended to buy. The label was yellow (the color of the can she thought she had bought), had no illustrations, and had the product identity in relatively small type near the top. Given that one of the purposes of generic products is to provide quality products at a substantial savings for the economically disadvantaged, that goal may be thwarted in the case of the elderly. Therefore, one could study consumer comprehension as it relates to generic products and seek means by which comprehension could be enhanced while still maintaining lower prices.

Summary

This study was exploratory research into the phenomenon

of consumer miscomprehension of similarly packaged, yet inherently different products. Label design and brand name were manipulated in a 2 x 2 factorial design. "Framed" versus "unframed" label design and specific versus vague brand name comprised the two levels of the independent variables.

One-hundred and forty subjects, 72 young adults and 68 older adults, participated in this study. Personal interviews were conducted with subjects during which they viewed a slide set consisting of two sample slides and four test slides. Subjects responded to questions that assessed the dependent variable, consumer miscomprehension, potentially confounding variables, and demographic data.

The resulting data were analyzed via analysis of variance to test for significance of the independent variables, brand name and label design, and age as a covariate. Results regarding brand name and age were significant and occurred in the predicted direction. A specific brand name resulted in greater comprehension of the product and its usage. Older subjects demonstrated a lower level of comprehension across all four treatment conditions. Label design was marginally significant across the four products with mean comprehension scores occurring in the predicted direction. A "framed" label design resulted in a higher comprehension score than an unframed label design. Alternative explanations for the findings were discounted based on the results of analysis of covariance.

The study concluded with implications for marketers and public policy makers based on this research's findings and

provided suggestions for future research. Specifically, marketers were encouraged to select specific brand names and use "framed" illustrations on the product label. These actions might minimize the amount of consumer miscomprehension regarding their products and subsequent product misuse. Furthermore, these actions might be especially necessary for products whose target market consists of a sizeable elderly segment. Public policy makers were encouraged to develop public service announcements for television that point out every person's potential to confuse similarly packaged products. Additionally, recommendations for selecting a brand name and label design were given concerning prescription drugs as a means of reducing confusion in this product category.

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APPENDICES

APPENDIX A

PRETEST 1

PRETEST 1 INSTRUMENT

SLIDE _____

1. What type of product do you think is shown in the slide?
If you don't know, please say so.

2. What would you do with this product? In other words, how would you use or consumer this product?

3. How frequently do you use a product like the one you saw in the slide? Mark the phrase that best reflects your answer.

 Very Frequently
 Frequently
 Somewhat Frequently
 Somewhat Infrequently
 Infrequently
 Very Infrequently

4. How sure are you that the pictured product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

5. Please name any other products, besides the one you named in question one, that you think this product might be. If you can't think of any other products, please say so.

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) cough remedy
- b) chewing gum
- c) antacid
- d) candy

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) saccharin tablets
- b) mints
- c) aspirin
- d) water softener tablets

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) hair styling aid
- b) shaving cream
- c) hair remover (depilatory)
- d) shampoo

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) disinfectant
- b) cough syrup
- c) spot remover
- d) vaporizer inhalant

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) hair spray
- b) spray paint
- c) deodorant
- d) disinfectant

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) Spam
- b) Tea Bags
- c) Coffee Drink Mix
- d) Toilet Bowl Cleaner

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) deodorant/anti-perspirant
- b) muscle liniment
- c) insect repellent
- d) skin lotion

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) nail polish remover
- b) hand lotion
- c) shampoo
- d) mouthwash

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

SLIDE ____

Circle the product that you think is shown in the slide.
Select only one answer.

- a) toothpaste
- b) skin medication
- c) hair conditioner
- d) denture adhesive

How sure are you that the picture product is what you think it is? Rank how sure you are on the scale below by circling the appropriate number.

Very Sure 6 5 4 3 2 1 Very Unsure

Please complete the following information about yourself.

Your age

_____ years

Are you

_____ male

_____ female

RESULTS OF PRETEST 1

PRETEST 1 RESULTS

Product Perceptions: Modal Responses
For Free-Response and Multiple Choice Formats

Product Set A

Product	Free Response	Multiple Choice
Chiclets Gum	Chewing Gum (93%) Chewing Gum (43%)	Chewing Gum (89%) Chewing Gum (71%)
Saccharin Tablets	Aspirin (97%) Aspirin (100%)	Aspirin (71%) Aspirin (71%)
Depilatory (Mousse Can)	Hair Spray (38%) Hair Spray (57%)	Hair Mousse (96%) Hair Mousse (57%)
Vaporizer Inhalant	Cough Syrup (59%) Cough Syrup (43%)	Cough Syrup (93%) Cough Syrup (57%)
Hair Spray (Aersol Can)	Hair Spray (31%) Hair Spray (57%)	Spray Paint (39%) Hair Spray (57%)
Coffee Drink Mix	Coffee Drink Mix (69%) Don't Know (43%)	Coffee Drink Mix (86%) Tea Bags (57%)
Deodorant (Stick Form)	Deodorant (48%) Deodorant (29%)	Deodorant (79%) Deodorant (57%)
Hand Lotion	Shampoo (86%) Hand Lotion (43%)	Shampoo (71%) Hand Lotion (43%)
Hair Cream (Tube)	Antibiotic Ointment (38%) Toothpaste (86%)	Skin Medication (61%) Toothpaste (86%)

YOUNGER SUBJECTS N= 29

OLDER SUBJECTS N= 7

+ The responses for the older subjects are given in boldface.

* Respondents were given four possible selections from which to choose.

Product Set B

<u>Product</u>	<u>Free Response</u>	<u>Multiple Choice</u>
Antacid Gum (Plain Box)	Don't Know (38%) Don't Know (71%)	Antacid (47%) Antacid (29%)
Aspirin Tablets	Aspirin (100%) Aspirin (86%)	Aspirin (100%) Aspirin (71%)
Hair Styling Mousse	Hair Mousse (53%) Don't know (29%)	Hair Mousse (88%) Shampoo (57%)
Cough Syrup	Cough Syrup (88%) Cough Syrup (29%)	Cough Syrup (100%) Cough Syrup (86%)
Deodorant (Aerosol Can)	Deodorant (35%) Hair Spray (29%)	Deodorant (41%) Hair Spray (86%)
Spam Luncheon Meat	Spam (71%) Spam (57%)	Spam (94%) Spam (71%)
Muscle Linament (Stick Form)	Deodorant (71%) Don't know (57%)	Deodorant (88%) Deodorant (86%)
Nail Polish Remover	Nail Polish Remover (47%) Hand Lotion (43%)	Nail Polish Remover (53%) Hand Lotion (71%)
Toothpaste (tube)	Toothpaste (100%) Toothpaste (43%)	Toothpaste (94%) Toothpaste (43%)

YOUNGER SUBJECTS N= 17 OLDER SUBJECTS N=7

APPENDIX B

PRETEST 2

PRETEST 2 INSTRUMENT

INSTRUCTIONS: In the blank beside each word listed below, write the type of product you think would most likely have that word as its brand name. Fill in every blank.

1. Brights _____
2. Ache Away _____
3. Resting Quietly _____
4. Propel _____
5. Trim-N-Sweet _____
6. Quiet Stomach _____
7. Relax _____
8. Breathing Again _____

SEX:

_____ male

_____ female

INSTRUCTIONS: In the blank beside each word listed below, write the type of product you think would most likely have that word as a brand name. Fill in every blank.

1. Vapomist _____
2. Mintlets _____
3. Waist Away _____
4. Rest Easy _____
5. Tummy Gummy _____
6. Extinguish _____
7. Feeling Better _____
8. Muscle Massage _____

SEX:

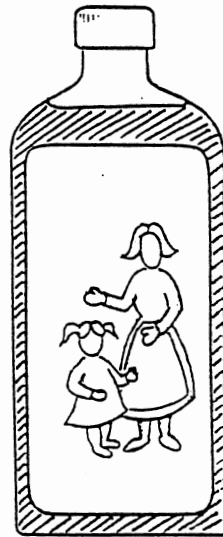
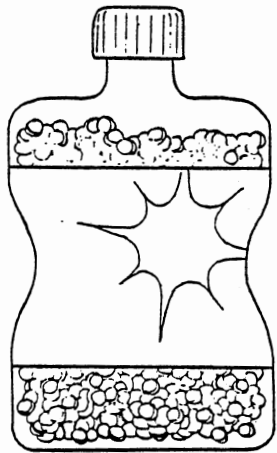
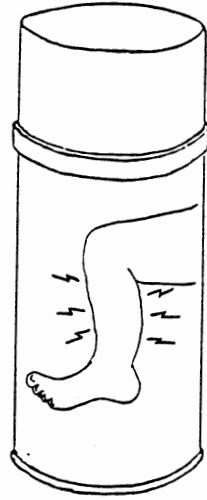
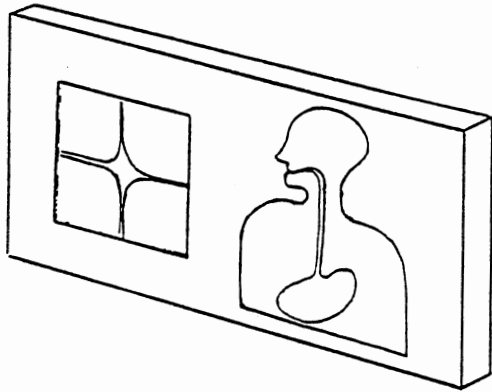
_____ male

