CONSUMER BEHAVIOR AS RISK TAKING:
A NEW MODEL AND NEW HYPOTHESES

by

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Abstract

Consumer Behavior as Risk Taking: A New Model and New Hypotheses

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This includes both a presentation of a new model of consumer behavior and a discussion of the results of experiments in consumer behavior involving this model.

The spirit of work initiated by Dr. Raymond Bauer of the School of Human Nutritional Sciences deals with the notion of perceived risk in decision making.

In the development of my model I added three features not in the previous models of perceived risk: (1) a set of distinctive product categories, (2) an allowed range for the subjective probabilities, (3) an application of risk to brands or brand sub-categories in a product category.

In this model, I designed and ran an experiment in which I examined the relationships between perceived risk and (1) brand loyalty, (2) shopping and product usage, (3) demographics, and personality. Several interesting relationships were found: a strong statistical relationship to the rankings of preference for brands in a product category predicted by the consumer's perceived risk in each category. In the second, consumers tended to perceive higher risk in not used recently compared to brands they had used previously, consumers who were more psycho-socially self-
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Introduction

The idea that consumers make decisions involving risk when buying products or product brands is probably self-evident to anyone who has done much conceptualizing about consumer behavior. Purchasers themselves perceive the possible social, financial and personal risks they undertake when buying, say, detergents (risks: might not get clothes really clean; might corrode the automatic clothes washer; might just generally be a waste of money; etc.) or automobiles (risks: might not be constructed well; wife may not like the interior styling; neighbors might think I have wasted my money; etc) We could also say that the potential for interpreting choice as a form of risk taking has been around for a long time. Eve, as the first consumer on record, certainly can be considered a risk perceiver and risk taker; the apple had its bad features, but so did the prospect of not tasting it; hence, she made a decision under risk.

To look at risk in consumer decisions as either a research topic or a research tool has not always been as self-evident as it is now. In fact, it was not until 1960 that Raymond A. Bauer (Bauer, 1960) contributed the first entry to consumer behavior literature on the consumer as risk-taker. In that short paper he had some notion he might be starting a new "fad" by considering this as a fruitful area of research, but at the time he said, "I have neither confidence
nor anxiety that my proposal will cause any major stir."

In the eight years since then, numerous articles dealing with consumer decisions as examples of risk-taking have been generated. A brief review of the new book, Risk Taking and Information Handling in Consumer Behavior under Donald Cox's editorship points up the expanse of research already done in this area or areas closely related. Thus, Dr. Bauer's early inquiry seems to have led to something more than a fad. The literature so far indicates that risk in consumer decisions is both a phenomenon recognizable to the consumer and a construct of real value in research. Several avenues of research in this area have already been explored. One such topic has been the relation of risk in decisions to the information used by the purchaser to reduce risk (Bauer 1961, Cox & Rich, 1964, Cox 1967a). Other areas of investigation have been the relationship of perceived risk in a product category to brand loyalty (Cunningham, 1967c), risk as it relates to personality variables and buying behavior (Cunningham 1967a, Popielarz 1967, Cox and Rich 1964), and risk as it relates to word of mouth communication (Arndt 1967, Cunningham 1967b). And, of course, within each of these areas numerous sets of hypotheses have been researched and new ones suggested.

Although a cue for research could well have been taken from some of the suggestions in these earlier papers, it is not my purpose to
push into the unexplored areas suggested. Rather, my main efforts are, for the most part, a retracing of some ground which I feel has not yet been laid down firmly. As I will point out later, some of the models used in risk taking research have not been defined clearly enough. Therefore, my main efforts are:

1) Construction of a more detailed model of the consumer as risk taker than that of earlier studies. The model is based upon existing consumer behavior literature, intuitive notions of what the consumer is like, and the decision making literature.

2) Use of the model to design a new measure for risk, and construction of hypothetical relationships between this measure and (a) measures for brand loyalty and brand preference, (b) shopping and product usage measures, (c) demographic measures and (d) various personality measures.

3) Tests of these hypotheses in an experimental study using housewives as respondents.

With this work I hope the result is a more definitive model of the consumer as risk taker, coupled with meaningful conclusions based upon it. Hopefully, these efforts will add as much, or more, to our knowledge of the implications of risk taking by consumers as would an attempt at research in an unexplored area.
Chapter 1

Perceived Risk Defined in the Literature

In describing the general purpose of this study in the previous chapter, I avoided a specific definition of perceived risk as it pertains to consumer decisions. I did this because there is no one all-inclusive definition of the term. There are obvious differences in what perceived risk means to the layman, the decision theorist, and the consumer behavior researcher. And within these groups there are other smaller but significant differences of opinion on how the term should be defined.

Risk can mean many things to different consumers. The process of buying a brand of margarine may evoke in some consumers the perceived risk that "it may not taste good." Others may see risk in this product as more strictly an economic problem, such as "not getting what I'm paying for." Still others may see a variety of relevant risks, such as getting a margarine that is "too sweet", or "too yellow to be appetizing", or is "too expensive." Of course, consumers also differ in their ability to articulate the risks they perceive. Some consumers probably avoid certain purchases because they "feel" or "sense" they are too risky to suit them, although they cannot put their finger on
what the risks actually are. Other consumers may be able to mention
ten or twenty things which worry them about a certain product with
no trouble at all.

Generally, however, it seems that when any consumer perceives
risk in a purchase he is thinking to himself, "X may occur if I
purchase this, and X is something I do not want to have occur." X may
be one consequence or many, depending on the purchase in question
and the range of the consumer's thought.

The consumer behavior researchers, chiefly Bauer, Cox, and
Cunningham, have translated this generalized view of how the consumer
sees risk into a definition of risk for research purposes. They
break down risk into two subparts: a subjective probability measure
 corresponding to the perceived certainty a consumer feels when
saying "X may happen" or "X may not happen," and a measure of consequences
which corresponds to the consumer's degree of negative feeling toward
X itself.

There are differences in the way each researcher describes these
two elements and, more importantly, the way each tries to measure them
empirically.

Bauer (1960) said "consumer behavior involves risk in the sense
that any action of a consumer will produce consequences which he cannot
anticipate with anything approximating certainty, and some of which at
drugs in two risk categories were a function of their attitudes toward the sources of communication about the drugs. He had a high risk and a low risk category, his measure being whether or not a drug was "dangerous" because of possible side effects.

In another study, Cox and Rich (1964) categorized 20 products which might be purchased over the telephone into two risk groupings: the 10 items for which fewest consumers expressed worry in terms of phone ordering were designated "low perceived risk" items; the remaining 10 were designated "high perceived risk" items. These risk measures were then cross tabulated with "frequency of purchase by telephone" for each product to demonstrate that perceived risk level in a product does influence decisions as to what products if any will be ordered over the phone.

Up to this point, the operational definitions cited do not try to get at the two elements of risk separately, although both Cox and Bauer do concede in their conceptual definitions of risk that the two elements exist. However Cox (1957a) in studying his two respondents does divide risk handling into two components: uncertainty reduction; and reducing the amount at stake.

Cunningham (1964), on the other hand, created an operational definition of perceived risk that did comprise separate measures of subjective probability and consequences. He looked at the perceived risk in three product categories: headache remedies, fabric softeners,
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Cunningham (1964), on the other hand, created an operational definition of perceived risk that did comprise separate measures of subjective probability and consequences. He looked at the perceived risk in three product categories: headache remedies, fabric softeners,
and dry spaghetti. Uncertainty, or subjective probability, was measured along a 4-point scale as to whether the consumer was (4) very certain, (3) usually certain, (2) sometimes certain, or (1) almost never certain that a brand of headache remedy (fabric softener, dry spaghetti) she had not tried before would work as well as her present brand. The consequences were taken as a group and were also measured along a four-point scale according to whether there was (1) a great deal of danger, (2) some danger, (3) not much danger, or (4) no danger, in trying a brand of headache remedy (fabric softener, dry spaghetti) she had never used before. Furthermore, the two components were assumed to determine risk level multiplicatively. Experimentally, the resultant multiplication of the two elements meant that risk was higher in a category the lower the arithmetic product.

Cunningham then utilized this measure of perceived risk in several other studies as well (1966, 1967a, 1967b, 1967c).

This Cunningham model will serve as a point of departure for developing my own model of perceived risk in Chapter 2. His is more detailed than any of the previous models, and lends itself well to quantitative experimentation.

In developing my own model, I often allude to his work for clarification purposes. It should be remembered, however, that comparisons are fiddicult when different instruments are used even though the scope of both studies is the same. The hypotheses I have
developed and tested are dependent on my definitions of perceived risk and other constructs in the hypotheses. Therefore, although some suggestions that I make may seem at first to be at variance with Cunningham's and others' research, a good deal of the difference can be explained by the differences in our definitions. This point will become more lucid in later chapters.

Some of the hypotheses based on this new model of risk perception, as well as the models of Cunningham, Bauer and Cox, focus on the behavior of the consumer according to his risk perception. In other words, some of the hypotheses try to describe the consumer's "behavior under risk" or "decisions under risk". These terms ring a bell for the decision theorist, and so I will describe the way some features of decision theory mesh with the area of consumer behavior I am examining.

Decision theory usually breaks down decisions into three categories: decisions under certainty, decisions under risk, and decisions under uncertainty, (see Morris 1960, Taylor 1965). Briefly, these classes mean the following: decisions under certainty are those where the decision maker knows all the courses of action open to him and also what the outcome of each course will be; decisions under risk are those where the decision maker knows all the courses of action open to him (i.e. the alternatives), he knows what the consequences of each alternative can
be, and he is informed of a set of probabilities that describe the
likelihood of each consequence of an alternative, given the alternative
is chosen; decisions under uncertainty are similar in all ways to
decisions under risk except that the consequences of an alternative
occur with probabilities unknown to the decision maker.

If we assume that the probability measures in "decisions under
risk" must be determined "objectively" (i.e. by some statistical analysis
of past performance history), and that all possible consequences must
be known, then to speak of consumer decisions as examples of decisions
under risk may be a misnomer. The consumer's feelings of the probability,
say, that a wallpaper she buys will "not be right for the furniture," are
probably much different than the "objective" measure of this probability,
if such a thing can be said to exist. And the number of consequences
which the consumer perceives as relevant is in most cases only a
subset of the universe of possible consequences. However, by taking
the view that subjective probabilities and perceived consequences are
at least as meaningful in terms of their behavioral impact as are
objective probabilities and the actual universe of consequences, and if
we assume that a decision maker can determine his own set of subjective
probabilities for the consequences he recognizes, then the consumer
does make decisions under risk in a very real sense. He makes his
decisions under his perception of what the probabilities and consequences
are, hence the term which we have been using all along, "perceived risk".

Going further, if we accept a quantification of probability judgments, then "decisions under uncertainty" are themselves decisions under risk for which the decision maker has not gotten around to identifying his set of subjective probabilities for the appropriate consequences. Finally, "decisions under certainty" can also be viewed as "decisions under risk" where the probabilities of occurrence or non-occurrence of perceived consequences are all 1.00.

Thus, by admitting only subjective probabilities and perceived consequences as relevant, our view of consumer decisions as "decisions under risk" and the three classes of decision making in decision theory fall nicely together.
Chapter 2
A New Model of Perceived Risk

As in the Wallach and Kogan generalized definition of perceived risk and Cunningham's operational definition, my model will have two components: negative consequences and subjective probabilities. Also, like the Cunningham model, these two factors are assumed to be multiplicative in determining risk level. It seems to make intuitive sense that if risk is composed of negative consequences and probability, it is itself a negative phenomenon; therefore, there should be no "negativeness" if either the subjective probabilities have zero value or the negative consequences are nonexistant. Hence, the need for a multiplicative interaction.

The similarities among the models end, however, as my model attempts to encompass three different features beyond the Cunningham model:
1) a set of distinct negative consequences for a particular product category, with each consequence having a different weight of importance or "negativeness";
2) an allowed range of .00 to 1.00 for the subjective probabilities attached to each consequence; and 3) an application of perceived risk to smaller differentiable product entities such as the product brand or brand sub-class. I will describe each of these in turn:

1) A set of distinct consequences for a particular product category, with each consequence having a different weight of importance or "negativeness" - In Cunningham's operative model, the whole set of negative consequences were lumped into one consequence, i.e. the danger level of trying an unused
However, it is also possible to look at distinct consequences separately: "will dry out skin," "will not go well with the color scheme for bathroom," or "will discolor over time," for example, are possible traits from use of toilet soap; and it is equally feasible to allow each consumer to rate how important a problem each consequence would be if it occurred.

Breaking down the consequence set into separate consequences in this fashion facilitates both our explanation and investigation of perceived risk. It begins to aid us in explaining the "whys" of risk; that is, if one perceives high risk in a brand or product category we can now look at the component consequences to see which are the more important for the consumer.

In addition, this elaboration of consequences should make our estimations of the consumer much easier. Assuming she does think in terms of separate consequences, she can more easily give information on one of the possible consequences in turn, versus giving information on a whole group of consequences.