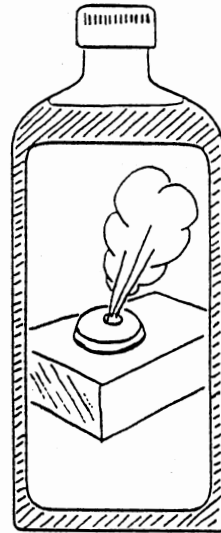
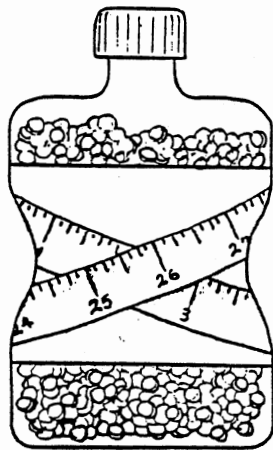
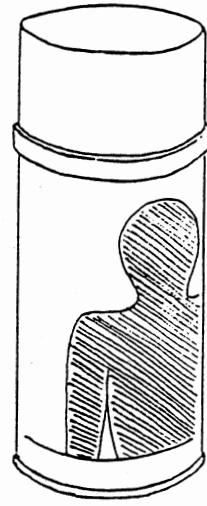
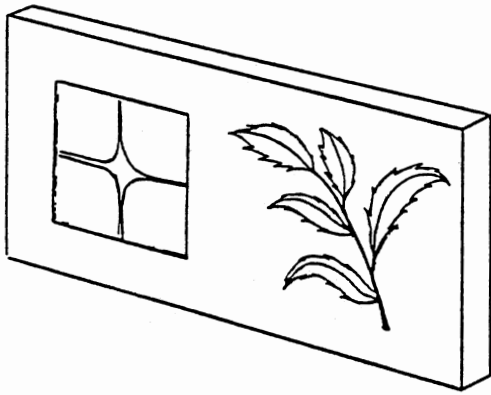
_____ female

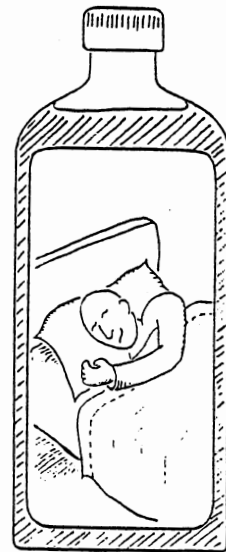
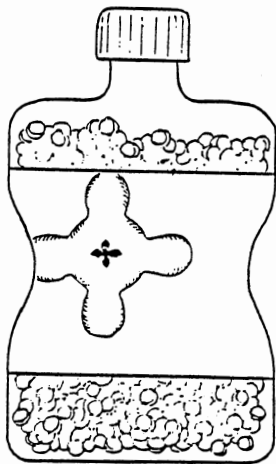
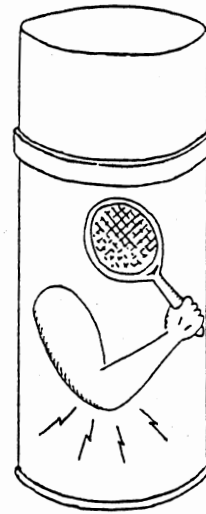
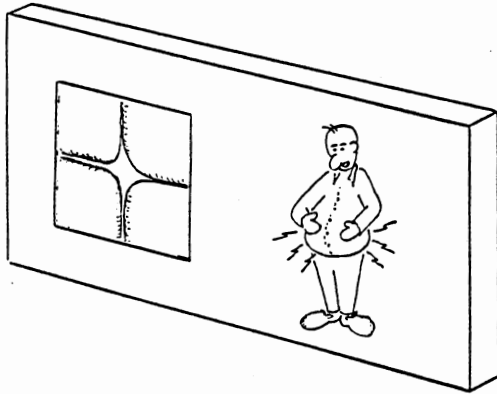
INSTRUCTIONS: On the following page are drawings of products you might buy at the grocery or drug store. We want you to give use you first impressions of each product. In the space provided, write the type of product you think is shown. There are no right answers.

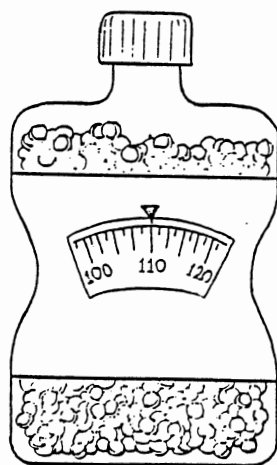
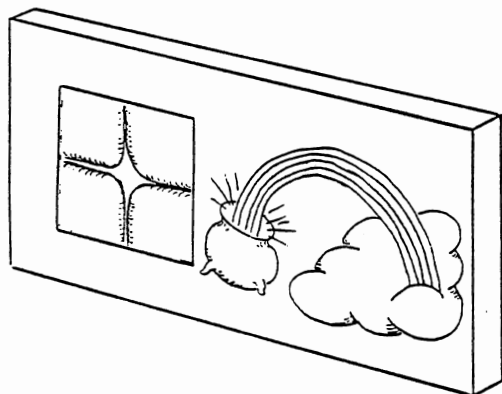
Check appropriate response.

SEX: _____ male _____ female









PRETEST 2 RESULTS

Brand Name Pretest Results

<u>SPECIFIC NAME</u>	<u>HIT</u>	<u>MISS</u>
Antacid Gum		
* Quiet Stomach	88%	12%
Tummy Gummy	48%	52%
Muscle Liniment		
Ache Away	37%	63%
* Muscle Massage	48%	52%
Saccharin Tablets		
Waist Away	---	100%
* Trim-N-Sweet	58%	42%
Vaporizer Inhalant		
Breathing Again	8%	92%
* Vapomist	28%	72%
<u>VAGUE NAME</u>		
Antacid Gum		
* Brights	---	100%
Mintlets	---	100%
Muscle Liniment		
Relax	8%	92%
* Rest Easy	---	100%
Saccharin Tablets		
Propel	---	100%
* Extinguish	---	100%
Vaporizer Inhalant		
* Feeling Better	---	100%
Resting Quietly	---	100%

* Indicates brand name used in test stimuli

Label Design Pretest Results

<u>FRAMED LABEL</u>	<u>HIT</u>	<u>MISS</u>
Antacid Gum		
* Torso w/stomach	88%	12%
Man holding stomach	88%	12%
Muscle Liniment		
* Leg	92%	8%
"Tennis Elbow"	63%	12%
Saccharin Tablets		
* Tape Measure w/Sugar Bowl	32%	68%
Scales w/Sugar Bowl	13%	87%
Vaporizer Inhalant		
* Vaporizer	8%	92%
Nose	12%	88%
<u>UNFRAMED</u>		
Antacid Gum		
* Spearmint Leaf	---	100%
Rainbow	---	100%
Muscle Liniment		
* Torso Silhouette	---	100%
Lightening Bolt	---	100%
Saccharin Tablets		
* Starburst	---	100%
Propeller	---	100%
Vaporizer Inhalant		
* Mother/Child	---	100%
Sleeping Man	---	100%

* Indicates label design used on test stimuli

APPENDIX C

PRETEST 3

DESCRIPTION OF PRETEST 3 SLIDE SET

<u>Slide</u>	<u>Product</u>	<u>Label Condition</u>	<u>Name Condition</u>
1	Muscle Liniment	Unframed	Vague
2	Saccharin	Framed	Specific
3	Antacid Gum	Framed	Vague
4	Vaporizer Inhalant	Unframed	Specific

PRODUCT # _____

1. What was the brand name of the product? _____
2. How sure are you about your answer? Circle Response.
Very Unsure 1 2 3 4 5 6 Very Sure
3. What picture was on the label? _____
4. How sure are you about your answer? Circle Response.
Very Unsure 1 2 3 4 5 6 Very Sure
5. What type of product do you think was shown in the advertisement?

6. How sure are you about your answer? Circle Response.
Very Unsure 1 2 3 4 5 6 Very Sure
7. What would you do with the product in the advertisement? In other words, how would you use this product?

PRODUCT # _____

1. What was the brand name of the product? _____
2. How sure are you about your answer? Circle response.
Very Unsure 1 2 3 4 5 6 Very Sure
3. What picture was on the label? _____
4. How sure are you about your answer? Circle response.
Very Unsure 1 2 3 4 5 6 Very Sure
5. What type of product do you think was shown in the advertisement?

6. How sure are you about your answer? Circle Response.
Very Unsure 1 2 3 4 5 6 Very Sure
7. What would you do with the product in the advertisement? In other words, how would you use this product?

PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT YOURSELF.

WHAT IS YOUR AGE? _____

WHAT IS YOUR SEX? _____ MALE _____ FEMALE

APPENDIX D

EXPERIMENTAL RESEARCH INSTRUMENT

SUBJECT NUMBER _____ TIME: Start _____
VERSION _____ Finish _____
LOCATION _____
INTERVIEWER _____
DATE _____

INTERVIEWER: WE ARE CONDUCTING THIS STUDY TO GET YOUR
IMPRESSIONS OF ADVERTISEMENTS. THERE ARE
NO RIGHT OR WRONG ANSWERS -- ONLY YOUR
OPINION.

I'M GOING TO SHOW YOU A TOTAL OF SIX SLIDES OF
ADVERTISEMENTS. I WILL STOP AFTER EACH SLIDE
AND ASK YOU A SET OF QUESTIONS.

PRODUCT # Sample 1

SHOW ADVERTISEMENT

Part One: Free Response -- Evaluating the Advertisement

INTERVIEWER: I'M GOING TO READ YOU A STATEMENT AND I
WANT YOU TO TELL ME HOW MUCH YOU AGREE OR
DISAGREE WITH THAT STATEMENT.

SHOW CUE CARD

1. The advertisement is informative. (Circle Response.)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

2. The advertisement is cluttered. (Circle Response.)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

3. The advertisement is attractive. (Circle Response.)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

4. What type of product do you think was shown in the advertisement?

5. How sure are you about your answer? (Circle Response.)

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

6. How would you use this product?

7. How sure are you about your answer? Circle Response.

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

Part Two: Multiple Choice

8. Which of the products named on this card do you think was shown in this advertisement? (Circle Response.)

SHOW CUE CARD

- A) coffee
- B) vegetable shortening
- C) honey
- D) powdered soft drink mix

9. How sure are you about your answer? (Circle response.)

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

10. Which of the following answers best describes how you would use the product in the advertisement? (Circle response.)

SHOW CUE CARD

- A) Use in baking or frying foods
- B) Use to make a cold drink
- C) Use to sweeten something
- D) Use to make a hot drink

11. How sure are you about your answer? Circle Response.

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

12. What do you think is the price of this product?

- a) less than \$1.00
- b) between \$1.01 and \$2.00
- c) between \$2.01 and \$3.00
- d) more than \$3.00

13. Where would you expect to find this product in a grocery store?

- a) in the gum and candy aisle
- b) in the drug or pharmacy aisle
- c) in the toiletries or cosmetics aisle
- d) in a food aisle
- e) in a cold foods case

PRODUCT # Sample 2

SHOW ADVERTISEMENT

Part One: Free Response -- Advertisement Evaluation

INTERVIEWER: I'M GOING TO READ YOU A STATEMENT AND I WANT YOU TO TELL ME HOW MUCH YOU AGREE OR DISAGREE WITH THAT STATEMENT.

SHOW CUE CARD

1. The advertisement is informative. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

2. The advertisement is cluttered. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

3. The advertisement is attractive. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

4. What type of product do you think was shown in the advertisement?
-

5. How sure are you about your answer? **(Circle Response.)**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

6. How would you use this product?
-

7. How sure are you of your answer? **(Circle Response.)**

G

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

Part Two: Multiple Choice

8. Which of the products named on this card do you think was shown in this advertisement? **Circle Response.**

SHOW CUE CARD

- A) orange juice
- B) malted milk balls candy
- C) milk
- D) epsom salts

9. How sure are you about your answer? **Circle response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

10. Which of the following answers best describes how you would use the product in the advertisement? **Circle response.**

SHOW CUE CARD

- A) Use when you want something sweet to eat
- B) Use as a fruit juice drink
- C) Use as a dairy drink
- D) Use as a foot soak

11. How sure are you about your answer? **Circle Response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

12. What do you think is the price of this product?

- a) less than \$1.00
- b) between \$1.01 and \$2.00
- c) between \$2.01 and \$3.00
- d) more than \$3.00

13. Where would you expect to find this product in a grocery store?

- a) in the gum and candy aisle
- b) in the drug or pharmacy aisle
- c) in the toiletries or cosmetics aisle
- d) in a food aisle
- e) in a cold foods case

PRODUCT # _____

SHOW ADVERTISEMENT

Part One: Free Response -- Evaluating the Advertisement

INTERVIEWER: I'M GOING TO READ YOU A STATEMENT AND I WANT YOU TO TELL ME HOW MUCH YOU AGREE OR DISAGREE WITH THAT STATEMENT.

HOW CUE CARD

1. The advertisement is informative. (**HCircle Response.**)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

2. The advertisement is cluttered. (**Circle Response.**)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

3. The advertisement is attractive. (**Circle Response.**)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

4. What type of product do you think was shown in the advertisement?
-

5. How sure are you about your answer? (**Circle Response.**)

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

6. How would you use this product?
-

7. How sure are you about your answer? (**Circle Response.**)

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

Part Two: Multiple Choice

8. Which of the products named on this card do you think was shown in this advertisement? **Circle Response.**

SHOW CUE CARD

- A) Cough Remedy
- B) Chewing Gum
- C) Antacid Gum
- D) Candy

9. How sure are you about your answer? **Circle response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

10. Which of the following answers best describes how you would use the product in the advertisement? **Circle response.**

SHOW CUE CARD

- A) Use to freshen breath
- B) Use to stop a cough
- C) Use to calm an upset stomach
- D) Use it when you want something sweet to eat

11. How sure are you about your answer. **Circle Response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

12. What do you think is the price of this product?

- a) less than \$1.00
- b) between \$1.01 and \$2.00
- c) between \$2.01 and \$3.00
- d) more than \$3.00

13. Where would you expect to find this product in a grocery store?

- a) in the gum and candy aisle
- b) in the drug or pharmacy aisle
- c) in the toiletries or cosmetics aisle
- d) in a food aisle
- e) in a cold foods case

PRODUCT # _____

SHOW ADVERTISEMENT

Part One: Free Response -- Evaluating the Advertisement

INTERVIEWER: I'M GOING TO READ YOU A STATEMENT AND I WANT YOU TO TELL ME HOW MUCH YOU AGREE OR DISAGREE WITH THAT STATEMENT.

SHOW CUE CARD

1. The advertisement is informative. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

2. The advertisement is cluttered. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

3. The advertisement is attractive. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

4. What type of product do you think was shown in the advertisement?
-

5. How sure are you about your answer? **(Circle Response.)**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

6. How would you use this product?
-

7. How sure are you about your answer? **(Circle Response.)**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

Part Two: Multiple Choice

8. Which of the products named on this card do you think was shown in this advertisement? **Circle Response.**

SHOW CUE CARD

- A) saccharin tablets
- B) mints
- C) aspirin tablets
- D) water softener tablets

9. How sure are you about your answer? **Circle response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

10. Which of the following answers best describes how you would use the product in the advertisement? **Circle response.**

SHOW CUE CARD

- A) Use it when you want something sweet to eat
- B) Use it as a water conditioner
- C) Use it to make things taste sweet
- D) Use it to stop a headache

11. How sure are you about your answer? **Circle Response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

12. What do you think is the price of this product?

- a) less than \$1.00
- b) between \$1.01 and \$2.00
- c) between \$2.01 and \$3.00
- d) more than \$3.00

13. Where would you expect to find this product in a grocery store?

- a) in the gum and candy aisle
- b) in the drug or pharmacy aisle
- c) in the toiletries or cosmetics aisle
- d) in a food aisle
- e) in a cold foods case

PRODUCT # _____

SHOW ADVERTISEMENT

Part One: Free Response -- Evaluating the Advertisement

INTERVIEWER: I'M GOING TO READ YOU A STATEMENT AND I WANT YOU TO TELL ME HOW MUCH YOU AGREE OR DISAGREE WITH THAT STATEMENT.