An allowed range of .00 to 1.00 for the subjective probabilities assigned to each consequence. - Under my model, a consumer can be (a) certain a particular consequence will occur if she buys Brand A of a product category, or be (b) at various levels of uncertainty about its occurrence, or be (c) completely certain it will not occur. This is a refinement on the Cunningham model which allowed consumers to articulate their subjective probabilities only in the range from "very certain" of no negative consequences down to "very uncertain" of no negative consequences. However, it did not take into account the consumer who was very certain that a negative consequence would occur.
perceptions in brand sub-classes. Such brand forms might be Brand X of
toilet soap with cold cream added, and Brand A without cold cream. However,
for most product groupings, the brand is the relevant product entity.

This third facet of my model allows the consumer to voice her perceived
risk about her present brand, individual brands she has used before, and
individual brands she has never used. This is different from Cunningham's
measure of risk, which asked consumers about their risk perception of only
unused brands as a group in relation to the present brand used.

Summary of the New Model and an Example

Let us now look in a general way at this model, and then follow with
an example.

I said there would be a set of negative consequences that the consumer
would see as relevant to a particular product group. Furthermore, each
consumer attaches her own weight of importance to each negative consequence.
Finally, within each product grouping, each consumer has her own set of
subjective probabilities about the occurrence or non-occurrence of all the
consequences for each brand or product entity within the product group. Risk
for a particular brand for a particular consumer is then viewed as a
summation of the arithmetic products of consequence weight times subjective
probability. Expresses as an equation, this relationship becomes:

\[ R_{ij} = \sum_{k} P_{ijk} W_{ik} \]

over all consequences, k
where $R_{ij}$ = risk perceived by consumer i for brand j

$P_{ijk}$ = subjective probability consumer i perceives for the occurrence of consequence k when using brand j

$W_{ik}$ = weight of importance that consumer i attaches to the occurrence of consequence k.

Mathematical equations have a knack for making simple definitions appear inordinately complex. Therefore, I now present an example of how risk actually was measured in my research using this model.

The product category chosen for experimentation was toilet soaps because of the large number of advertised and, hence, recognized brands. Eleven negative consequences for soap were included in the consequence set. These consequences were presented to the consumer by asking her, "How much would it bother you if the soap you buy next time..."

1) fails to match the color scheme of your bathroom?
2) costs at least 10% more than most other brands?
3) has a drying effect on your skin?
4) loses its consistency over time?
5) has a fragrance you dislike?
6) discolors over time?
7) has little deodorizing powers?
8) is disliked by the other members of your family?
9) has only a moderate cleansing ability?
10) is a brand you feel has less acceptance among women than other brands?
11) cause a slight irritation to your skin?

Each consumer weighted the consequences by answering the above question for
each of the eleven consequences using the following 5-point scale:

It would be...

little problem if any 1
a slight problem 2
a moderate problem 3
a fairly large problem 4
a serious problem 5

Thus, each consumer had an eleven-dimensional vector, \( w_{ik} \), as a representation of the weights of importance she attached to the individual consequences. For one respondent in particular, her \( w_{ik} \) was \((1, 4, 2, 3, 1, 3, 3, 5, 5, 1, 5)\).

For the certainty component of perceived risk according to my brand-specific model, consumers were asked, "If you bought a bar of (Brand) soap next time for general bathroom use, would it:

1) fail to match the color scheme of your bathroom?
2) cost at least 10% more than most other brands?
   
11) cause a slight irritation to your skin?

Consumers answered this question for the eleven consequences again using a 5-point rating scheme:

No 1
I don't think so 2
Maybe 3
I think so 4
Yes 5
Since consumers were asked to give certainty measures using this technique for 11 brands, each consumer had eleven eleven-dimensional vectors, the $p_{ijk}$ for consequences $k = 1$ to 11. The same consumer noted above had the following certainty vectors for Ivory and Dial, for example:

Ivory: $(3, 4, 3, 2, 2, 1, 1, 1, 1, 1, 2)$
Dial: $(5, 3, 2, 2, 1, 3, 1, 1, 1, 1, 1)$

By my earlier definition $R_{ij} = \sum_{k=1}^{11} p_{ijk} w_{ik}$. Therefore, risk for brand $j$ is calculated as a vector multiplication of the certainty vector for brand $j$ times the consequence vector. For the particular consumer for whom I have given the $w_{ik}$ and $p_{ijk}$ for Ivory and Dial, her perceived risk scores are:

Ivory 46
Dial 56

Her perceived risk for the other nine brands were similarly calculated as:

Lux 59
Safeguard 63
Palmolive 74
Camay 43
Lifeboy 81
Phase III 71
Zest 57
Dove 103
Woodbury 60

By this means of measurement a larger number for perceived risk in a brand meant more risk was perceived in that brand.

To repeat, perceived risk modeled and measured by my technique is brand-specific. It could be similarly applied all the way to a brand type, such as "Personal Size Ivory" or "Pink Camay", but I have chosen to look only as far as the distinct brands.
Chapter 3

Presentation of Hypotheses

Earlier in the Introduction, I talked about four specific areas where I thought there might be relationships between risk and other identifiable and measurable constructs. These areas were a) brand loyalty and brand preference, b) other shopping and product usage behavior, c) demographics and d) personality. The motivation for researching these areas in particular, as they relate to risk, comes from two sources: the nature of previous research on perceived risk and subsequent findings, and also the questions raised by the development of my new model for perceived risk.

Let me describe the hypotheses and their conception in each of the four areas taken separately.

a) Brand Loyalty and Brand Preference - Brown (1952) and Cunningham (1956) have demonstrated that repeat purchase patterns of one brand do exist among some consumers. Brand loyalty is of interest to marketers because it is a phenomenon that can work heavily either for or against them, depending on the strengths of loyalties to their own and competitors' brands.

In an attempt to try to explain the occurrence of brand loyalty Cunningham (1967c) related it to perceived risk in a product category. He
found that those consumers who perceived high or medium risk in a category had a greater tendency to be brand loyal toward a brand in that category. The measure he used for perceived risk was the one cited earlier in this paper, and the measure of brand loyalty was a combination of past purchasing behavior ("Do you regularly switch around, or buy the same brand of...?") and intended purchase behavior ("What would you do if your present brand of... were out of stock - buy another brand, go to another store, or wait until the next trip?"). This measure for brand loyalty was a fairly strict one. For consumers to be counted as high in "perceived brand commitment" they had to say they bought the same brand regularly, and they intended to go to another store or wait until the next trip if their present brand were out of stock. All other consumers were classified as low in perceived brand commitment, except those who said they switch brands regularly but would go to another store or wait if their favorite brand were out of stock. This latter group, comprising only 2% of the respondents were counted as an ambiguous class, and were dropped from that part of the investigation.

Although Cunningham did show a relationship between perceived risk and perceived brand commitment using the experimental measures just given, we can always ask, "Would the relationship be stronger using other definitions; or might it be weaker?". Or, we might wonder, "would the relationship be of a different nature?".
By choosing to measure risk as a descriptive variable for a brand rather than a whole product category, as Cunningham does, I have already changed the nature of the relationship. Since we will be able to measure for each consumer her perceived risk for each brand in a category, brand loyalty questions must be phrased in terms of perceived risk for brands.

That is, instead of asking in what kinds of product categories (high risk or low risk categories) people tend to be more brand loyal, we will look at the brand directly by asking the question, "What is it about the brand to which a consumer is loyal that makes it her favorite brand."

This leads to a statement of the first hypothesis I will test in my research:

**Hypothesis I:** In a particular product category, a consumer who perceives higher risk for her second-most preferred brand relative to the risk she perceives for her favorite brand, will tend to show stronger brand loyalty.

This hypothesis suggests that a person will tend more to buy and use one brand all the time if she sees a lot more risk in buying and using her second favorite brand over her favorite brand.

The manner in which I test this hypothesis as well as the other 12 hypotheses I will eventually present depends on the measures I have for the variables in the relationship. As will be described in Chapter 5, I have
three distinct measures for brand loyalty, and two possible ways of showing
the relationship of perceived risk of one brand to another. This means
I can test Hypothesis I in six different ways. The results of these tests
and the other hypotheses tests will be taken up in Chapter 5.

Another area of interest, looking not only at a consumer's favorite and
second-most preferred brands but rather the whole line of brands in a product
category, is the consumer's order of preference for the brands. Since we are
conceptualizing risk per brand as a negative construct, it
seems logical that a consumer should prefer more those brands for
which she perceives lower risk and prefer less those brands for which she
perceives higher risk. Ideally, we would expect her most-preferred brand to
have the lowest perceived risk, her second-most preferred brand to have the
second lowest perceived risk, and so on. Hence, we have the following
hypothesis:

Hypothesis II: In a particular product category, a consumer will prefer
the various brands in the same order as would be predicted by the amount of
risk she perceives for each brand, going from lowest to highest perceived risk.

b) **Shopping and Product usage behavior** - It would seem that other shopping
and product usage behavior besides brand loyalty and brand preference would be
related to perceived risk. We can ask, for instance, how perceived risk relates to brands with which the consumer has had recent experience versus those with which she has not. Or we might want to know if her perceived risk is related to the amount of advertising she has seen or paid attention to. We might also wonder if perceived risk is related to the general view the consumer has toward shopping in the supermarket.

Such questions have motivated me to look at several more hypotheses concerning perceived risk.

You will remember Cunningham measured risk in terms of the danger and uncertainty in using a brand the consumer never has used before. He then used this measure to test his brand loyalty and other relationships. As I pointed out earlier, my risk model defines risk per brand, which gets away from looking at unused brands as a group. However, it is still useful to look at perceived risk for used and unused brands. It would seem that inexperience with the unknown would cause a consumer to be wary of unused brands, and therefore perceive higher risk for these brands. Hence, I will investigate Hypothesis III.

**Hypothesis III**: In a particular product category a consumer will tend to perceive higher risk for those brands which she has not used recently, and lower risk for those brands which she has used recently.
On the other hand, there may be another relationship working between used and unused brands. If a consumer hasn't had a bad experience with brands she has already used, chances are she would not perceive as much risk in unused brands as would the consumer who has had some bad experience with brands she used recently. Therefore, there is a second Hypothesis to investigate dealing with used and unused brands.

**Hypothesis IV:** In a particular product category, a consumer who perceives high risk in brands she has used recently will tend to perceive high risk for brands she has not used recently.

Another way of looking at unused brands is to ask how willing a consumer is to try a new brand, and then relate this to her perceived risk for other brands in the product category. Presumably, it is the risk she experiences in brands she has already used that will determine her willingness to try a new brand. Thus, I will look at the following hypothesis.

**Hypothesis V:** In a particular product category, a consumer who perceives lower risk in brands she has used recently will tend to be more willing to purchase a brand she has never used before.

Cox (1967a) pointed to the ways in which consumers may try to reduce
risk in order to make wise shopping decisions. One method was to use product-related information originating from other shoppers, the manufacturer, or a neutral source, such as the journal, Consumer Reports. I will examine here the use of one such source, advertising, as a tool to reduce risk. Since I am not looking at the consumer over time to examine the tendency for advertising to reduce risk, I will look at a more static relationship between advertising and risk. Hypothesizing that consumers need a tool to help reduce their risk only when they initially perceive high risk, then it would seem that only those consumers who perceive high risk pay attention to the advertising in that product category.

However, we would not expect advertising to be of interest to a consumer who perceives low risk in her favorite brand even if she does perceive high risk in some other brands of the product category. A consumer's low perceived risk in her favorite brand implies she has few worries to disperse and few uncertainties to clarify through advertising. Therefore the following brand-specific hypothesis seems appropriate to investigate.

Hypothesis VI: In a particular product category, a consumer who perceives higher risk in her favorite brand will tend to pay more attention to related advertising.
The above hypothesis was based on the argument that risk perception of a brand will have an effect of a consumer's attention to advertising.

A different hypothesis can be arrived at by arguing that attention to advertising may have an effect on risk perception. This argument seems equally as plausible as the one for Hypothesis VI. It would seem that attention to advertising would perform the function of differentiating the various brands for the consumer. Perception of a difference among brands would tend to be evidenced by a consumer's having a varied level of risk perception among the various brands. This leads to Hypothesis VII.

**Hypothesis VII:** In a particular product category, a consumer who pays more attention to related advertising will tend to demonstrate higher variance of perceived risk for the brands in the product category.

Perceived risk should also have some relationship to general shopping attitudes and behavior. The consumer who has been shopping for a longer period of time ought to have more unique perceptions of the various brands in a product category. She has had a longer period of time to become aware of the differences among the brands, whereas the new shopper perhaps sees all the brands as very similar. This brings us to Hypothesis VIII.

**Hypothesis VIII:** For a given product category, a consumer who has been
shopping for a longer period of time will tend to show higher variance of perceived risk for the brands in the product category.

The degree to which a consumer enjoys shopping should also be related to the perceived risk she feels for the products she is buying. At first glance, we might think that consumers who perceive high risk in the products they purchase would enjoy shopping less than those women who perceived low risk. However, Cox (1967b) makes a strong argument that a good number of people enjoy the challenge of making decisions under risk, and we could extend this argument to reach a relationship somewhat different from the above. Since shopping at the supermarket does not involve any life-or-death risks which the consumer might be fearful of, it is more likely she enjoys the minor decisions she must make as she strolls through the aisles of the supermarket, choosing the best from among the various alternatives. But for her to feel enjoyment in choosing what she feels is the best brand among alternatives, she must likely must perceive the alternatives as being different from one another.