SHOW CUE CARD

1. The advertisement is informative. (Circle Response.)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
-------------------	-------	-------------------------------	----------	----------------------

5	4	3	2	1
---	---	---	---	---

2. The advertisement is cluttered. (Circle Response.)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
-------------------	-------	-------------------------------	----------	----------------------

5	4	3	2	1
---	---	---	---	---

3. The advertisement is attractive. (Circle Response.)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
-------------------	-------	-------------------------------	----------	----------------------

5	4	3	2	1
---	---	---	---	---

4. What type of product do you think was shown in the advertisement?
-

5. How sure are you about your answer? (Circle Response.)

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

6. How would you use this product?
-

7. How sure are you about your answer? (Circle Response.)

Very Unsure 1 2 3 4 5 6 Very Sure

Part Two: Multiple Choice

8. Which of the products named on this card do you think was shown in this advertisement? **Circle Response.**

SHOW CUE CARD

- A) Disinfectant
- B) Cough Syrup
- C) Spot Remover
- D) Vaporizer Inhalant

9. How sure are you about your answer? **Circle response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

10. Which of the following answers best describes how you would use the product in the advertisement? **Circle response.**

SHOW CUE CARD

- A) Add to the water in a vaporizer
- B) Use to remove spots
- C) Use to stop a cough
- D) Use to clean things

11. How sure are you about your answer? **Circle Response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

12. What do you think is the price of this product?

- a) less than \$1.00
- b) between \$1.01 and \$2.00
- c) between \$2.01 and \$3.00
- d) more than \$3.00

13. Where would you expect to find this product in a grocery store?

- a) in the gum and candy aisle
- b) in the drug or pharmacy aisle
- c) in the toiletries or cosmetics aisle
- d) in a food aisle
- e) in a cold foods case

PRODUCT # _____

SHOW ADVERTISEMENT

Part One: Free Response -- Evaluating the Advertisement

INTERVIEWER: I'M GOING TO READ YOU A STATEMENT AND I WANT YOU TO TELL ME HOW MUCH YOU AGREE OR DISAGREE WITH THAT STATEMENT.

SHOW CUE CARD

1. The advertisement is informative. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

2. The advertisement is cluttered. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

3. The advertisement is attractive. **(Circle Response.)**

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
5	4	3	2	1

4. What type of product do you think was shown in the advertisement?

5. How sure are you about your answer? **(Circle Response.)**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

6. How would you use this product?

7. How sure are you about your answer? **(Circle response.)**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

Part Two: Multiple Choice

8. Which of the products named on this card do you think was shown in this advertisement? **Circle Response.**

SHOW CUE CARD

- A) Deodorant/Anti-perspirant
- B) Muscle Liniment
- C) Insect Repellant
- D) Skin Lotion

9. How sure are you about your answer? **Circle response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

10. Which of the following answers best describes how you would use the product in the advertisement? **Circle response.**

SHOW CUE CARD

- A) Use to keep mosquitos away
- B) Use to rub on sore muscles
- C) Use to soften skin
- D) Use on underarms to stop odor

11. How sure are you about your answer? **5Circle Response.**

SHOW CUE CARD

Very Unsure 1 2 3 4 5 6 Very Sure

12. What do you think is the price of this product?

- a) less than \$1.00
- b) between \$1.01 and \$2.00
- c) between \$2.01 and \$3.00
- d) more than \$3.00

13. Where would you expect to find this product in a grocery store?

- a) in the gum and candy aisle
- b) in the drug or pharmacy aisle
- c) in the toiletries or cosmetics aisle
- d) in a food aisle
- e) in a cold foods case

INTERVIEWER: NOW I'M GOING TO ASK YOU SOME QUESTIONS ABOUT
A FEW PRODUCTS THAT YOU MAY USE.

14. Product Usage (SHOW CUE CARD)

How often do you use saccharin tablets? **Check one.**

_____ Very Frequently _____ Never
 _____ Frequently
 _____ Somewhat Frequently
 _____ Somewhat Infrequently
 _____ Infrequently
 _____ Very Infrequently

How often do you use cough syrup? **Check one.**

_____ Very Frequently _____ Never
 _____ Frequently
 _____ Somewhat Frequently
 _____ Somewhat Infrequently
 _____ Infrequently
 _____ Very Infrequently

How often do you use aspirin or Tylenol? **Check one.**

_____ Very Frequently _____ Never
 _____ Frequently
 _____ Somewhat Frequently
 _____ Somewhat Infrequently
 _____ Infrequently
 _____ Very Infrequently

How often do you use chewing gum? **Check one.**

_____ Very Frequently _____ Never
 _____ Frequently
 _____ Somewhat Frequently
 _____ Somewhat Infrequently
 _____ Infrequently
 _____ Very Infrequently

How often do you use muscle liniment? **Check one.**

_____ Very Frequently _____ Never
 _____ Frequently
 _____ Somewhat Frequently
 _____ Somewhat Infrequently
 _____ Infrequently
 _____ Very Infrequently

How often do you use deodorant/antiperspirant? Check one.

- Very Frequently Never
 Frequently
 Somewhat Frequently
 Somewhat Infrequently
 Infrequently
 Very Infrequently

How often do you use an antacid chewing gum? Check one.

- Very Frequently Never
 Frequently
 Somewhat Frequently
 Somewhat Infrequently
 Infrequently
 Very Infrequently

How often do you use a vaporizer inhalant (a liquid added to water in the vaporizer). Check one.

- Very Frequently Never
 Frequently
 Somewhat Frequently
 Somewhat Infrequently
 Infrequently
 Very Infrequently

15. PRODUCT STORAGE (SHOW CUE CARD -- Probe)

If you owned cough syrup, where might you keep it?
Number in order mentioned.

- In your purse or pockets
 In the car
 In a medicine cabinet
 On a kitchen counter
 By the bedside
 Under the kitchen sink
 In a closet
 In a kitchen cupboard
 Other: _____ (Specify)

If you owned deodorant, where might you keep it?
Number in order mentioned.

- In your purse or pockets
 In the car
 In a medicine cabinet
 On a kitchen counter
 By the bedside
 Under the kitchen sink
 In a closet
 In a kitchen cupboard
 Other: _____ (Specify)

If you owned saccharin tablets, where might you keep them? **Check any answer that applies.**

- In your purse or pockets
 In the car
 In a medicine cabinet
 By the bedside
 Under the kitchen sink
 In a closet
 In a kitchen cupboard
 Other: _____ (Specify)

If you owned chewing gum, where might you keep it?
Number in order mentioned.

- In your purse or pockets
 In the car
 In a medicine cabinet
 By the bedside
 Under the kitchen sink
 In a closet
 In a kitchen cupboard
 Other: _____

If you owned vaporizer inhalant, where might you keep it?

Number in order mentioned.

- In your purse or pockets
 In the car
 In a medicine cabinet
 By the bedside
 Under the kitchen sink
 In a closet
 In a kitchen cupboard
 Other: _____ (Specify)

If you owned muscle liniment, where might you keep it?
Number in order mentioned.

- In your purse or pockets
 In the car
 In a medicine cabinet
 By the bedside
 Under the kitchen sink
 In a closet
 In a kitchen cupboard
 Other: _____

If you owned antacid chewing gum, where might you keep it?
Number in order mentioned.

- _____ In your purse or pockets
 _____ In the car
 _____ In a medicine cabinet
 _____ By the bedside
 _____ Under the kitchen sink
 _____ In a closet
 _____ In a kitchen cupboard
 _____ Other: _____ (Specify)

If you owned aspirin, where might you keep it?
Number in order mentioned.

- _____ In your purse or pockets
 _____ In the car
 _____ In a medicine cabinet
 _____ By the bedside
 _____ Under the kitchen sink
 _____ In a closet
 _____ In a kitchen cupboard
 _____ Other: _____

Part Three: Respondent Information

INTERVIEWER: NOW I'M GOING TO ASK YOU SOME QUESTIONS ABOUT
WHERE YOU SHOP.

SHOW CUE CARD

16. How often do you shop at a grocery store?

- _____ Very Frequently _____ Never
 _____ Frequently
 _____ Somewhat Frequently
 _____ Somewhat Infrequently
 _____ Infrequently
 _____ Very Infrequently

17. How often do you shop at a drug store?

- _____ Very Frequently _____ Never
 _____ Frequently
 _____ Somewhat Frequently
 _____ Somewhat Infrequently
 _____ Infrequently
 _____ Very Infrequently

INTERVIEWER: IT IS VERY IMPORTANT THAT YOU DON'T DISCUSS THIS INTERVIEW WITH ANYONE FOR ABOUT A MONTH. SOME PEOPLE YOU KNOW MAY BE INTERVIEWED LATER. WE WANT EACH PERSON TO GIVE THEIR OWN OPINION ABOUT THE ADVERTISEMENTS. WOULD YOU NOW COMPLETE THE LAST PAGE AND GIVE IT TO ME WHEN YOU'RE DONE.

23. WHAT IS YOUR SEX? _____ MALE _____ FEMALE

24. WHAT IS YOUR AGE? _____

25. WHAT IS THE HIGHEST LEVEL OF EDUCATION YOU HAVE COMPLETED? CHECK ONLY ONE.

_____ GRADE SCHOOL

_____ SOME HIGH SCHOOL

_____ HIGH SCHOOL GRADUATE

_____ SOME COLLEGE OR TRADE SCHOOL

_____ COLLEGE GRADUATE

_____ SOME GRADUATE WORK

_____ GRADUATE DEGREE

26. WHAT RACE ARE YOU? CHECK ONLY ONE.

_____ WHITE

_____ BLACK

_____ HISPANIC

_____ NATIVE AMERICAN

_____ ORIENTAL

_____ OTHER (Please specify): _____

27. HOW WELL DO YOU THINK YOU SEE?

MARK THE NUMBER THAT BEST REFLECTS YOUR ANSWER.