**Hypothesis IX:** A consumer who demonstrates high variance of perceived risk for the brands in a product category will tend to enjoy shopping at the market.
c) **Demographics** - due to the nature of the sample group, there were not very many demographic variables which would have had large ranges of values in the group. Education level, family income, sex, and cultural background were all variables with the same value or roughly the same value for all the housewives in the sample group.

However, I felt the presence or non-presence of young children was one demographic variable that could profitably be researched because of the unique character of the product in this study. As I have described in the last chapter, I have chosen to look at perceived risk for brands of bathroom soap in particular. This is one product that mothers feel concerned about when using it on young children.

It would probably be an overstatement of the case to presume mothers of young children would see high risk in all brands of soap. They probably have one or several brands which they feel comfortable using on the baby's skin. However, as far as unused brands are concerned, it seems plausible that mothers of young children would regard the brands they don't use as having greater risk than would other women. Because of their increased vulnerability, mothers of young children would tend to regard the unknown as having more risk. This is the reasoning behind the following hypothesis:

**Hypothesis X:** In the category of bathroom soap brands, consumers who are the mothers of young children will tend more to perceive high risk in the
brands they do not use than will women who are not mothers of young children.

d) **Personality** - Previous research on the relationship of perceived risk to personality is limited to two studies.

Cunningham (1967a) tested for a relationship between his measure of generalized risk perception and one personality variable, generalized self-confidence. For the measure of generalized risk perception, he used two segments of his sample group: the 15% of his subjects who perceived high or medium risk in all three different product categories and the 31% who perceived low risk in all of the categories. He tested both group's generalized self-confidence by asking two questions on confidence, one relating to a person's feeling of confidence in what other people think of her, and the other relating to a person's confidence in her own abilities. He found no support in his data for his hypothesis that high-medium risk perceivers would have low generalized self-confidence.

Cox (1967a) looked at some personality traits of the consumer, but examined these as they related to risk handling rather than risk perception. His findings are relevant to the study of risk perception, however. By his own argument, "if nothing is done to handle risk, no risk is perceived; on the other hand, if a person does something in order to handle or reduce
risk, it is because she has perceived risk." By these assumptions, risk perception and risk handling are distinctly related. His conclusions are based on highly suggestive evidence rather than any statistical data, for he only looked at two subjects. He did find evidence for a relationship between a consumer's dominant buying goals (as a reflection of personality) and her way of handling risk through uncertainty reduction. He also found evidence to suggest a relationship between cognitive style and risk handling. Cox's findings give us more encouragement than Cunningham's to look into the relationship of personality and risk perception, although neither researcher has any statistical data to support such relationships.

Like Cunningham, I am looking at the relationship of personality of risk perception rather than risk handling. However, since I am investigating risk perception of brands rather than product categories, my proposed relationships between risk and personality will be of a different nature. Looking at risk perception of individual brands allows me to look at unique relationships between personality and certain types of brands, such as the brand the consumer intends to purchase next time, or the brands she has not used in a long time. However, in looking at a consumer's risk perception per brand, I have only looked at perceived risk in one product category, bathroom soap. This concentration tends to
cloud any relationship between a generalized perceived risk across all product categories and personality by the unique effects of the particular product (soap in this case) on perceived risk. As evidence of the possibility of interference by a particular product, Cunningham (1967a) found that a consumer's risk perception is strongly influenced by the product category in question; even though 15% of his subjects saw high-medium risk in all three product categories and 31% saw low risk in all three product categories, the remaining 54% saw combinations of high-medium or low risk in the three products. Therefore, assuming that a relationship does exist between personality and generalized perceived risk, it will be more difficult to prove it statistically because of the interference from the nature of the product category.

By the same token, other non-personality variables will tend to interfere, such as shopping experience and presence vs. non-presence of young children. The interference is even more difficult to filter out in this research because of the fairly small sample group (87 housewives).

Nevertheless, because of the limited amount of research in this specific area, it is worthwhile to look at it here, even though the investigation is under less than ideal conditions.

There are four personality variables which I will look at in this
research: 1) psycho-social self-confidence; 2) task-oriented self-confidence; 3) internal-external control over the environment; and 4) optimism-pessimism. The two types of self-confidence had been conceived and measured by John Wilding (Wilding 1967), working under Raymond Bauer in research dealing with risk. "Internal-external control over environment" had been used by Green, Halbert and Robinson (1967) in a series of gambling behavior experiments. Optimism-pessimism is my own entry into risk research.

All four variables were chosen because they deal in different ways with perception of stimuli, just as does the perceived risk measure. This common concern of all four personality measures and perceived risk gives us good reason to suspect some relationship among them.

Psycho-social self-confidence can be defined as confidence in one's ability to perform before or act as part of a social group. It is the only one of the four personality measures chosen that directly involves one's concern for her relationship with other people. The rationale behind hypothesizing a relationship between a people-oriented self-confidence and perceived risk is that a good part of perceived risk in a product may be "other-people oriented." By this I mean that some of the risk a user faces in a product stems from her concern for what other people think of her as the purchaser or user of the product or brand.
Task-oriented self-confidence is confidence in, or assurance of, one's own ability to solve problems of a conceptual or mechanical nature. This type of self-confidence is distinguished from psycho-social self-confidence in one's relationship with other people. The distinction between the two was made earlier by Wilding, and again in this research, because it is felt each is a separate variable in an individual's personality. It is presumed possible to have a person confident of herself in social settings but unconfident in problem-solving or task-accomplishment settings, and vice versa.

Task-oriented self-confidence is hypothesized as related to perceived risk for a product because the purchase and usage of a product is so much a cognitive task. The consumer has, besides the social needs already discussed, certain personal needs which she wants fulfilled by using a product brand. She perceives risk in product brands in relationship to filling these needs which are the solutions to cognitive problems rather than social problems.

Internal-external control over the environment is a variable developed by Julian Rotter representing the way people view the occurrence of events in their environment. Dr. Rotter (Rotter 1966) has this to say about the
"...When a reinforcement is perceived by the subject as following some action of his own but not entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in internal control."

Unlike the self-confidence variables which measures the way a person views himself either in social settings or performing cognitive tasks, the internal-external control variable has to do with the way the person sees events. As such, it measures still another unique piece of behavior which may well have its own relationship to perceived risk. The rationale behind this relationship is as follows: for a person to see events as occurring by luck or chance, we might presume she sees things with greater uncertainty than the person who tends to feel more internal control over the course of events. Thus, we would think people with a high sense of external control would be higher risk perceivers. This conclusion is partially supported by Green, Halbert and Robinson (1966) who found in a Bayesian decision making experiment that high external control subjects tended to buy more information before making a decision than was theoretically optimal for the highest
expected monetary return in the game. We can assume they over-bought information because they saw either more uncertainty or more danger in the game than actually existed.

Optimism-pessimism is another personality variable that is concerned with a person's view of events rather than her view of herself or her behavior. It is differentiated from internal-external control, which also deals with a person's view of events in her environment, by the following argument: internal-external control is a measure of the person's perceived origination of events (i.e. externally, by luck or by chance, versus internally, by self-direction); optimism-pessimism, however, is defined here as the degree to which a person perceives events generally as going her way in such cases where there is truly some amount of chance in the final outcome of an event. The independence of the two variables can be demonstrated as follows: though some people may tend to see little luck or fate in the occurrence of events (measured in terms of internal-external control), there are still events affecting them which actually do rest on chance, such as flipping of coins or the prediction of distant world events; for these events we need some measure (optimism-pessimism) of how the person views these chance events as turning out for her. A person is defined as being more optimistic the more she sees chance events as usually resulting in her favor. She is
more pessimistic the more she sees chance events as not falling her way.

I believe optimism-pessimism, so defined, will have its own relationship to perceived risk in a product category. It seems plausible that a person who is pessimistic would see the negative consequences of a product (the one element of perceived risk) as bigger problems than would a person who is more optimistic. Also, it would seem the more pessimistic person would tend to see these negative consequences as occurring with greater certainty (the other element of perceived risk) than would the more optimistic person.

I have suggested reasons for believing each of these four personality variables is related to a consumer's level of perceived risk. To suggest these four variables are related to perceived risk falls short of defining the nature of the relationship completely. My most elementary measure of risk is, as pointed out before, the risk the consumer sees in a brand. Therefore, it is necessary to describe the relationship between the personality variables and perceived risk in terms of these brand measures. I could, of course, average a consumer's perceived risk in all brands and think of this as the person's perceived risk in the product category. However, this measure of risk is likely to be influenced by the number of brands the individual consumer has used, and the intensity of good or bad experiences with them. Therefore, I will use measures of risk that are concerned with more homogeneous segments of the total brand group. One measure will be the
consumer's perceived risk for her favorite brand, and the other her perceived risk in the brands she has not used recently. The former measure allows good comparison among consumers, because each consumer looks most favorably at the moment on her favorite brand. Therefore, we are looking at perceived risk on an equal plane for every consumer. The latter measure also gets at a brand type that has much the same significance for each consumer. If personality is related to perceived risk it is likely to show up well among brands not used recently, where the effects of a particularly good or particularly bad experience with an individual brand will have less interference with the perceived risk measure.

Hence, we have the following Hypothesis sets involving the two risk measures:

**Hypothesis Set XI:** In a particular product category, a consumer who is more psycho-socially self-confident will tend to perceive lower risk in the brand she plans to purchase next time.

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--- In a particular product category, a consumer who is more self-confident in task-related activities will tend to perceive lower risk in the brand she plans to purchase next time.

--- In a particular product category, a consumer who is more optimistic will tend to perceive lower risk in the brand she plans to purchase next time.
In a particular product category, a consumer who feels more internal control over her environment will tend to perceive lower risk in the brand she plans to purchase next time.

Hypothesis Set XII In a particular product category, a consumer who is more psycho-socially self-confident will tend to perceive lower risk in the brands she has not used recently.

— In a particular product category, a consumer who is more self-confident in task-related activities will tend to perceive lower risk in the brands she has not used recently.

— In a particular product category, a consumer who is more optimistic will tend to perceive lower risk in the brands she has not used recently.

— In a particular product category, a consumer who feels more internal control over her environment will tend to perceive lower risk in the brands she has not used recently.

There is a third relationship between personality and perceived risk which may be worth investigating. Instead of filtering out the varied effects of experience on perceived risk by considering just the brand to be purchased
next time, or the brands not used recently, there is another filter available. Since specific experience with brands has its effects on the risk measure via the certainty component, we can filter out the specific experience by looking at just the consequence component of perceived risk. Since, by definition, perceived risk is higher the more the negative consequences are seen as problems, I propose relationships between personality and consequences in the same direction as those in the Hypotheses sets XI and XII.

**Hypothesis Set XIII** In a particular product category, a consumer who is more psycho-socially self-confident will tend to see the possible negative consequences of using the product as less important problems.

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--- In a particular product category, a consumer who is more self-confident in task-related activities will tend to see the possible negative consequences of using the product as less important problems.

--- In a particular product category, a consumer who is more optimistic will tend to see the possible negative consequences of using the product as less important problems.

--- In a particular product category, a consumer who feels more internal control over her environment will tend to see the possible negative consequences of using the product as less important problems.
Chapter 4

Experimental Design

Part A: Instruments

Having developed my model of perceived risk and hypothesized relationships based upon it, my next task here is to discuss the experimental design used to gather data for hypothesis testing. This discussion is in two parts: in Part A of this Chapter, I will describe the various questionnaire instruments I used in data collection; Part B covers my administration of the questionnaire to the respondent group.

Therefore, let us turn to the questionnaire instruments used in this study. The whole questionnaire battery consisted of six separate instruments and a total of 20 pages. The questionnaire in Appendix A is identical to it except the questions have been spread over more pages. The sections were administered to each respondent in the same order in which they appear in the Appendix.

The first section consisted of a few questions asking the consumer for some demographic information and for certain of her attitudes regarding shopping and advertising. The second section, the longest one in the battery, was my instrument for gathering all the perceived risk data. Sections 3 and 5 were instruments for gathering information
on personality variables; Section 3 was the instrument for the two self-confidence variables and the optimism measure, and Section 5 was the instrument for internal-external control over the environment. Section 4 comprised six questions pertaining to shopping behavior and attitudes. Section 6 was one page in length and dealt with intended shopping behavior of the consumer. Generally speaking, there were only three types of instruments used in the study: the risk instrument, personality variable instruments, and demographic and shopping behavior and attitude instruments. The whole battery was split into more sections, however, to break up for the respondent the time-consuming process of answering all the questions, and, in the case of Section 6, to allow me to withhold a question until I could see answers the respondent had made to a previous question in Section 4.

Presented here is a discussion of the origin and development of each of the six sections:

Section 1: Personal Data. (For demographic information and for attitudes regarding shopping and advertising).

This section was easily developed for gathering the type of information I needed for certain demographic and attitude measures in my hypothesis testing. I will say more about these measures in Chapter 5 when I discuss my findings.

As with all the other sections, Section 1 was pretested on several
respondents to test for clarity and meaning of the questions. Only one major change was made, and that was to question #5. I originally asked the question, "How much do you enjoy shopping for soap at the market"? Respondents found this difficult to answer, however, for they could not seem to break down their feelings about shopping into feelings for particular product categories. Instead, I asked the more general question that appears.

**Section 2. Perceptions of Soap.** (For perceived risk data.)

This is the section of greatest importance in the instrument and took the longest to develop. Originally, I had intended to include risk instruments for several product groups in order to gather a wider range of perceived risk information. Risk instruments for peanut butter and cleanser, similar to the one for soap, were already drawn up, but I never administered them because I felt the whole questionnaire was already of a length possibly annoying to respondents.