I SEE
VERY WELL

1

2

3

4

5

6

I DON'T
SEE VERY WELL

APPENDIX E

CONTEMPORARY NEAR POINT READING EYE CHART

CONTEMPORARY NEAR POINT EYE CHART

Designed by Melvin Schrier, O.D., F.A.A.O.
And George F. Panariello, M.D., F.A.C.S.

Created by an optometrist and an ophthalmologist, this chart takes patients' everyday visual needs into account. It singles out, for testing, the most commonly used type faces and type arrangements which patients may be subjected to during the course of the day.

The Contemporary Near Point Eye Chart has the benefit of practicality combined with professionalism. It is a screening device whose application to vision needs should enhance the diagnostic as well as therapeutic contributions of the professional eye-care specialist to his patients.

4 PT. 20/25 J1 .50M

The vision we often take for granted is the open door to a more rewarding world. Whether you're a young person or an adult, the fact is that about 80 percent of an evening depends on proper vision. For example - for children, good vision can affect school achievement, social adjustment, and physical capabilities such as hand-eye coordination. In turn, an error personally can be, in large part, masked by the ability to handle visual tasks. Happily, most vision problems can be corrected. Catching the early danger signals of vision problems can be the answer.

5 PT. 20/30 J2 .75M

Scientists tell us that no two pairs of eyes are exactly alike. This makes your eyes unique objects in the universe. Treat them like the rare, precious possessions they are. Here's how you can start right now: provide yourself good lighting, especially for reading, and avoid glare and shadows. If a foreign object lodges in your eye, don't treat the condition yourself; see a doctor at once. Changes in eyesight happen so gradually you may not be aware of them. The cornerstone of good eye care is a complete, regularly scheduled professional examination.

6 PT. 20/40 J3 1.00M

So for a better look at life, follow these simple rules: 1. Respect your vision—care for your eyes. They are the most complex organs you possess except for your brain. 2. Symptoms are the eyes' way of telling you they need help. Be on the look-out for: blurred vision, distorted vision, squinting, eye fatigue, slow learning in children, eye irritation, persistent headache, eye pain of any kind. 3. Have regular eye examinations by a trained professional. 4. Children's eyes should be examined regularly from four years of age.

10 PT. 20/70 J7 1.75M

The Contemporary Near Point Eye Chart is scientific and practical. The examples shown are the kinds of reading tasks research tells us are those which most eyes are asked to accomplish everyday. Together with the professional who is assisting you in progressing thru this chart, begin to know everything you can about your eyes and what you can expect of them.

14 PT. 20/100 J10 2.00M

A bright future is what good vision can promise you. If you live a normal life span, your eyes will bring you 24 billion images of the world around you.

26 PT. 20/200 J16 2.75M

Value, care for, and protect your eyes. Make each and everyone of those images as sharp and beautiful as they can be.

2 LOU LOOKS AT FEAR IN THE STREETS!

- 10:00 2 LOU GRANT
Rossi's overbearing manner angers a black reporter assigned to work with him on a story about a ghetto killing.
- 4 HIGHLIGHTS OF THE ICE FOLLIES AND HOLIDAY ON ICE
Peggy Fleming joins Tony Randall in this special featuring skating talent and highlights from the two most famous ice revues in the world. (R)
- 5 NEWS
- 11 INDEPENDENT NETWORK NEWS

PORSCHE 80 911SC
Coupe, metallic blue, 4,000mi, 4/mo. old. Under warranty. All avail. cond., 1hr. 5/R, A/C, P7, forged alloy wheels, 2001 w/new arms. * Near, immaculate! \$27,900 Firm. 412-836-5120

PORSCHE 911 SC 1977
Silver metallic/black, 5 speed, A/C, alloy wheels, 40K miles, mint cond., \$15,000 or Trade. 617-588-0010

PORSCHE 924 TURBO 1980
Silver metallic over grey, 5 speed, A/C, sunroof, wheels, 10K mi. This week's special, \$17,900 or Trade. 617-588-0010

PORSCHE '71 S11T
5980 mi, excel cond., \$7900. 745-8254

PORSCHE 911SC '79
Sunroof, air, cassette w/boombox, fr & rr radar, fr & rr spoilers, black met., 30,000 mi. Only \$27,500. Wheelers (R-51) 201-377-4600

PORSCHE 1960
Convertible Roadster, good cond., runs well, res. made for detachable hardtop, \$3900 or best offer. 201-222-1221

Egg and tomato sandwiches

- INGREDIENTS**
- 4 peeled and quartered hard-boiled eggs
 - 1 teaspoon Dijon mustard
 - Salt, pepper
 - Approximately 1/4 cup mayonnaise
 - Softened unsalted butter
 - 20 slices white bread
 - 1-2 medium-ripe, firm tomatoes, thinly sliced and drained on a paper towel

- AppleTree Foods Inc 555-1121
340 West End Ave
- Associated Drilling Ventures 999-6313
1114 Avenue Americas
- Beneficial Roofing Services 999-8121
310 Greenwich
- Buchan Angus 555-6179
420 E 79
- Candlelight Lounge 516 555-2390
110 Main Street
- Caplan Ralph 555-1546
1700 Bway
- Carberry Medical Center 555-7987
1412 Elm
- Donovan Carmela 555-2315
310 E 74
- Evans Mary 555-7893
180 Mad Av
- Fleming Louise 555-4242
95 Orchard St
- Gall Maria 555-3232
168 E 82
- Gamma Forms 555-5019
220 E 83
- Hagan Catherine 999-2350
825 3 Av
- Hyatt House 999-4232
307 W 38
- James Keith 999-7313
3250 Bway
- Kassal Negley 555-6193
1407 Bway
- Lester Handbag 999-7392
133 E 4

157-5TH AVE
60S-NR MADISON COMMERCIAL ZONE CORPORATE HEADQUARTERS IMMEDIATE POSSESSION EUROPEAN-STYLE MANSION OFFICES CHARMING & SPACIOUS FIREPLACES & TERRACES MOVE-IN CONDITION ASKING \$4,800,000-PRINCIPALS OTHERS AVAILABLE 5 AV VIC (LOWER)

HELP WANTED

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Albert Jay Rosenthal & Co. is expanding their Media Dept. A major opportunity is available for an individual with 3-5 years of planning/buying exp. The position requires diversified knowledge of broadcast and print. Excellent communication skills, organization & creativity are essential to your growth. If you are personable & have good work habits, call: Cam Meyer: 312/337-8070.

WHEN USING ELECTRONIC FLASH
Before shooting, it is advisable to ascertain the Guide Number of the electronic flash you are going to use.

DAYLIGHT EXPOSURE GUIDE
If an exposure meter is unavailable, please refer to the following diagram.

Shutter speed	Sand or Snow	Height	Weak	Slightly	Cloudy
1/200	1/250	Screen under Height Sun	Twilight	Twilight	Cloudy
1/100	1/125	Screen under Height Sun	Twilight	Twilight	Cloudy
1/50	1/60	Screen under Height Sun	Twilight	Twilight	Cloudy
1/25	1/30	Screen under Height Sun	Twilight	Twilight	Cloudy
1/12.5	1/15	Screen under Height Sun	Twilight	Twilight	Cloudy
1/6.25	1/7.5	Screen under Height Sun	Twilight	Twilight	Cloudy
1/3.125	1/3.75	Screen under Height Sun	Twilight	Twilight	Cloudy
1/1.56	1/1.875	Screen under Height Sun	Twilight	Twilight	Cloudy
1/0.78	1/0.9375	Screen under Height Sun	Twilight	Twilight	Cloudy

Less Aperture

DIRECTIONS FOR USE:

- For Minor Cuts, Scratches, and Insect Bites - Apply directly to injury
- For Infectious Dandruff Symptoms - Massage on scalp
- Warning: Do not administer to children under three years of age. Keep this and all drugs out of the reach of children. Not for ingestion.