By including 11 advertised brands, I hoped to have enough brands so that 90% or more of the respondents would have one as their favorite brand (actually, 79 respondents out of 87 did intend to buy one of the 11 brands in their next purchase). Yet, I did not want too many brands for fear of making this section of the questionnaire even more tedious to fill out than it was with 11 brands.

I developed the list of 11 consequences both by my own notion of what would be important to segments of the consumer population and
also from the suggestions of respondents to early versions of the instrument. I originally had six consequences, then raised this to nine when I realized I did not want to include the peanut butter and cleanser risk instruments, and finally included two more at the suggestions of some respondents in trial runs. I also made minor changes in the wording of some of the consequences to get greater variability of response among those answering. For instance, consequence nine originally read "has little real cleaning ability"; when I found that respondents in trial runs all gave this consequence either a 4 or a 5, I reduced its intensity to get a greater range of response in my experiment.

The way in which the brands on pages 3 through 13 of the original instrument were presented to respondents was considered in the design. It was critical that each brand receive the same amount of positioning at the front, middle, or back of the instrument to thwart any unwanted bias that might get into the results from respondents' answering of the uncertainty questions in the early part of this instrument differently from those toward the end. Therefore, the Section 2 instruments were organized so that the brands were in the same consecutive order in every instrument, with each brand of the eleven brands falling first in order an equal number of times.
Section 3: Personal Views. (For psycho-social self-confidence, task-oriented self-confidence, and optimism-pessimism data).

The thirty items in this section had several different origins. Several of the ten psycho-social self-confidence items and ten task-oriented self-confidence items are adaptations of items from John Wilding's "Personal Opinion Questionnaire" (Wilding, 1966). It was Wilding who first separated self-confidence into the psycho-social and task-related components and tried to measure each separately using two 9-item questionnaires. The rest of the self-confidence items are of my own generation, as are all ten optimism-pessimism items.

The items are in true-false format in order to force the respondent to make a definite choice. Too often on personality tests which offer a range of possible answers, the respondents tend to avoid giving extreme responses and stick to "middle of the road" answers. Differentiating among respondents is nearly impossible when this happens, even though the respondents may have had significant differences.

Most of the thirty items along with some other items not now in the instrument were given to several judges experienced in psychology to sort them into the three personality variables. This was a test of whether unbiased judges perceived the instrument items as measuring the variables I thought they did. I chose 26 items which the judges agreed measured what I proposed they did. To this group of items I added two new task-oriented self-confidence items and two new optimism-
pessimism items to provide ten items for each of the three variables.

I was also concerned with the direction (true or false) of the items. For each variable, five of the items were scored for a "true" answer and the other five were scored for a "false" answer. This eliminated the potential for a "yea-saying" respondent to have an extreme and misleading score by answering "true" to all items.

Section 4: Soap Purchase and Usage. (For shopping behavior and attitudes).

The questions on this instrument were concerned with the consumer's past, present and intended behaviors concerning the purchase of soap, and also her preference pattern for a set of soap brands.

All of the items except question #4 were of my own origination. Question #4 is an adaptation of a similar question asked by Cunningham (Cunningham, 1967c) to determine the extent of a respondent's brand loyalty. The reasons for the inclusion of this question, as well as the others, will become obvious in Chapter 5 when I discuss measures along with my findings.

This instrument was placed between the two sections concerned with personality variables as a further effort to make the whole 20-page questionnaire appear as having more variety.

Section Five: Social Reaction Inventory. (For data on internal-external control over one's environment)

This section of the questionnaire was concerned with measuring
the variable developed by Julian Rotter which I explained earlier. My 20-item instrument is a subset of a 30-item questionnaire designed by Dr. Rotter (Rotter, 1966). Again, I tried to keep this section as short as possible to compensate for the length of Section 2, the risk instrument. From Rotter's 30 items which included 6 filler items and 24 relevant items, I deleted 5 items (1 filler and 4 relevant items) which were concerned with school or student-teacher relationships. I believed these 5 items would be difficult to answer for many of the housewives in my sample group who were no longer attending school. I also deleted 4 more items with the lowest biserial item correlations (the correlation of a respondent's score on one item with his score on all the rest of the items as a group, for several sample groups Rotter tested), and another filler item to arrive at an even twenty items for this instrument.

Section 6: Supplementary Questions. (For intended shopping behavior data).

Section 6 is really just a continuation of Section 4. It exists as a separate section only because Section 4 completely filled one page in the version of the questionnaire given to respondents, and also item #8 of Section 6 could not be administered until the respondent completed item #5 of Section 4. That is, I had to see which brands the respondent had marked as "1" and "2" in question #5 so I could write them and their prices into question #8.
Chapter 4
Experimental Design

Part B: Procedure

With the questionnaire prepared in the manner just discussed, my next step was to administer it to a group of housewives to provide the raw data for subsequent analysis. For my study group I chose the housewives from one of the two dormitories on the M.I.T. campus for married students and faculty. The attractions of this particular group were (1) being student wives in most cases, the women in this group were sympathetic to the needs of another student, and, therefore, could be counted on to respond at a higher rate than other groups might, and (2) they were easily accessible, which was important to the way I conducted my survey, as will be demonstrated.

As I have said, the questionnaire instrument which I administered to the housewives contained a total of 20 pages in all. In some preliminary runs of the questionnaire on myself and others I estimated that it should take from 1/2 to 3/4 of an hour to answer all the questions. Therefore, although this instrument was shorter than some others I had planned, it still was markedly lengthy in terms of the number of pages and time to complete it. Foreseeing the possibility of a low response rate to such a long questionnaire, I realized I needed
to take precautionary measures that would both screen out people adverse to filling out questionnaires and increase the commitment of those given the questionnaire to complete it.

As a first step in this plan, I constructed a formal letter (see Appendix B) expressing my needs and intentions which was sent to each likely respondent among the housewife population of the dormitory. I expressed the nature of my study, its end result (i.e. my Master's Degree), my need of their help, and what I was asking them in terms of time and effort. At the end of the letter, I stated I would follow-up in a few days' time with a phone call to find out if they were interested in participating in the study.

The letter had two benefits: first, the written contents of the letter, as well as the fact that I was sending a personal letter in the first place, helped to convince the housewife of the importance of this project to me. From comments I received from individual housewives I inferred the letter accomplished its intended purpose of increasing the housewife's commitment to help me. The letter's second benefit was that the time between the letter and the follow-up telephone call gave the housewife a chance to consider whether she really had the time or desire to participate. Without forcing her to make a quick decision whether or not to help me, I felt I eliminated those people who would have been only half committed to their participation,
with the result of boredom or dislike on their part and uncompleted or half-heartedly finished questionnaires.

I also used the letter as a tool to screen out foreigners whose native tongue was not English. I presupposed these housewives would have had difficulty completing my questionnaire, and therefore simply never sent them letters. In addition to foreign housewives, I also did not send letters to addresses without listed telephones, since a telephone call was a part of my plan.

The follow-up telephone call was the second stage in seeking the commitment to help of those housewives who wished to participate and eliminating the non-respondents. In each conversation I supplied some additional details of how I was conducting the study and reiterated the necessary time to complete the questionnaire. If the woman wanted to be part of the study, we arranged a mutually agreeable time for her to complete my questionnaire. Those who did not want to participate in the survey at the time of this telephone call were in either of two categories: those who did not want to participate at all, whom I dropped from further consideration, and those who could not fit the study into their schedule at the time. I telephoned members of this latter group in subsequent weeks as they were freed from other time-consuming commitments.

The actual arrangement for a housewife's answering of my ques-
tionnaire involved a trade-off of my time and convenience versus the
housewife's convenience, which in turn I felt would determine the number of participants and the value and completeness of the responses of each. In other words, I believed that I could get more good complete responses the more convenient the answering process was for the housewife and the more I could audit her responses; on the other hand, complete convenience for the housewife, and complete auditing, such as being with her the whole time she worked on the instrument, would involve a considerable amount of my time. By "feel" alone rather than by any formal analysis I decided to go all the way in terms of convenience for the housewife, and to compromise on the question of auditing her responses. I arranged in the previously mentioned telephone conversation for all respondents to complete the questionnaire in their own apartments. This convenience no doubt increased the participation of housewives with children who could not have brought them along to an interviewing place outside their apartments. As to the question of quality of responses, what I gained from eliminating any negative effects on quality from the housewife's annoyance at going outside her apartment to an interviewing place, I probably suffered from the effects of distractions in the housewife's own apartment. My auditing technique meshed very well with the arrangement to survey in the housewife's apartment. I arrived at the pre-arranged time, presented the housewife with 19 pages of the 20-page questionnaire (I carried the 20th page with me until my return), and broused through them with her, previewing
the work she would be doing. This short session while I was with her provided a chance for her to raise any questions concerning the questionnaire or what she was to do. After she felt ready to do the work, I then left the apartment and arranged to return about 40 minutes to an hour later. In the meantime, I visited other housewives I had also arranged to visit in the same evening. This staggering of visit times allowed me to conduct anywhere from 7 to 11 interviews and response sessions per evening. Obviously, having all respondents in the same apartment building was a boon to this plan. Upon returning to an apartment where I had left a questionnaire, I presented the housewife with the 20th page of the questionnaire. I saved this last page for my return, both because the last question depended on the housewife's answers on a previous page and because this last question was somewhat tricky to answer and needed my explanations. Also in this second short session I had a chance to answer any questions the housewife had about the questionnaire or study itself, and in a few cases to correct responses to questions some of the housewives did not answer or misinterpreted. Thus my personal appearance before and after the housewife's solitary answering session insured better and more complete responses, while still allowing me time to see other housewives in the interim.

This plan was pretested using the final version of the questionnaire on five housewives to find out the best way to explain parts of the instrument or study where necessary, and to get a better idea of the
times necessary for the various sub-elements of the data collection process. These interviews also provided an opportunity to test the research instrument itself. However, there were no apparent defects with the instrument.

The mailings, telephone calls, and appointments for the 37 respondents eventually included in the study were conducted during a six-week period extending from the end of March into early May, 1968. Appointments for one week were overlapped with a wave of mailings and telephone calls for the following week. My original goal had been to obtain 50 to 100 respondents to secure high confidence levels for any relationships I might uncover. However, of the respondents in the 198 apartments in the dormitory, 10% had no listed phone, 13% were foreign non-English speaking women, 2% were bachelors, 3% were in the pretest group, 5% could not be reached when I called them, and 23% did not want to participate in the study. This left 44% or 37 who eventually participated in the survey and comprised the sample group. Because of some cases of misunderstanding or lack of response on some questions, there are even less than 37 responses on some items.

The question might be raised as to whether this sample group of 37 student and faculty wives is appropriate to my research. It is certainly very homogeneous along the lines of education, social class, intelligence and current life patterns. However, since I am investigating the interrelationships of various perceptual and behavioral characteristics
and not investigating the nature of the sample population, these biases will not force any conclusions or relationships that are not there. If anything, the homogeneity makes it more difficult to prove some of the hypotheses proposed. For example, if I hypothesize that perceived risk will be higher for those people who are more pessimistic, and we assume for a minute that this is fact, it will be more difficult to demonstrate this relationship in a homogeneous group where the characteristics of such people may tend to lie in small ranges of what would be a large range for the total universe of housewives. Whether similarities of education, intelligence, social class and life pattern of members of my sample group does tend to shorten the observable ranges of risk, personality variables or shopping behaviors I am investigating, I do not know. Such a question is for other research. However, such a tendency seems plausible, and it would make actual relationships more difficult to show.
Chapter 5

Discussion of Measures and Results

In this chapter I present the results of tests of the 13 hypotheses presented in Chapter 3 along with the measures used in the tests. Taking the hypotheses in order, I will discuss the measures and results related to each one so the reader can easily identify and segregate the results he is particularly interested in.

Measures are discussed right along with the statistical results in order to emphasize what I feel is their equal importance in a general explanation of experimental findings. Research to test relationships among several variables can only have significance if the experimental measures in the research truly reflect the variables being studied. If I show statistically that variable "X" has a definite relationship to variable "Y", it is important to anyone making use of my results to know of the measures I used for the two variables. If the reader agrees I have measured the variables accurately, then he can use the results as they stand. If he does not feel the variables have been accurately measured, then he is free to form his own conclusions. Whichever the case, it is important the reader has the choice, and to that effect I devote much of the discussion in this Chapter to a presentation of
measures used in testing each hypothesis.

Before beginning my presentation of results for each hypothesis, some comment is in order concerning the assumptions I make about the rating scales used in some of my questionnaire instruments. The scales respondents must use in my risk instrument and my demographic and shopping behavior and attitude instruments are actually ordinal scales, and yet I treat them in calculations of risk, etc. as ratio scales. I assume in the risk instrument, for example, that "a slight problem" has twice the weight of importance as "little problem if any," "a moderate problem" has three times the weight of importance as "little problem if any", and so on. Moreover, I take these importance scores, multiply them by certainty scores, and then try to say something about the resultant products, the risk scores, without giving evidence that either of the 5-point scales are warranted.

However, I use these scales, along with those in my other instruments, because of their ease of use and because I believe the choice of numbers in these scales will have little eventual effect in my results provided the numbers are in ascending or decending order as the case may be. Cunningham (1967a) found evidence to support this latter point. He ascribed the numbers 1, 2 and 3 to the three levels of certainty and the three levels of consequence importance (danger) in his risk measure. Realizing that the
scales were not necessary ratio scales, and that one component of risk could conceivably have greater weight in determining risk levels, he tested 9 other scaling techniques for his certainty and consequence data. He found, however, that use of any of the scales made no difference when it came to analyzing the risk measure versus other measures.

I not take up the discussion of measures and results for Hypothesis I, and will continue through Hypothesis XIII. As a handy reference, the hypotheses and measures are again stated as a group at the end of this chapter, followed by a tabular display of the statistical results of the hypothesis tests.

**Hypothesis I** In a particular product category, a consumer who perceives higher risk for her second-most preferred brand relative to the risk she perceives for her favorite brand will tend to show stronger brand loyalty.

Uncertain of which was the more valid measure of the consumer's perceived risk for her second preferred brand relative to her perceived risk for her favorite brand, I used two measures of perceived risk to test the above hypothesis:

**Measure 1** - Perceived risk for second-most preferred brand divided by perceived risk for favorite brand: A consumer's perceived risk for a brand was measured by the definition, $R_{ij} = \sum p_{ijk} w_{ik}$, using the consumer's answers to the importance and certainty questions in the risk instrument.
Risk for a brand could have any value between 11 and 275. Her favorite and second-most preferred brands were those she designated as "1" and "2" in question #5 of Section 4, asking her for her order of preference for the 11 brands.

Measure 2 - Perceived risk for second-most preferred brand - (minus) perceived risk for favorite brand: The components of this measure were derived the same way as those of measure 1.

I used three measures for brand loyalty since I believed that the general behavior, "brand loyalty" could be exhibited by the consumer in several ways.

Measure 3 - Distribution loyalty: A consumer was graded with either a "1" or a "0" according to her answer to question #4 of Section 4 of my questionnaire. She was graded "1" if she would buy another brand if the brand she planned to buy next time were out of stock, and "0" if she would go to another store.¹

Measure 4 - Time loyalty: Time loyalty was the number of months, from question #2, Section 4, that a consumer had been using on a regular

¹ Twenty-eight respondents did not have as the brand they planned to purchase next time the brand they ranked "1" in question #5 where they gave their order of preferences. Some of these women said they planned to purchase a 12th brand, others listed two brands they planned to purchase next time, while still others said they did not know which brand they would buy next time. All of these respondents were excluded from the distribution loyalty analyses because I had no way of connecting their loyalty with any one of my 11 brands specifically.
basis the brand she had purchased last time\(^2\).

**Measure 5: Price loyalty:** Price loyalty was derived from the respondent's answer to question \#8, Section 6. Using the respondent's ordering of brand preferences in Section 4, I wrote the names of her most-preferred brand and second-most preferred brand in question \#8 along with some average prices I had obtained for that period by visiting a group of supermarkets. With price loyalty, I wanted to measure how large a price difference the consumer could tolerate between her favorite and second-most preferred brands. Therefore, the precise measure was the price at which the consumer answered she would switch brands - (minus) the price of that consumer's second favorite brand\(^3\).

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\(^2\) There were seven respondents who answered question \#1 or question \#3 with a brand other than one of the 11 I cited. These women were not included in the time loyalty analyses, since I had no measure of their perceived risk for what appeared to be their favorite brand. Thirteen respondents answered question \#3 with "I don't know"; two respondents answered question \#1 or question \#3 with two brands; and one respondent answered question \#3 with a different brand from that given in question \#1. All respondents in these groups were awarded "0's" for time loyalty. I felt that by their answers they showed no evidence at the time interviewed of loyalty to a single brand over time.

\(^3\) Again, the seven respondents who answered question \#1 or question \#3, Section 4, with a brand other than the 11 in my study were not included in the price loyalty analyses. I did not feel I could have an adequate measure of price loyalty between favorite and second-most preferred brands when I did not even have a risk or price measure for the consumer's favorite brand.
Six different relationships were tested. Measures 1 and 2 were each run against measure 3 using a two-sample t procedure, comparing the mean of the respondent's risk scores when measure 3 was "0" with the mean of the risk scores when measure 3 was "1". Measures 1 and 2 were also run against measures 4 and 5 using individual one-variable regression analyses.

The results were disappointing in all cases. They were all in the predicted direction, but significance levels for one-tailed tests were extremely low. Only when Measure 1 was tested against Time Loyalty and against Price Loyalty was there any confidence level of 90% or better, and in these two cases only about 3% of the variance of the loyalty measures was explained by the effects of Measure 1.

These results tell us that the ratio of perceived risk for the second-most preferred brand to that of the favorite brand may be a slightly better measure than the arithmetic difference of the two risk scores when we are trying to explain brand loyalty. This measure (Measure 1) ought to be favored in future research over Measure 2. However, what is most significant in this experiment is the apparent lack of a strong relationship between either measure and brand loyalty. This may seem to be a contradiction of Cunningham's findings of a relationship between perceived risk and brand loyalty (Cunningham, 1967c). However, he found perceived risk for unused
brands in a product category was a good predictor of how much brand loyalty would exist for brands in that category relative to other product categories. Obviously, we were examining two different types of relationships, so that our findings are not necessarily at odds.

**Hypothesis II** In a particular product category, a consumer will prefer the various brands in the same order as would be predicted by the amount of risk she perceives for each brand going from lowest to highest perceived risk.

**Measure 6** - Expressed order of preference for 11 brands: This measure was simply the answers given by the respondent to question #5, Section 4, where she was asked to rank the 11 brands in order of preference. 4

**Measure 7** - Order of preference for 11 brands predicted by the risk levels of the brands: Risk was calculated for all 11 brands using the definition

\[ R_{ij} = \sum P_{ijk} W_{ik} \]

The risk scores were ranked from lowest to highest and then allocated to an 11-point scale.

The two sets of rankings were tested against each other using regression analysis. The results were among the most striking found in my experimentation. Over 85% of the variance of the expressed rankings was explained.

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4 Two respondents failed to use all numbers, 1 through 11, to rate the brands according to their preferences. That is, they gave two or three brands the same number. In such cases, I fit the respondent's own scale to an 11-point scale, giving the most preferred brand a score of 1 and the least-preferred brand a score of 11. For the brands given the same ranking, I gave the average rating of the positions these brands would occupy in an 11-point scale.
by the rankings according to the perceived risk scores in the 11 brands.

This finding tells us perceived risk is indeed a good way to explain consumer preference patterns for the brands of a product category. Not only do the risk scores predict the rankings accurately, but the components of these risk scores provide much useful information about the causes for a brand’s ranking in the consumer's mind. It becomes possible to define the specific areas where a brand is risky because little information is known about it and the areas where it is risky because definite negative information is perceived by the consumer.

This has obvious implications for the marketing strategist. He could infer from this information which characteristics of his product he should bring out in his advertising because they are not well known, and which characteristics he must change either by a physical change in the product or through new advertising because these characteristics are perceived negatively by the consumer. The strategist might also use this information to decide whether a heavy free-sampling campaign is needed because consumer awareness of certain important characteristics of his brand is low, or instead, whether he should change his product image because his brand presently has a definite negative image. And he knows full well that such decisions will affect the risk consumers perceive for his brand, which, in turn, will affect his
brand's preference ranking according to the above findings.

**Hypothesis III** In a particular product category, a consumer will tend to perceive higher risk for those brands which she has not used recently and lower risk for those brands which she has used recently.

For this hypothesis, I measured whether or not a consumer had knowingly used the different brands during a certain time period up to the present. I used two time periods, the previous six months and the previous 5 years, not knowing which would best differentiate high risk from low risk brands if such a relationship existed.

**Measure 8** - Average risk for brands not used in the last 6 months - (minus) average risk for brands used in the last 6 months: Risk for each brand was again determined using responses to the risk instrument with the definition \( R_{ij} = \sum_{pik} w_{ik} \). The brands the consumer did not use in the last 6 months were those she checked in question #6a of Section 4. I took the mean of the risk measures for these brands and subtracted from it the mean of the risk scores for those brands in question #6a not checked by the respondent.\(^5\)

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\(^5\) One respondent checked all of the brands in question #6a. She was omitted from the testing of Hypothesis II since I had no measure of her average risk in the brands she had used in the last 6 months.
Measure 9 - Average risk for brands not used in the last 5 years—
(minus) average risk for brands used in the last 5 years. This measure
was derived the same as Measure 8, using the respondents checks on the
second part of question #6, Section 4.6

One-sample t tests were run for both measure 8 and measure 9, comparing
the mean of each with 0. According to Hypothesis III, I expected the means
to be greater than zero. The results supported this prior notion. The
t statistics of 9.643 and 10.942 favored rejection of the hypothesis that
the means were zero at a rejection rate of .005. Further support for the
hypothesis lay in the fact that only 6 respondents out of 82 saw higher
average risk in the brands they used in the last 6 months versus the brands
they did not use in the last 6 months; similarly, only 5 respondents out of 74
saw higher average risk in the brands they used in the last 5 years versus
the brands they did not use in the last 5 years.

Once again, we have some interesting information for the marketing
strategist. These data say that unused brands, just by their being unused,
are perceived as having higher risk. Our findings for Hypothesis II further
tell us these unused brands, since they are perceived as having higher risk,

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6 Eight respondents did not check any of the brands in question #6b. That
is, they had used all of the 11 brands sometime in the previous 5 years.
These respondents were omitted from the testing of Hypothesis III since
I had no measure of average risk in the brands not used in the last 5
years.
will be less preferred by the consumer. To raise a particular unused brand's preference rating, therefore, the marketing strategist can insure that it becomes a used brand - or at least has a chance of being one - either through distribution of samples or through special price or premium promotions.

**Hypothesis IV** In a particular product category, a consumer who perceives high risk in brands she has used recently will tend to perceive high risk for brands not used recently.

The measures for testing this hypothesis are really just the components of measure 8 and 9.

**Measure 10** - Average risk for brands not used in the last 6 months:

For this measure the risk measures for brands the consumer checked in question #6a, Section 4, were averaged.

**Measure 11** - Average risk for brands used in the last 6 months: Also for this measure the risk measures for brands the consumer did not check in question #6a, Section 4, were averaged.  

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7 One respondent who checked all the brands in question #6a was not included in the test of Hypothesis IV, because I could obtain no measure of her average risk for brands she had used in the last 6 months.
Measure 12 - Average risk for brands not used in the last 5 years:

This measure was obtained by averaging the risk measures for the brands the respondent checked in question #6b.  

Measure 13 - Average risk for brands used in the last 5 years: This measure was the average of the respondent's risk scores for those brands not checked in question #6b, Section 4.

Two regression analyses were run to test Hypothesis IV. Measures 13 and 11 were the independent variables tested against measures 12 and 10 respectively.

The results were fairly strong in support of the hypothesis. 32% and 37% of the variance was explained in the two tests.

These results are open to question, however. I have come to believe much of the strength of this relationship is a result of the effects of response set in answering the risk instrument. There was a tendency of many respondents to stick to a certain range in my 5-point rating scales for their responses on the consequence and certainty questions. Hence, their risk scores for used and unused brands will tend to move together, which would lend support to Hypothesis IV even though the causal relationships

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8 Eight respondents did not check any of the brands. These women were omitted from the testing of Hypothesis IV because I had no measure of average risk for brands not used in the last 5 years.
implied in it may be artificial.

**Hypothesis V** In a particular product category, a consumer who perceives lower risk in brands she has used recently will tend to be more willing to purchase a brand she has never used before.

There were three measures used to test this hypothesis. Two of them measures 11 and 13 cited earlier, were measures of a consumer's perceived risk in brands used recently. The third measure was for a consumer's willingness to buy a new brand.

**Measure 14** - Willingness to buy a new brand: This measure was a number on a five-point scale representing the respondent's answer to question #7a, Section 6, asking her if she would buy a new brand at a special introductory offer. Answers were rated "5" for "yes", "4" for "probably", down to "1" for "no".

Two regression analyses were run with measures 11 and 13 the independent variables and measure 14 the dependent variable in each run. The results did not support Hypothesis V. Moreover, the relationship between willingness to try a new brand and risk perceived in the brands used in the last 6 months was in the direction opposite to what was predicted; we could reject at a rate of .01 for a two-tailed test the hypothesis that the coefficient of the independent variable (average risk) was equal to zero.
These results tell us there is no basis for believing a consumer is more likely to buy a new brand if she perceives low risk in brands with which she is familiar. In fact, evidence points in the other direction: she may be more willing to buy a new brand if she perceives higher risk in brands with which she is familiar. The most apparent reason for this might be that higher perceived risk implies dissatisfaction with present brands; greater dissatisfaction with familiar brands would in turn imply a willingness to try something new to find a replacement for other disappointing brands. This relationship may be worth testing in other research.

**Hypothesis VI** In a particular product category, a consumer who perceives higher risk in her favorite brand will tend to pay more attention to related advertising.

In testing this hypothesis there were two measures of a respondent's attention to related advertising (soap advertising) and one measure of her risk perception in her favorite brand.