Distributed exclusively by Richmond Products, 4089 So. Rogers Circle, Suite 6, Boca Raton, Fl. 33431 (305) 994-2112

NOTE: This copy is 85 percent of the original eye chart,

APPENDIX F
TEST STIMULI

DESCRIPTION OF SLIDE SET A

<u>Slide</u>	<u>Product</u>	<u>Label Condition</u>	<u>Name Condition</u>
1	Muscle Liniment	Unframed	Vague
2	Saccharin	Framed	Specific
3	Antacid Gum	Framed	Vague
4	Vaporizer Inhalant	Unframed	Specific

DESCRIPTION OF SLIDE SET B

<u>Slide</u>	<u>Product</u>	<u>Label Condition</u>	<u>Name Condition</u>
1	Antacid Gum	Framed	Specific
2	Vaporizer Inhalant	Unframed	Vague
3	Muscle Liniment	Unframed	Specific
4	Saccharin	Framed	Vague

DESCRIPTION OF SLIDE SET C

<u>Slide</u>	<u>Product</u>	<u>Label Condition</u>	<u>Name Condition</u>
1	Vaporizer Inhalant	Framed	Vague
2	Antacid Gum	Unframed	Specific
3	Saccharin	Unframed	Vague
4	Muscle Liniment	Framed	Specific

DESCRIPTION OF SLIDE SET D

<u>Slide</u>	<u>Product</u>	<u>Label Condition</u>	<u>Name Condition</u>
1	Saccharin	Unframed	Specific
2	Muscle Liniment	Framed	Vague
3	Vaporizer Inhalant	Framed	Specific
4	Antacid Gum	Unframed	Vague

SLIDE SET A

INTRODUCING



Try It Today

INTRODUCING



Try It Today

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Try It Today

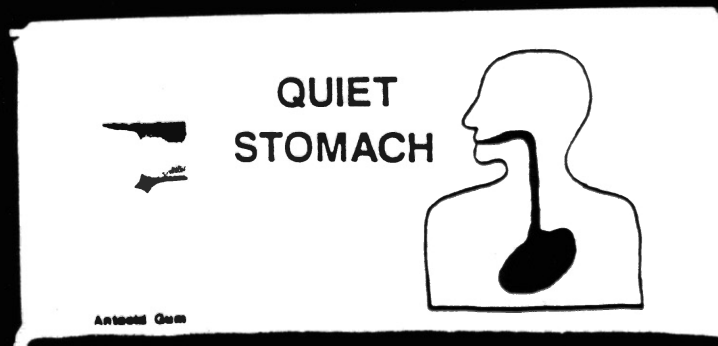
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Try It Today

SLIDE SET B

INTRODUCING



Try It Today

INTRODUCING



Try It Today

INTRODUCING



Try It Today

INTRODUCING



Try It Today

SLIDE SET C

INTRODUCING



Try It Today

INTRODUCING



Try It Today

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Try It Today!

INTRODUCING



Try It Today

SLIDE SET D

INTRODUCING



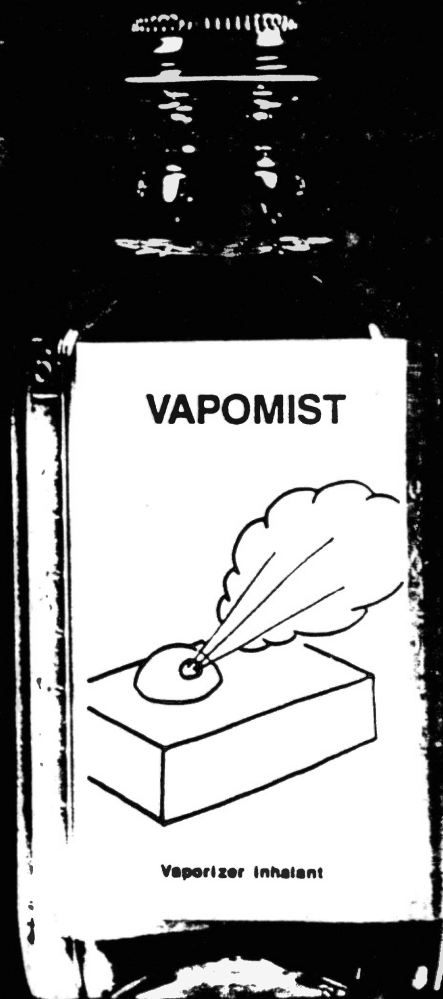
Try It Today

INTRODUCING



Try It Today

INTRODUCING



Try It Today

INTRODUCING



Try It Today

SAMPLE SLIDES

INTRODUCING



Try It Today

INTRODUCING

MOO-JUICE



Milk

Try It Today

APPENDIX G

ANALYSES FOR FREE RESPONSE VERSUS MULTIPLE CHOICE

APPENDIX G
ANOVA FOR TEST PRODUCTS WITH SCOREA AND SCOREB
AS DEPENDENT VARIABLES

MUSCLE LINIMENT

SCOREA: Miscomprehension Assessed Via Free Response

SOURCE	DF	F Value	PR>F
Label Design	1	5.66	0.0188 (b)
Name	1	14.28	0.0002 (a)
Label * Name	1	0.30	0.5849
Age	1	13.17	0.0004 (a)

SCOREB: Miscomprehension Assessed Via Multiple Choice

SOURCE	DF	F Value	PR>F
Label Design	1	0.19	0.6627
Name	1	13.23	0.0004 (a)
Label * Name	1	1.26	0.2638
Age	1	13.58	0.0003 (a)

	SCOREA (a)	SCOREB (b)
Label Design		
Unframed	5.65 **	9.64
Framed	7.99	9.86
Brand Name		
Vague	5.13	8.55
Specific	8.90	11.20

** SCOREA and SCOREB values ranged from -12 to 12.

Correlation between SCORE, SCOREA, and SCOREB

	SCOREA	SCOREB
SCORE	0.91 (a)	0.80 (a)
SCOREA		0.48 (a)

SACCHARIN TABLETS

SCOREA: Miscomprehension Assessed Via Free Response

Label Design	1	1.68	0.1968
Name	1	29.22	0.0001 (a)
Label * Name	1	0.49	0.4861
Age	1	23.08	0.0001 (a)

SCOREB: Miscomprehension Assessed Via Multiple Choice

Label Design	1	0.81	0.3702
Name	1	31.03	0.0001 (a)
Label * Name	1	0.03	0.8585
Age	1	19.17	0.0001 (a)

Main Effect Treatment Means

	<u>SCOREA</u>	<u>SCOREB</u>
Label Design		
Unframed	2.25**	3.70
Framed	3.63	4.63
Brand Name		
Vague	-0.73	0.52
Specific	6.04	7.21

**SCOREA and SCOREB values ranged from -12 to 12

Correlation Between SCORE, SCOREA, and SCOREB

	<u>SCOREA</u>	<u>SCOREB</u>
SCORE	0.93 (a)	0.93 (a)
SCOREA		0.73 (a)

ANTACID GUM

SCOREA: Miscomprehension Assessed Via Free Response

SOURCE	DF	F Value	PR>F
Label Design	1	17.30	0.0001 (a)
Name	1	27.73	0.0001 (a)
Label * Name	1	0.49	0.4832
Age	1	0.20	0.6587

SCOREB: Miscomprehension Assessed Via Multiple Choice

Label Design	1	12.94	0.0005 (a)
Name	1	39.45	0.0001 (a)
Label * Name	1	1.99	0.1608
Age	1	4.01	0.0473 (b)

Main Effect Treatment Means

	<u>SCOREA</u>	<u>SCOREB</u>
Label Design		
Unframed	0.49**	2.57
Framed	5.62	6.86
Brand Name		
Vague	0.29	1.61
Specific	6.52	8.57

** SCOREA and SCOREB values ranged from -12 to 12.

Correlation between SCORE, SCOREA, and SCOREB

	<u>SCOREA</u>	<u>SCOREB</u>
SCORE	0.94 (a)	0.94 (a)
SCOREA		0.76 (a)

VAPORIZER INHALANT

SCOREA: Miscomprehension Assessed Via Free Response

Label	1	0.07	0.7906
Name	1	3.05	0.0831
Label * Name	1	1.02	0.3149
Age	1	32.47	0.0001 (a)

SCOREB: Miscomprehension Assessed Via Multiple Choice

Label	1	2.21	0.1393
Name	1	5.02	0.0267 (b)
Label * Name	1	2.86	0.0930
Age	1	31.69	0.0001 (a)

Main Effect Treatment Means

	<u>SCOREA</u>	<u>SCOREB</u>
Label Design		
Unframed	2.03**	4.41
Framed	2.06	6.46
Brand Name		
Vague	0.72	3.89
Specific	3.17	6.70

**SCOREA and SCOREB values ranged from -12 to 12.

Correlations between SCORE, SCOREA, and SCOREB

	<u>SCOREA</u>	<u>SCOREB</u>
SCORE	0.90 (a)	0.87 (a)
SCOREA		0.56 (a)

(a) Significant at $\alpha = 0.01$

(b) Significant at $\alpha = 0.05$

APPENDIX H

CORRELATION ANALYSES

APPENDIX H

Correlational Analysis For Muscle Liniment:

Selected Variables

	AGE	EDUC	SELFSEE	VISION	TIME	LINUSE
SCORE	-0.33(a)	0.24(a)	-0.10	0.21(b)	-0.26(a)	-0.08
AGE		-0.30(a)	0.15	-0.41(a)	0.68(a)	-0.09
EDUC			-0.34(a)	0.40(a)	-0.23(a)	-0.08
SELFSEE				0.37(a)	0.10	0.12
VISION					-0.31(a)	-0.12
TIME						-0.08

(a) Significant at $\alpha=0.01$

(b) Significant at $\alpha=0.05$

VARIABLE CODE:

SCORE = Overall comprehension score based on free response
and multiple choice questions

AGE = Age in years

EDUC = Highest educational level

SELFSEE = Subject's perception of how well s/he sees

VISION = Reading Vision as measured by the Contemporary
Nearpoint Eye Chart

TIME = Length of interview in minutes

LINUSE = Subject's perception of how frequently s/he used
muscle liniment

Correlational Analysis For Saccharin Tablets:
Selected Variables

	AGE	EDUC	SELFSEE	VISION	TIME	SACUSE
SCORE	-0.37(a)	0.14	-0.11	0.28(a)	-0.17(b)	0.11
AGE		-0.31(a)	0.15	-0.42(a)	0.68(a)	0.18(b)
EDUC			-0.34(a)	0.41(a)	-0.23(a)	-0.13
SELFSEE				-0.37(a)	0.11	0.09
VISION					-0.31(a)	-0.05
TIME						0.15

(a) Significant at $\alpha=0.01$

(b) Significant at $\alpha=0.05$

VARIABLE CODE:

SCORE = Overall comprehension score based on free response
and multiple choice questions

AGE = Age in years

EDUC = Highest educational level

SELFSEE = Subject's perception of how well s/he sees

VISION = Reading Vision as measured by the Contemporary
Nearpoint Eye Chart

TIME = Length of interview in minutes

SACUSE = Subject's perception of how frequently s/he used
saccharin tablets

Correlational Analysis For Antacid Gum:
Selected Variables

	AGE	EDUC	SELFSEE	VISION	TIME	ANTUSE
SCORE	-0.06	0.15	-0.03	0.06	-0.07	0.07
AGE		-0.30(a)	0.15	-0.42(a)	0.66(a)	-0.21(b)
EDUC			-0.34(a)	0.41(a)	-0.23(a)	-0.11
SELFSEE				-0.37(a)	0.10	0.02
VISION					-0.31(a)	0.01
TIME						-0.18

(a) Significant at $\alpha=0.01$

(b) Significant at $\alpha=0.05$

VARIABLE CODE:

SCORE = Overall comprehension score based on free response
and multiple choice questions

AGE = Age in years

EDUC = Highest educational level

SELFSEE = Subject's perception of how well s/he sees

VISION = Reading Vision as measured by the Contemporary
Nearpoint Eye Chart

TIME = Length of interview in minutes

ANTUSE = Subject's perception of how frequently s/he used
antacid gum

Correlational Analysis For Vaporizer Inhalant:
Selected Variables

	AGE	EDUC	SELFSEE	VISION	TIME	VAPUSE
SCORE	-0.49(a)	0.18(b)	-0.12	0.28(a)	-0.37(a)	0.21(b)
AGE		-0.30(a)	0.14	-0.42(a)	0.66(a)	-0.24(a)
EDUC			-0.34(a)	0.40(a)	-0.23(a)	0.00
SELFSEE				-0.37(a)	0.10	0.17(b)
VISION					-0.31(a)	0.08
TIME						-0.16

(a) Significant at $\alpha = 0.01$

(b) Significant at $\alpha = 0.05$

VARIABLE CODE:

SCORE = Overall comprehension score based on free response
and multiple choice questions

AGE = Age in years

EDUC = Highest educational level

SELFSEE = Subject's perception of how well s/he sees

VISION = Reading Vision as measured by the Contemporary
Nearpoint Eye Chart

TIME = Length of interview in minutes

LINUSE = Subject's perception of how frequently s/he used
vaporizer inhalant

APPENDIX I

ANALYSES WITH "DON'T KNOW" RESPONSE DELETED

APPENDIX I

ANALYSIS WITH "DON'T KNOW" RESPONSE DELETED

MUSCLE LINIMENT

CORRECT1: Miscomprehension Assessed Via Free Response

Source	DF	F-Value	PR>F
Label	1	6.23	0.0139 (b)
Name	1	5.93	0.0164 (b)
Label * Name	1	0.60	0.4406
Age	1	8.75	0.0037 (a)

Main Effect Treatment Means

Label Design

Unframed	1.11
Framed	1.64

Brand Name

Vague	1.17
Specific	1.62

CORRECT 1 Score Ranges form -2 to 2.

CORRECT2: Miscomprehension Assessed Via Multiple Choice

Source	DF	F-Value	PR>F
Label	1	0.09	0.7687
Name	1	6.89	0.0097 (a)
Label * Name	1	0.01	0.9086
Age	1	9.06	0.0031 (a)

Main Effect Treatment Means

Label Design

Unframed	1.76
Framed	1.78

Brand Name

Vague	1.61
Specific	1.97

CORRECT 2 Score Ranges form -2 to 2.

MUSCLE LINIMENT (Continued)

CORRECT: Miscomprehension Assessed Via
Free Response and Multiple Choice

Source	DF	F-Value	PR>F
Label	1	5.52	0.0203 (b)
Name	1	6.31	0.0133 (b)
Label * Name	1	0.47	0.4954
Age	1	10.61	0.0015 (a)

Main Effect Treatment Means

Label Design	
Unframed	3.02
Framed	3.58
Brand Name	
Vague	3.05
Specific	3.59

CORRECT Score Ranges from -4 to 4.

Correlation Between CORRECT1, CORRECT2, AND CORRECT

	<u>CORRECT1</u>	<u>CORRECT2</u>
CORRECT	0.96 (a)	0.59 (a)
CORRECT1		0.36 (a)

- (a) Significant at $\alpha=0.01$
 (b) Significant at $\alpha=0.05$

SACCHARIN TABLETS

CORRECT1: Miscomprehension Assessed Via Free Response

Source	DF	F-Value	PR>F
Label	1	2.02	0.1579
Name	1	26.63	0.0001 (a)
Label * Name	1	0.36	0.5522
Age	1	21.72	0.0001 (a)

Main Effect Treatment Means

Label Design

Unframed	0.26
Framed	0.68

Brand Name

Vague	-0.51
Specific	1.10

CORRECT 1 Score Ranges from -2 to 2.

CORRECT2: Miscomprehension Assessed Via Multiple Choice

Source	DF	F-Value	PR>F
Label	1	1.30	0.2561
Name	1	42.05	0.0001 (a)
Label * Name	1	0.51	0.4781
Age	1	23.64	0.0001 (a)

Main Effect Treatment Means

Label Design

Unframed	0.43
Framed	0.58

Brand Name

Vague	-0.46
Specific	1.26

CORRECT2 Score Ranges form -2 to 2.

CORRECT: Miscomprehension Assessed Via
Free Response and Multiple Choice

Source	DF	F-Value	PR>F
Label	1	3.74	0.0560
Name	1	34.72	0.0001 (a)
Label * Name	1	0.71	0.4015
Age	1	21.31	0.0001 (a)

SACCHARIN TABLETS (Continued)

Main Effect Treatment Means

Label Design	
Unframed	0.92
Framed	1.78
Brand Name	
Vague	-0.56
Specific	2.62

CORRECT Score Ranges from -4 to 4.

Correlation Between CORRECT1, CORRECT2, AND CORRECT

	<u>CORRECT1</u>	<u>CORRECT2</u>
CORRECT	0.95 (a)	0.94 (a)
CORRECT1		0.77 (a)

- (a) Significant at $\alpha = 0.01$
 (b) Significant at $\alpha = 0.05$

ANTACID GUM

CORRECT1: Miscomprehension Assessed Via Free Response

Source	DF	F-Value	PR>F
Label	1	9.56	0.0026 (a)
Name	1	45.29	0.0001 (a)
Label * Name	1	7.02	0.0093 (a)
Age	1	0.10	0.7527 (a)

Main Effect Treatment Means

Label Design

Unframed	-0.05
Framed	1.06

Brand Name

Vague	-0.240
Specific	1.65

CORRECT 1 Score Ranges form -2 to 2.

CORRECT2: Miscomprehension Assessed Via Multiple Choice

Source	DF	F-Value	PR>F
Label	1	8.34	0.0046 (a)
Name	1	49.54	0.0001 (a)
Label * Name	1	7.57	0.0068 (a)
Age	1	1.42	0.2357

Main Effect Treatment Means

Label Design

Unframed	0.30
Framed	1.76

Brand Name

Vague	-0.03
Specific	1.76

CORRECT 2 Score Ranges form -2 to 2.

CORRECT: Miscomprehension Assessed Via
Free Response and Multiple Choice

Source	DF	F-Value	PR>F
Label	1	9.05	0.0033 (a)
Name	1	46.49	0.0001 (a)
Label * Name	1	5.51	0.0208 (b)
Age	1	0.24	0.6266

ANTACID GUM (Continued)

Main Effect Treatment Means

Label Design	
Unframed	0.44
Framed	2.32
Brand Name	
Vague	0.00
Specific	3.45

CORRECT Score Ranges from -4 to 4.