**Measure 15** - Amount of advertising seen: This was a rating on a 4-point scale according to the respondent's answer to question #4a, Section 1, on how much advertising for soap she had seen. Answers were rated "4" for "a lot", down to "1" for "very little".
Measure 16 - Amount of advertising paid attention to: This was also a rating on a 4-point scale according to the respondent's answer to question #4b, Section 1, on how much advertising the respondent had paid attention to. Answers were rated "4" for "a great deal" down to "1" for "very little".

Measure 17 - Perceived risk in favorite brand: A consumer's favorite brand was taken as the brand she marked as "1" in question #5, Section 4, which asked for the consumer's preference rankings for the 11 brands. Risk for this brand was again determined by the definition \( R_{ij} = \sum p_{ijk} w_{ik} \) using the data from the risk instrument, Section 2.9

Measures 15 and 16 were individually tested against measure 17 in regression analyses. In both cases, the respondent's perceived risk for her favorite brand was the independent variable according to the hypothesis that a person who perceived high risk would be more conscious of soap advertising as a means to reduce the risk.

There were weak relationships in both cases. The amount of attention paid to soap advertising was related to perceived risk in the expected direction, but only weakly: only 2% of the variance of measure 16 was explained in the

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9 The 7 respondents who answered question #1 or #3 in Section 4 with a brand other than the 11 I included were not included in the testing of Hypothesis VI. I believed that if a respondent had just purchased, or was intending to purchase, some brand other than one of the 11 included, then the brand marked "1" in question #5 was probably not her favorite brand. Hence, in such cases I had no true measure of the consumer's perceived risk in her favorite brand.
in the regression. On the other hand, the relationship between the amount of advertising seen and perceived risk was also fairly weak, but in the direction opposite to what was expected; again in this case 2% of the variance of the independent variable was explained.

This set of results might be explained by saying that persons who perceive high risk will pay a lot of attention to advertising to try to reduce the risk (hence, the first relationship), while respondents who said they have seen a lot of advertising, whether or not they have paid close attention to it, have already been able to reduce their risk. This, of course, is only post hoc suggestion. Such an interesting inter-relationship between level of perceived risk, amount of advertising seen and amount of advertising paid attention to, should be researched further.

Hypothesis VII In a particular product category, a consumer who pays more attention to related advertising will tend to demonstrate higher variance of her perceived risk for the brands in the product category.

To test Hypothesis VII, I used two measures of a consumer's attention to related advertising, Measure 15 and Measure 16, and one measure for variance of a consumer's perceived risk in the brands.

Measure 18 - Variance of perceived risk: A consumer's risk scores in each of the 11 brands were calculated by the definition $R_{ij} = \sum P_{ijk} w_{ik}$.

The variance of these 11 scores, computed by the formula
\[ v(x) = \frac{\sum (x - \mu)^2}{n} \] was taken as Measure 18.

Regression analyses were run with the variance of perceived risk as the dependent variable. Measure 15 was the independent variable in the first test and Measure 16 was the independent variable in the second.

No significant results were obtained in either test which suggests that neither attention to advertising nor viewing of advertising tend to cause a greater variance of perceived risk, or differentiation among brands, for the consumer.

**Hypothesis VIII** For a given product category, a consumer who has been shopping for a longer period of time will tend to show higher variance of perceived risk for the brands in the product category.

One measure of variance of perceived risk, measure 18, was used to test this hypothesis. Also, one measure for length of time shopping was used.

**Measure 19 - Number of years shopping:** This was the number of years the respondent answered in question #1, Section 1, which asked her how long she had been shopping at the market on a regular basis.\(^\text{10}\)

\(^{10}\) Fractions of a year were rounded to the nearest year. Also, when a consumer had 10 or more years of regular shopping, I set her number of years shopping to "9" to simplify data handling; I had to do this for only two respondents.
A regression analysis was run with a respondent's variance of perceived risk as the dependent variable and her number of years shopping on a regular basis as the independent variable. No significant results were obtained.

This lack of a relationship means one of two things, barring lack of accurate measurement of the variables: either (a) shopping experience does not tend to differentiate the brands of product categories for the consumer, or (b) as is more likely the case, experience may have some tendency to differentiate brands but that tendency did not show up here where brands were examined in only one product category, bathroom soaps.

Hypothesis IX A consumer who demonstrates high variance of perceived risk for the brands in a product category will tend to enjoy shopping at the market.

The one measure of variance of perceived risk used to test this hypothesis was measure 18, cited earlier. There was also one measure of shopping enjoyment.

Measure 20 - Level of shopping enjoyment. This measure merely comprised the respondent's scaled answer to question #5, Section 1, which asked her how much she enjoyed shopping at the market. Answers were rated "4" for "very much", down to "1" for "very little".
A regression analysis was run with measure 18 and measure 20. Variance of perceived risk was the independent variable and expressed shopping enjoyment was the dependent variable. The statistical results were in the predicted direction but gave only weak support to the hypothesis. As in Hypothesis XIII, this lack of a significant relationship may be the result of (a) actual lack of a relationship between the consumer's ability to differentiate among the brands of product categories and her enjoyment of shopping at the market, or (b) an actual relationship between the two variables that did not show here because only one product category was examined.

**Hypothesis X** In the category of bathroom soaps, consumers who are the mothers of young children will tend more to perceive high risk in the brands they do not use than will women who are not mothers of young children.

To test Hypothesis X, I used two measures of the consumer's perceived risk in unused brands Measure 10 and Measure 12, and one measure of whether the respondent was a mother of young children, Measure 21.

**Measure 21** - Existence of young children in the family. This measure was obtained from the respondent's answers to questions #2a and #2b, Section 1. The respondent was rated "1" if she said she did have children and gave the age of the oldest child as 3 years or less; a
rating of "0" was given if she checked "no" in question #2a. 11

Two-sample t procedures were used in testing Hypothesis X. Consumers'
average risk scores for brands of soap not used in the last 6 months
(measure 10) were split into two groups according to whether or not there
was a young child in the family. The means of these two groups of average
risk scores were submitted to the t test for two samples, with the result that
the null hypothesis could not be rejected - there seemed to be no
differential effect on risk caused by the existence or non-existence of
small children in the household. Similarly, a two-sample t test was run for
average risk scores for brands not used in the last 5 years (measure 12).
Again, there were no significant results.

These empirical results demonstrated that there was no apparent relation-
ship between the existence of young children in the family and the housewife's
perceived risk for brands of soap not used recently.

Hypothesis Set XI

— In a particular product category, a consumer who is more
psycho-socially self-confident will tend to perceive lower risk in her

11 In one case, the respondent answered in question #2b that her oldest
child was 5 years old. It was not until I received this answer that I
realized I had wanted to ask the question, "What is the age of the youngest
child?", rather than the one I did ask. By not asking the age of the
youngest child, I had no way of knowing whether this particular respondent
had a child three years or less. Thus, I had to omit this respondent
from the test of Hypothesis X.
favorite brand.

- In a particular product category, a consumer who is more self-confident in task-oriented activities will tend to perceive lower risk in her favorite brand.

- In a particular product category, a consumer who is more optimistic will tend to perceive lower risk in her favorite brand.

- In a particular product category, a consumer who feels more internal control over her environment will tend to perceive lower risk in her favorite brand.

To test all of these hypotheses, one measure was used for a consumer's risk perception in her favorite brand. This was Measure 17 which I discussed earlier.

Each of the four personality variables had its own separate measure, of course.

**Measure 22 - Psycho-social self-confidence:** This measure was a score from "0" to "10" according to the respondent's true and false answers on the psycho-social self-confidence items in Section 3 of the questionnaire. The test was scored such that the higher a respondent's score, the higher her psychosocial self-confidence:
while the lower her score, the lower her psycho-social self-confidence.¹²

**Measure 23 - Task-oriented self-confidence:** This measure was also a score from "0" to "10", with a high score indicating high task-oriented self-confidence and a low score indicating low task-oriented self-confidence.¹³

**Measure 24 - Optimism:** This measure, the third one obtained from Section 3 of my questionnaire, also was a score from "0" to "10", with a high score indicating optimism, and a low score indicating pessimism.¹⁴

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¹² Items 2, 5, 6, 8, 11, 15, 18, 20, 22 and 27 were the 10 psycho-social self-confidence items on the "Personal Views" section. A respondent's answers of "true" to items 2, 6, 8, 18, and 27 and "false" answers to each of the other five items were added for her score of psycho-social self-confidence.

¹³ Items 3, 7, 9, 12, 14, 17, 21, 23, 24, and 29 on Section 3 of my questionnaire were the 10 task-oriented self-confidence items. A respondent's answers of "true to items 7, 12, 21, 24 and 29 and "false" answers to each of the other five were added to give her score of task-oriented self-confidence.

¹⁴ Items 1, 4, 10, 13, 16, 19, 25, 26, 28 and 30 were the 10 optimism items. A respondent's answers of "true" to items 1, 13, 19, 25 and 30 and "false" answers to each of the other five items were added to give her score of optimism.
Measure 25 - Internal-external control over environment: This measure was the respondent's score on Section 5 of the questionnaire, the "Social Reaction Inventory". The questionnaire was scored such that a high score signified that the respondent felt high external control over her environment, while a low score signified that the respondent felt high internal control over her environment.\footnote{15}

Four regression analyses were run using measure 17 as the dependent variable and each of the personality measures separately as the independent variables. All the relationships were in the predicted direction, but they were very weak. In fact the strongest relationship involved psychosocial self-confidence where about $\%$ of the dependent variable was explained by the regression.

Hypothesis Set XII

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In a particular product category, a consumer who is more psychosocially self-confident will tend to perceive lower risk in the brands she has not used recently.

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In a particular product category, a consumer who is more self-confident in task-related activities will tend to perceive lower risk in the brands she has not used recently.

\footnote{15} Items 1, 6, 10 and 17 were filler items, and so a respondent's choices on these were not scored. Answers of "a" on items 2, 4, 5, 12, 13, 14, 15, and 18 and answers of "b" on items 3, 7, 8, 9, 11, 16, 19 and 20 were added to give the respondent's score of the extent of external control she felt over her environment.
In a particular product category, a consumer who is more optimistic will tend to perceive lower risk in the brands she has not used recently.

In a particular product category, a consumer who feels more internal control over her environment will tend to perceive lower risk in the brands she has not used recently.

The measures for the personality variables in these hypotheses again were Measures 22, 23, 24, and 25. Two measures of the consumer's perceived risk in brands not used recently were used to test the above four hypotheses. These were Measures 10 and 12 discussed earlier.

With two measures of risk in brands not used recently, and four personality measures available, eight different regression analyses were run. Each personality measure was tested against each of the two risk measures, the latter being the dependent variables.

Again, the relationships were all fairly weak - the two relationships involving internal-external control over the environment were in the direction opposite to what was predicted.

However, some strength was added to the general relationship between risk measures of soap brands and psycho-social self-confidence. Consistent with Hypothesis XI, this personality variable bore the strongest relationship with the risk measures. It explained almost 8% of the variance of Measure 10 and over 9% of the variance of Measure 12.
Hypothesis Set XIII

— In a particular product category, a consumer who is more psycho-socially self-confident will tend to see the possible negative consequences of using the product as less important problems.

— In a particular product category, a consumer who is more self-confident in task-related activities will tend to see the possible negative consequences of using the product as less important problems.

— In a particular product category, a consumer who is more optimistic will tend to see the possible negative consequences of using the product as less important problems.

— In a particular product category, a consumer who feels more internal control over her environment will tend to see the possible negative consequences of using the product as less important problems.

Once again, measures 22, 23, 24, and 25 were the measures for the four personality variables.

I used one measure of how the respondent viewed the possible negative consequences of using the product.

Measure 26 - Perceived seriousness of consequences: this measure was merely the sum of the ratings a respondent gave for how big a
problem each consequence was on Section 2, the risk instrument. In
other words, the 11 ratings a respondent attached to the consequences
listed on page one of the risk instrument were added together, and the
total called her total perceived seriousness of consequences.

Four separate regression analyses were run, this time with perceived
seriousness of consequences as the dependent variable. As in the test of
Hypothesis XII, internal-external control was very weakly related to this
risk measure in a direction opposite to that predicted. However, task-
oriented self-confidence and optimism were weakly related in the predicted
direction; these weak relationships are consistent with the findings in
Hypothesis Sets XI and XII.

Once again, psycho-social self-confidence had the strongest relationship
with the risk measure, in this case perceived seriousness of consequences.
Roughly 5% of the variance of Measure 26 was explained by the existance of
psycho-social self-confidence in the regression.

The fact that tests of Hypothesis Sets XI, XII and XIII all showed
some support for a relationship between psycho-social self-confidence and per-
ceived risk for brands of soap can perhaps be explained by the argument that
soap is one product with social implications to the user. A scanning of
the list of consequences in Section 2 of the questionnaire will point up
several consequences with direct or indirect influence on the respondents' relationships to other people. Consequences related to the physical appearance of the user, her image as a wise purchaser, or even the aesthetic appeal of her bathroom all have social overtones. Perhaps these specific results would not have occurred if I had incorporated in the study some other product category with less relationship to the social needs of the user. Then possibly the other personality variables would have been more strongly related to the various risk measures.

I conclude this chapter with a table of statistical results for easy reference, preceded by a listing of the 13 hypotheses and 26 measures. In the table, $r^2$'s are listed for those hypotheses which were tested by use of regression analysis. The t statistics have different meanings depending on the nature of the statistical tests. For regression analyses, the t statistic was used in testing for rejection of the null hypothesis that the coefficient of the independent variable had a zero value. For a one-sample t procedure, the statistic was used to test for rejection of the null hypothesis that the mean of the scores was different from zero. For a two-sample t procedure, I used the t statistic to test for rejection of the null hypothesis that the means of two sample groups were the same.
Hypothesis I. In a particular product category, a consumer who perceives higher risk for her second-most preferred brand relative to the risk she perceives for her favorite brand will tend to show stronger brand loyalty.

Hypothesis II. In a particular product category, a consumer will prefer the various brands in the same order as would be predicted by the amount of risk she perceives for each brand going from lowest to highest perceived risk.

Hypothesis III. In a particular product category, a consumer will tend to perceive higher risk for those brands which she has not used recently and lower risk for those brands which she has used recently.

Hypothesis IV. In a particular product category, a consumer who perceives high risk in brands she has used recently will tend to perceive high risk for brands not used recently.

Hypothesis V. In a particular product category, a consumer who perceives lower risk in brands she has used recently will tend to be more willing to purchase a brand she has never used before.
Hypothesis VI. In a particular product category, a consumer who perceives higher risk in her favorite brand will tend to pay more attention to related advertising.

Hypothesis VII. In a particular product category, a consumer who pays more attention to related advertising will tend to demonstrate higher variance of her perceived risk for the brands in the product category.

Hypothesis VIII. For a given product category, a consumer who has been shopping for a longer period of time will tend to show higher variance of perceived risk for the brands in the product category.

Hypothesis IX. A consumer who demonstrates high variance of perceived risk for the brands in a product category will tend to enjoy shopping at the market.

Hypothesis X. In the category of bathroom soaps, consumers who are the mothers of young children will tend more to perceive high risk in the brands they do not use than will women who are not mothers of young children.

Hypothesis Set XI.

- In a particular product category, a consumer who is
- In a particular product category, a consumer who feels more internal control over her environment will tend to perceive lower risk in the brands she has not used recently.

**Hypothesis Set XIII.**

- In a particular product category, a consumer who is more psycho-socially self-confident will tend to see the possible negative consequences of using the product as less important problems.

- In a particular product category, a consumer who is more self-confident in task-related activities will tend to see the possible negative consequences of using the product as less important problems.

- In a particular product category, a consumer who is more optimistic will tend to see the possible negative consequences of using the product as less important problems.

- In a particular product category, a consumer who feels more internal control over her environment will tend to see the possible negative consequences of using the product as less important problems.
Table 2

Measures

$M_1$: Perceived risk for second-most preferred brand divided by perceived risk for favorite brand.

$M_2$: Perceived risk for second-most preferred brand - (minus) perceived risk for favorite brand.

$M_3$: Distribution loyalty.

$M_4$: Time loyalty.

$M_5$: Price loyalty.

$M_6$: Expressed order of preference for 11 brands.

$M_7$: Order of preference for 11 brands predicted by the risk levels of the brands.

$M_8$: Average risk for brands not used in the last 6 months - (minus) average risk for brands used in the last 6 months.

$M_9$: Average risk for brands not used in the last 5 years - (minus) average risk for brands used in the last 5 years.

$M_{10}$: Average risk for brands not used in the last 6 months.

$M_{11}$: Average risk for brands used in the last 6 months.

$M_{12}$: Average risk for brands not used in the last 5 years.

$M_{13}$: Average risk for brands used in the last 5 years.

$M_{14}$: Willingness to buy a new brand.

$M_{15}$: Amount of advertising seen.

$M_{16}$: Amount of advertising paid attention to.

$M_{17}$: Perceived risk in favorite brand.

$M_{18}$: Variance of perceived risk.
$M_{19}$: Number of years shopping.

$M_{20}$: Level of shopping enjoyment.

$M_{21}$: Existence of young children in the family.

$M_{22}$: Psycho-social self-confidence.

$M_{23}$: Task-oriented self-confidence.

$M_{24}$: Optimism.

$M_{25}$: Internal-external control over environment.

$M_{26}$: Perceived seriousness of consequences.
### Summary of Statistical Analyses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Measures</th>
<th>Type of Statistical Test</th>
<th>$r$</th>
<th>$t$</th>
<th>Rejection Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-A</td>
<td>$M_3 = f(M_1)$</td>
<td>two-sample t</td>
<td></td>
<td>.272</td>
<td>n.s.</td>
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<td>I-B</td>
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<td>I-D</td>
<td>$M_4 = f(M_2)$</td>
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</tr>
<tr>
<td>I-E</td>
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<tr>
<td>I-F</td>
<td>$M_5 = f(M_2)$</td>
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<td>.0110</td>
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<tr>
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<tr>
<td>III-A</td>
<td>$M_8$</td>
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<tr>
<td>III-B</td>
<td>$M_9$</td>
<td>&quot;</td>
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<tr>
<td>IV-B</td>
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<td>V-A</td>
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<td>.0851</td>
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<td>V-B</td>
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<td>VII-A</td>
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<td>VII-B</td>
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<td>.0041</td>
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<td>.0013</td>
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</table>

* all rejection rates are for one-tailed t tests.
** relationship not in expected direction; t statistic significant at .01 level using two-tailed test.
*** relationship not in expected direction; t statistic significant at .20 level using two-tailed test.
<table>
<thead>
<tr>
<th>Hypothesis</th>
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<th>Type of Statistical Test</th>
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<th>$t$</th>
<th>Rejection Rate</th>
</tr>
</thead>
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<tr>
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<tr>
<td>XI-B</td>
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<td>n.s</td>
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<td>n.s</td>
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<td>n.s</td>
</tr>
<tr>
<td>XIII-D</td>
<td>$M_{26} = f(M_{25})$</td>
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<td>.0001</td>
<td>-.104</td>
<td>n.s</td>
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</table>
Chapter 6

Summary

This paper has included both a presentation of a new model of perceived risk and a discussion of results of a research experiment in consumer behavior involving this model.

The ideas behind the model itself stemmed from three sources: the previous work of Bauer, Cox, and Cunningham and others in the area of perceived risk, the decision making literature, and intuitive notions of how the consumer perceives the alternatives of her purchase choice. Drawing from these areas I developed a model with basic similarities to the models of Bauer, Cox, and Cunningham (e.g., the notion of consequences and subjective probabilities as the two components of risk is common to both my model and those of the others) but I incorporated three features different from the other models. These were (1) a set of distinct negative consequences for a particular product category, with each consequence having a different weight of importance or "negativeness", (2) an allowed range of .00 to 1.00 for the subjective probabilities attached to each consequence, and (3) an application of perceived risk to the smallest differentiable product entity, whether it be product brand or brand sub-class.

I designed an instrument based upon this model to gather perceived
risk data from consumers. Several other instruments were designed to gather certain types of information in other areas to test against the risk data. The areas I wanted to investigate were the relationships of risk to (1) brand loyalty and brand preference, (2) shopping and product usage, (3) demographics, and (4) personality. To do this I administered the various questionnaire instruments to 87 housewives living in the Eastgate Dormitory on the M.I.T. campus.

Several interesting results came from this data collection procedure and subsequent analysis. Most encouraging was the strong statistical support for a relationship between the consumer's expressed preference rankings for the 11 brands of soap in the study and the order of preference for the same brands predicted by the consumer's risk scores for the brands. Another interesting finding was that brands not used recently by the consumer were perceived as having more risk than brands used recently. There was also strong statistical support for a relationship between perceived risk for brands not used recently by the consumer and perceived risk for brands used recently. However, further thought about this relationship and how the variables were measured led me to believe the relationship was more a result of over-all response set rather than the causality suggested in the original hypothesis.

One of the more disappointing results was a lack of any statis-
tically significant relationships between perceived risk and three different brand loyalty measures labeled price loyalty, distribution loyalty and time loyalty. Also, there was a lack of evidence for relationships between measures of perceived risk and advertising seen or paid attention to, shopping experience, enjoyment of shopping, existence of young children in the family and willingness to buy a new brand.

In the area of personality there was support for a relationship between psycho-social self-confidence and perceived risk, but weak support or none at all for relationships between task-oriented self-confidence, optimism, and internal felt control over the environment and perceived risk. This unique pattern of relationships suggests that psycho-social self-confidence is the only personality variable that can help to explain perceived risk for soaps because several of the characteristics of this product category are of social or interpersonal importance to the user.

As a final comment, perhaps the most useful information to draw from this research is that a risk instrument of the type I designed does have use in gathering information about risk and the specific nature of the components of risk. As pointed out in the previous chapter, this information is of importance to the marketer because it gives a more exact picture of where his brand is standing; and since the summary of this information, i.e. risk = consequences x subjective probabilities, has been shown in my research to be a good predictor of
a brand's ranking in consumer preference, then the marketer knows that he can change his brand's ranking by working to change the components of risk.
Personal Data

1. How long have you been marketing on a fairly regular basis? (i.e., at least once a month)

2. Do you have any children? Yes___ No___
If you do, what is the age of the oldest child? ______

3. What is the age of your husband? ______ yrs.

4. Relative to other consumer products, how much advertising for soap have you seen?
   A lot _____
   Pretty much _____
   Not too much _____
   Very little _____

   How much attention have you paid to soap advertising?
   A great deal _____
   Pretty much _____
   Not too much _____
   Very little _____

5. How much do you enjoy shopping at the market?
   Very much _____
   Pretty much _____
   Not too much _____
   Very little _____
Perceptions of Soap

In purchasing and using a bar of soap for general use in your bathroom, it is possible that certain bad consequences could occur.

(Note: soap for general use means the soap you use in your bathroom for most cleansing purposes, rather than a soap you use just for facial use, use with small children, or some other special use).

Below is a list of several of the possible bad consequences which could arise from the use of soap. I want you to indicate how big a problem each consequence would be for you if it occurred when you were purchasing or using soap for general bathroom use. Put a number behind each consequence, using the rating scheme at the bottom of the page.

To get at your perceptions, answer the following question, "How much would it bother you if the soap you but next time..."

fails to match the color scheme of your bathroom

___

costs at least 10% more than most other brands

___

has a drying effect on your skin

___

loses its consistency over time

___

has a fragrance that is not quite right for you

___

discolors over time

___

has little deoderizing power

___

is disliked by the other member(s) of your family

___

has only a moderate cleansing ability

___
is a brand you feel has less acceptance among women than other brands
causes a slight irritation to your skin

It would be...

- little problem if any 1
- a slight problem 2
- a moderate problem 3
- a fairly large problem 4
- a serious problem 5

Looking now into the performance of particular brands of soap you are probably aware of some or all of the characteristics of each brand. I would like you to put down on the following pages your perceptions of whether the individual brands would result in the various consequences you just rated in importance. Taking each brand at a time, go through the 11 consequences and ask yourself if you think it will result in the consequences. Answer for each consequence, using one of the five numbers of the rating scheme at the bottom of the following pages. You are asked to rate each of 11 brands on each of the 11 consequences, or 121 ratings in all.

You may have perceptions about brands gathered from your own use of soap, television or magazine advertising of soap, or your friends' discussions of different brands. Some brands will probably be more familiar to you than others. Nevertheless, I want you to rate every brand given as you see it on the 11 consequences, regardless of whether you have used it before, or have even heard of it.
Brand: LUX

If you bought a bar of Lux soap next time for general bathroom use, would it...

- fail to match the color scheme of your bathroom?
- cost at least 10% more than most other brands?
- have a drying effect on your skin?
- lose its consistency over time?
- have a fragrance that is not quite right for you?
- discolor over time?
- have little deodorizing power?
- be disliked by the other member(s) of your family?
- have only a moderate cleansing ability?
- be a brand you feel has less acceptance among women than other brands?
- cause a slight irritation to your skin?

Rating Scheme:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>1</td>
</tr>
<tr>
<td>I don't think so</td>
<td>2</td>
</tr>
<tr>
<td>I don't know</td>
<td>3</td>
</tr>
<tr>
<td>I think it would</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
</tbody>
</table>
Brand: SAFEGUARD

If you bought a bar of Safeguard soap next time for general bathroom use, would it...

cause slight irritation to your skin?  ___

be a brand you feel has less acceptance among women than other brands?  ___

have only a moderate cleansing ability?  ___

be disliked by the other member(s) of your family?  ___

have little deodorizing power?  ___

discolor over time?  ___

have a fragrance that is not quite right for you?  ___

lose its consistency over time?  ___

have a drying effect on your skin?  ___

cost at least 10% more than most other brands?  ___

fail to match the color scheme of your bathroom?  ___

Rating Scheme:

No  1
I don't think so  2
I don't know  3
I think it would  4
Yes  5
Brand: IVORY

If you bought a bar of Ivory soap next time for general bathroom use, would it...

- fail to match the color scheme of your bathroom?
- cost at least 10% more than most other brands?
- have a drying effect on your skin?
- lose its consistency over time?
- have a fragrance that is not quite right for you?
- discolor over time?
- have little deodorizing power?
- be disliked by the other member(s) of your family?
- have only a moderate cleansing ability?
- be a brand you feel has less acceptance among women than other brands?
- cause a slight irritation to your skin?