Correlation Between CORRECT1, CORRECT2, AND CORRECT

	<u>CORRECT1</u>	<u>CORRECT2</u>
CORRECT	0.95 (a)	0.94 (a)
CORRECT1		0.80 (a)

- (a) Significant at $\alpha = 0.01$
 (b) Significant at $\alpha = 0.05$

VAPORIZER INHALANT

CORRECT1: Miscomprehension Assessed Via Free Response

Source	DF	F-Value	PR>F
Label	1	0.44	0.5108
Name	1	4.81	0.0304 (b)
Label * Name	1	1.39	0.2402
Age	1	33.85	0.0001 (a)

Main Effect Treatment Means

Label Design	
Unframed	0.18
Framed	0.35

Brand Name	
Vague	-0.08
Specific	0.52

CORRECT 1 Score Ranges form -2 to 2.

CORRECT2: Miscomprehension Assessed Via Multiple Choice

Source	DF	F-Value	PR>F
Label	1	1.83	0.1781
Name	1	4.07	0.0456 (b)
Label * Name	1	0.73	0.3957
Age	1	21.79	0.0001 (a)

Main Effect Treatment Means

Label Design	
Unframed	0.58
Framed	1.03

Brand Name	
Vague	0.48
Specific	1.07

CORRECT 2 Score Ranges form -2 to 2.

CORRECT: Miscomprehension Assessed Via Free Response and Multiple Choice

Source	DF	F-Value	PR>F
Label	1	2.20	0.1411
Name	1	6.27	0.0137 (b)
Label * Name	1	2.93	0.0899
Age	1	31.92	0.0001 (a)

VAPORIZER INHALANT (Continued)

Main Effect Treatment Means

Label Design	
Unframed	0.95
Framed	1.64
Brand Name	
Vague	0.63
Specific	1.79

CORRECT Score Ranges from -4 to 4.

Correlation Between CORRECT1, CORRECT2, AND CORRECT

	<u>CORRECT1</u>	<u>CORRECT2</u>
CORRECT	0.92 (a)	0.87 (a)
CORRECT1		0.60 (a)

- (a) Significant at $\alpha = 0.01$
 (b) Significant at $\alpha = 0.05$

APPENDIX J

ORDER MEANS BY PRODUCT

APPENDIX J

ORDER MEANS BY PRODUCT

DEPENDENT VARIABLE = SCORE

MUSCLE LINIMENT

Order	Mean
1	10.57
2	16.56
3	19.17
4	21.23

SACCHARIN TABLETS

Order	Mean
1	12.82
2	13.70
3	-1.93
4	1.57

ANTACID GUM

Order	Mean
1	17.61
2	11.76
3	7.46
4	-3.25

VAPORIZER INHALANT

Order	Mean
1	7.27
2	1.69
3	9.50
4	10.27

APPENDIX K

ANALYSIS OF COVARIANCE

APPENDIX K

ANALYSIS OF COVARIANCE FOR TEST PRODUCTS

MUSCLE LINIMENT

Source	DF	F-Value	PR>F
Time	1	0.03	0.8570
Education	1	0.92	0.3389
Reading Vision	1	0.96	0.3280
Perception of Vision	1	0.11	0.7424
Frequency of Usage	1	1.81	0.1809
Frequency of Grocery Shopping	1	0.69	0.4085
Frequency of Drug Store Shopping	1	0.21	0.6438
Frequency of Shopping at a Convenience Store	1	7.63	0.0065 (a)
Frequency of Shopping at a Discount Store	1	3.15	0.0782

SACCHARIN TABLETS

Source	DF	F-Value	PR>F
Time	1	1.25	0.2648
Education	1	0.39	0.5326
Reading Vision	1	3.88	0.0509
Perception of Vision	1	0.01	0.9289
Frequency of Usage	1	1.32	0.2533
Frequency of Grocery Shopping	1	0.09	0.7646
Frequency of Drug Store Shopping	1	0.50	0.4820
Frequency of Shopping at a Convenience Store	1	11.43	0.0010 (a)
Frequency of Shopping at a Discount Store	1	2.36	0.1271

ANTACID GUM

Source	DF	F-Value	PR>F
Time	1	0.29	0.5908
Education	1	1.96	0.1642
Reading Vision	1	0.00	0.9611
Perception of Vision	1	0.16	0.6933
Frequency of Usage	1	0.32	0.5710
Frequency of Grocery Shopping	1	0.07	0.7971
Frequency of Drug Store Shopping	1	0.08	0.7815
Frequency of Shopping at a Convenience Store	1	0.09	0.7669
Frequency of Shopping at a Discount Store	1	4.41	0.0375 (b)

VAPORIZER INHALANT

Source	DF	F-Value	PR>F
Time	1	1.23	0.2700
Education	1	0.03	0.8551
Reading Vision	1	1.66	0.1995
Perception of Vision	1	0.00	0.9976
Frequency of Usage	1	1.98	0.1620
Frequency of Grocery Shopping	1	0.09	0.7699
Frequency of Drug Store Shopping	1	0.18	0.6693
Frequency of Shopping at a Convenience Store	1	7.84	0.0059 (a)
Frequency of Shopping at a Discount Store	1	3.05	0.0830

APPENDIX L

STEPWISE REGRESSION FOR SHOPPING VARIABLES

APPENDIX L
STEPWISE REGRESSION FOR SHOPPING VARIABLES

MUSCLE LINIMENT		
Source	F-Value	PR>F
Intercept		
Age	1.81	0.1804
Grofreq	0.56	0.4549
Drugfreq	0.12	0.7263
Confreq	2.01	0.1584
Discfreq	1.78	0.1844
SACCHARIN TABLETS		
Intercept		
Age	9.73	0.0022 (a)
Grofreq	1.50	0.2232
Drugfreq	0.68	0.4095
Confreq	0.01	0.9189
Discfreq	1.43	0.2346
ANTACID GUM		
Intercept		
Age	0.00	0.9579
Grofreq	0.22	0.6393
Drugfreq	0.02	0.8891
Confreq	0.40	0.5288
Discfreq	0.86	0.3568
VAPORIZER INHALANT		
Intercept		
Age	21.83	0.0001 (a)
Grofreq	0.11	0.7409
Drugfreq	1.17	0.2816
Confreq	0.28	0.5968
Discfreq	1.09	0.2982

(a) Significant at $\alpha=0.01$

APPENDIX M

ANALYSIS FOR INTERACTIONS BETWEEN AGE,
LABEL DESIGN, AND BRAND NAME

APPENDIX M
ANALYSIS FOR INTERACTIONS BETWEEN AGE, LABEL DESIGN,
AND BRAND NAME

MUSCLE LINIMENT

Source	D.F.	F-Value	PR>F
Label	1	6.39	0.0126 (b)
Name	1	21.96	0.0001 (a)
Label * Agecat	1	2.13	0.1466
Name * Agecat	1	12.76	0.0005 (a)

Treatment Means

Label * Agecat

Unframed * Young	19.00 **
Unframed * Old	11.47
Framed * Young	20.55
Framed * Old	14.83

Name * Agecat

Vague * Young	19.02
Vague * Old	8.46
Specific * Young	20.65
Specific * Old	19.45

** Comprehension Scores Ranged from -24 to +24

SACCHARIN TABLETS

Source	D.F.	F-Value	PR>F
Label	1	1.20	0.2745
Name	1	38.15	0.0001 (a)
Label * Agecat	1	0.94	0.3345
Name * Agecat	1	0.02	0.8960

Treatment Means

Label * Agecat

Unframed * Young	9.21 **
Unframed * Old	2.14
Framed * Young	14.70
Framed * Old	1.97

Name * Agecat

Vague * Young	4.45
Vague * Old	-5.52
Specific * Young	18.68
Specific * Old	7.82

** Comprehension Scores Ranged from -24 to +24

ANTACID GUM

Source	D.F.	F-Value	PR>F
Label	1	18.35	0.0001 (a)
Name	1	38.41	0.0001 (a)
Label * Agecat	1	1.62	0.2051
Name * Agecat	1	0.55	0.5595

Treatment Means

Label * Agecat

Unframed * Young	3.92 **
Unframed * Old	2.06
Framed * Young	15.51
Framed * Old	9.52

Name * Agecat

Vague * Young	4.00
Vague * Old	-0.15
Specific * Young	15.76
Specific * Old	14.31

** Comprehension Scores Ranged from -24 to +24

VAPORIZER INHALANT

Source	D.F.	F-Value	PR>F
Label	1	0.42	0.5194
Name	1	7.34	0.0076 (a)
Label * Agecat	1	0.00	0.9796
Name * Agecat	1	1.54	0.2161

Treatment Means

Label * Agecat

Unframed * Young	14.00 **
Unframed * Old	-0.91
Framed * Young	15.51
Framed * Old	0.73

Name * Agecat

Vague * Young	10.38
Vague * Old	-1.93
Specific * Young	18.71
Specific * Old	1.26

** Comprehension Scores Ranged from -24 to +24

VITA ²

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