Rating Scheme:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Code</th>
</tr>
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<tbody>
<tr>
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<td>2</td>
</tr>
<tr>
<td>I don't know</td>
<td>3</td>
</tr>
<tr>
<td>I think it would</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
</tbody>
</table>
Brand: PALMOLIVE

If you bought a bar of Palmolive soap next time for general bathroom use, would it...

cause a slight irritation to your skin? ___

be a brand you feel has less acceptance among women than other brands? ___

have only a moderate cleansing ability? ___

be disliked by the other member(s) of your family? ___

have little deodorizing power? ___

discolor over time? ___

have a fragrance that is not quite right for you? ___

lose its consistency over time? ___

have a drying effect on your skin? ___

cost at least 10% more than most other brands? ___

fail to match the color scheme of your bathroom? ___

Rating Scheme:

No 1
I don't think so 2
I don't know 3
I think it would 4
Yes 5
Brand: CAMAY

If you bought a bar of Camay soap next time for general bathroom use, would it...

- fail to match the color scheme of your bathroom?
- cost at least 10% more than most other brands?
- have a drying effect on your skin?
- lose its consistency over time?
- have a fragrance that is not quite right for you?
- discolor over time?
- have little deodorizing power?
- be disliked by the other member(s) of your family?
- have only a moderate cleansing ability?
- be a brand you feel has less acceptance among women than other brands?
- cause a slight irritation to your skin?

Rating Scheme:

<table>
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<tbody>
<tr>
<td>No</td>
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<tr>
<td>I think it would</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
</tbody>
</table>
Brand: DIAL

If you bought a bar of Dial soap next time for general bathroom use, would it...

cause a slight irritation to your skin?
be a brand you feel has less acceptance among women than other brands?
have only a moderate cleansing ability?
be disliked by the other member(s) of your family?
have little deodorizing power?
discolor over time?
have a fragrance that is not quite right for you?
lose its consistency over time?
have a drying effect on your skin?
cost at least 10% more than most other brands?
fail to match the color scheme of your bathroom?

Rating Scheme:

No 1
I don't think so 2
I don't know 3
I think it would 4
Yes 5
Brand: LIFEBOY

If you bought a bar of Lifeboy soap next time for general bathroom use, would it...

fail to match the color scheme of your bathroom?

cost at least 15% more than most other brands?

have a drying effect on your skin?

lose its consistency over time?

have a fragrance that is not quite right for you?

decolor over time?

have little deoderizing power?

be disliked by the other member(s) of your family?

have only a moderate cleansing ability?

be a brand you feel has less acceptance among women than other brands?

cause a slight irritation to your skin?

Rating Scheme:

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<thead>
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<th>Rating</th>
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<td>I don't think so</td>
<td>2</td>
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<tr>
<td>I don't know</td>
<td>3</td>
</tr>
<tr>
<td>I think it would</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
</tbody>
</table>
Brand: PHASE III

If you bought a bar of Phase III soap next time for general bathroom use, would it...

- cause a slight irritation to your skin?

- be a brand you feel has less acceptance among women than other brands?

- have only a moderate cleansing ability?

- be disliked by the other member(s) of your family?

- have little deodorizing power?

- discolor over time?

- have a fragrance that is not quite right for you?

- lose its consistency over time?

- have a drying effect on your skin?

- cost at least 10% more than most other brands?

- fail to match the color scheme of your bathroom?

Rating Scheme:

<table>
<thead>
<tr>
<th>Response</th>
<th>Rating</th>
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<td>I don't know</td>
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<tr>
<td>I think it would</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
</tbody>
</table>
Brand: ZEST

If you bought a bar of Zest soap next time for general bathroom use, it would...

- fail to match the color scheme of your bathroom?
- cost at least 10% more than most other brands?
- have a drying effect on your skin?
- lose its consistency over time?
- have a fragrance that is not quite right for you?
- discolor over time?
- have little deodorizing power?
- be disliked by the other member(s) of your family?
- have only a moderate cleansing ability?
- be a brand you feel has less acceptance among women than other brands?
- cause a slight irritation to your skin?

Rating Scheme:

No 1
I don't think so 2
I don't know 3
I think it would 4
Yes 5
Brand: DOVE

If you bought a bar of Dove soap next time for general bathroom use, would it...

cause a slight irritation to your skin?  
be a brand you feel has less acceptance among women than other brands?  
have only a moderate cleansing ability?  
be disliked by the other member(s) of your family?  
have little deodorizing power?  
discolor over time?  
have a fragrance that is not quite right for you?  
lose its consistency over time?  
have a drying effect on your skin?  
cost at least 10% more than most other brands?  
fail to match the color scheme of your bathroom?

Rating Scheme:

No 1
I don't think so 2
I don't know 3
I think it would 4
Yes 5
Brand: WOODBURY

If you bought a bar of Woodbury soap next time for general bathroom use, would it...

- fail to match the color scheme of your bathroom?
- cost at least 10% more than most other brands?
- have a drying effect on your skin?
- lose its consistency over time?
- have a fragrance that is not quite right for you?
- discolor over time?
- have little deodorizing power?
- be disliked by the other member(s) of your family?
- have only a moderate cleansing ability?
- be a brand you feel has less acceptance among women than other brands?
- cause a slight irritation to your skin?

Rating Scheme:

- No 1
- I don't think so 2
- I don't know 3
- I think it would 4
- Yes 5
Personal Views

In this portion of the questionnaire, is a set of 30 statements a person might make about himself or the world about him. You are to answer for each statement whether it is true or false for you. Answer how you actually feel, not how you wish you did feel or how you think most people feel.

Please place a checkmark for either "true" or "false" for every item, even if you feel you must guess at an answer.

1. I think the world today is a much better place to be living in than it was 25 or 50 years ago. 

2. I don't worry about what other people think of me.

3. I often give up doing something because I think too little of my abilities.

4. I think inevitably man will destroy himself.

5. Sometimes I am plagued by thoughts of something embarrassing I have done in the past.

6. In general, I find it easy to talk when I meet new people.

7. I think I work very effectively at whatever I am doing.

8. I think I have fewer worries when speaking my mind than most people do.

9. I sometimes have the feeling I'm not a fast learner.

10. I think optimism is a form of self-delusion.

11. I sometimes get concerned that people might not respect me.

12. I don't worry very much about the possibility of not doing well in the things I am pursuing.
13. I seem to look at the positive side of things more than other people do.  
True  False

14. There are times I could have done a better job on a particular task if I had had more confidence from the beginning.  
True  False

15. I sometimes find myself backing off from expressing an opinion for fear of looking ridiculous.  
True  False

16. When planning a picnic or an outing I am often concerned beforehand that the weather may be bad.  
True  False

17. I dislike taking on new responsibilities for fear I might make a lot of errors.  
True  False

18. I have little concern with trying to make a favorable impression when I meet people for the first time.  
True  False

19. If a coin is flipped, and I must guess "heads" or "tails", I usually have the feeling my guess will be correct.  
True  False

20. Sometimes I find myself stumbling over a word or two in conversations caused by my over-concern for what I am saying and how I say it.  
True  False

21. Given the time, I think I could learn almost anything.  
True  False

22. After leaving a group, I sometimes worry the other people may make comments about things I said.  
True  False

23. I sometimes have the feeling that there is nothing I can do well.  
True  False

24. Problems of a conceptual nature hardly ever bother me.  
True  False

25. I think we will solve in the next five years or so the major problems that are troubling America right now.  
True  False
26. When rooting for my favorite football team or baseball team, I nevertheless have the feeling before a big game that my team will lose.

27. I am as relaxed talking to other people as I am sitting reading a magazine or listening to music.

28. If I received an unexpected telegram, I would be more likely to suspect it was bad news rather than good news.

29. I am very proud of the way I solve problems.

30. I see ever brighter days ahead for the United States and the world.
Soap Purchase and Usage

1. What brand of soap for general use in the bathroom did you purchase last time? (Note: soap for general use means the soap you use in your bathroom for most cleansing purposes, rather than the soap you might use for facial use, use with small children, or some other special use.)

brand: ______________________

2. How long have you been using this brand for general use on a fairly regular basis?

____ yrs. ____ mos.

3. What brand of soap for general use will you but next time? (If you don't know what brand you will buy, answer "I don't know")

brand: ______________________

4. (If your answer to question 3 is "I don't know", omit this question and go on to question 5.) Assume you are out of soap; if the brand you have given in question 3 is out of stock what will you do? (check one)

buy another brand____
go to another store to find your brand____

5. Taking into consideration your knowledge of present prices on the various soap brands, rank the several brands of soap from 1 to 11 in order of preference of purchase for general use. Give a "1" to the brand you would be most likely to purchase; give a "2" to the brand you next would purchase if this brand were out of stock; and so on.

Lux ____ Palmolive ____ Lifeboy ____ Dove ____
Safeguard____ Camay ____ Phase III ____ Woodbury ____
Ivory ____ Dial ____ Zest ____
6a. Check those brands which you have not knowingly used in the last 6 months:

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<td>Camay</td>
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<td>Phase III</td>
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b. Check those which you have not knowingly used in the last 5 years:

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Social Reaction Inventory

This portion of the questionnaire is to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair which you more strongly believe to be the case as far as you're concerned. Select the one you actually believe to be more true rather than the one you think you should choose or the one you would like to be true.

In some instances, you may discover that you believe both statements or neither one. In such cases, be sure to select the one you more strongly believe to be the case as far as you're concerned.

Please answer these items carefully, but do not spend too much time on any one item. Be sure to give an answer for every pair. Make your answers by circling either a or b for each of the 20 pairs.

I more strongly believe that: (Circle a or b)

1 a. Children get into trouble because their parents punish them too much.
   b. The trouble with most children nowadays is that their parents are too easy with them.

2 a. Many of the unhappy things in people's lives are partly due to bad luck.
   b. People's misfortunes result from the mistakes they make.

3 a. In the long run, people get the respect they deserve in this world.
   b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

4 a. Without the right breaks one cannot be an effective leader.
   b. Capable people who fail to become leaders have not taken advantage of their opportunities.

5 a. No matter how hard you try, some people just don't like you.
   b. People who can't get others to like them don't understand how to get along with others.

6 a. Heredity plays the major role in determining one's personality.
   b. It is one's experiences in life which determine what he is like.
I more strongly believe that: (circle a or b)

7 a. Becoming a success is a matter of hard work; luck has little or nothing to do with it.
    b. Getting a good job depends mainly on being in the right place at the right time.

8 a. The average citizen can have an influence in government decisions.
    b. This world is run by the few people in power, and there is not much the little guy can do about it.

9 a. When I make plans, I am almost certain that I can make them work.
    b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

10 a. There are certain people who are just no good.
      b. There is some good in everybody.

11 a. In my case, getting what I want has little or nothing to do with luck.
      b. Many times we might just as well decide what to do by flipping a coin.

12 a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
      b. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

13 a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
      b. By taking an active part in political and social affairs, the people can control world events.

14 a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
      b. There really is no such thing as "luck".

15 a. It is hard to know whether or not a person really likes you.
      b. How many friends you have depends upon how nice a person you are.

16 a. With enough effort we can wipe out political corruption.
      b. It is difficult for people to have much control over the things politicians do in office.

17 a. A good leader expects people to decide for themselves what they should do.
      b. A good leader makes it clear to everybody what their jobs are.
I more strongly believe that: (circle a or b)

18 a. Many times I feel that I have little influence over the things that happen to me.
b. It is impossible for me to believe that chance or luck plays an important role in my life.

19 a. People are lonely because they don't try to be friendly.
b. There's not much use in trying too hard to please people; if they like you, they like you.

20 a. What happens to me is my own doing.
b. Sometimes I feel that I don't have enough control over the direction my life is taking.
Supplementary Questions

7a. Suppose a new brand of soap is introduced by one of the major soap manufacturers. As a special offer it is being sold at the store for 7¢ less per bar than competitive brands. Do you think you would buy a bar of this new brand to try it out? (check one)

Yes ___
Probably ___
Maybe ___
Probably not ___
No ___

b. Would you like to know more about it? (check one)

Yes ___
Probably ___
Maybe ___
Probably not ___
No ___

8. Assume that the present price of ______ is $ per bar, and the price of ______ is $ per bar. How high would the price of ______ have to go before you would switch to ______ for general use on a fairly continual basis?

Price: __________
Mrs. John Doe  
Eastgate Dormitory  
Massachusetts Institute of Technology  
Cambridge 02139

Dear Mrs. Doe:

I am doing a Master's thesis at the Sloan School of Management, M.I.T., in the area of consumer behavior. For a major part of my project, women are giving their perceptions of, and behaviors toward, various products like toothpaste, cigarettes and detergents.

I am hoping you and many other residents of Eastgate will be interested in participating in my study. If you choose to be involved, my information gathering session should take about an hour of your time some afternoon or evening. I think you would find the questions highly enjoyable because they deal with a subject so familiar to you -- consumer products and marketing.

I will be getting in touch with you by telephone in the next few days to see if you would like to participate, and if so, to arrange a possible meeting time.

Sincerely yours,

William H. Rodgers
Bibliography

Johan Arndt, "Perceived Risk, Sociometric Integration, and Word of Mouth in the Adoption of a New Food Product", in Donald F. Cox, ed., *Risk Taking and Information Handling in Consumer Behavior*, Division of Research, Graduate School of Business Administration, Harvard University, Boston, 1967.


J. B. Rotter, "Generalized Expectancies for Internal Versus External Control of Reinforcement", Psychological Monographs, 1966

