AN EXPERIMENTAL INVESTIGATION OF THE EFFECTS OF PRICE, BRAND AND STORE INFORMATION ON THE SUBJECTIVE EVALUATION OF PRODUCTS

by

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DISSERTATION submitted to the Faculty of the

Virginia Polytechnic Institute and State University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

GENERAL BUSINESS

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May, 1985
Blacksburg, Virginia

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Marketing

(ABSTRACT)

This dissertation investigates the effects of price, brand, and store information on buyers perception of product quality and value, as well as the buyers' willingness to buy. It reviews the dissimilar paradigms developed by economists and behaviorists to explain the influence of price on consumer behavior. Hypotheses are derived from a conceptual model to posit the relationship that the extrinsic cues of information, price, brand name and store name, individually have with the constructs of perceived quality, perceived value, and willingness to buy. Additionally, the combined effects of the extrinsic cues on the three constructs are examined.

The research was conducted in two phases. The first phase was necessary to determine products, price levels, brand names and store names to use in the second phase. A 5x3x3 factorial design, with a student sample was used in phase two to test the research hypotheses. Each of the three independent variables had a no information treatment that allowed partial replication of past price-perceived quality studies, and examanation of price, brand name, and store name main effects in many different cue combinations. Additionally, this research design allowed exploratory research of the marginal effects of combining cue information. Reliability of the measures was assessed using exploratory and confirmatory factor analysis and Cronbach's alpha. Analysis of variance, Duncans' multiple range tests, and trend analysis were used to analyze the data.

In general the analysis gave good support for the hypothesized effects. The principal exception was finding only the downward sloping relationships for perceived value and willingness to buy as affected by price information. Also, there was a lack of support for the hypothesized combined cues when all the information were perceived to be low.

The research results are discussed with respect to the major findings, significance to theoretical and methodological knowledge as well as marketing practice. Limitations of

the research are discussed as well as directions for future

research in this paradigm.

ACKNOWLEDGEMENTS

Paul Anderson's philosophical view on the limits of research were crucial in framing the limitations of empirical research. Within this framework, his suggestions and advice were fully appreciated. Also, this research hopefully begins a program of research that will eventually lead to a better understanding of consumer behavior as a transaction between buyer and seller, rather than from the point of view of just the marketing practitioner. I share Dr. Anderson's conviction that the bounds of studying marketing should be more pervasive than its present practioner orientation.

Jeff Danes' contributions are strongly evidenced in the procedures used to strengthen the measurement model which is seen as a prerequisite for conducting good research. His advice and support in the formulation of the conceptual and methodological issues and on the conduct of the research was appreciated.

Noreen Klein's many hours of time spent with me in helping to clarify the conceptual arguments of the dissertation was critical in the early stages of developing the research plan. Her support and advice throughout the study was always timely and constructive.

Bob Schulman's critical review of the early proposals of the research methodology were vital in tightening the design into a smaller, well conceived and well executed experiement

expertise.   The   personnel in the Research   and Measurement Center, Computing Center User Services, Statistical Consulting and the Carol M. Newman Library are knowledgeable and generous people. I am indebted to their specialized services.

At last the love of my family will be always cherished as they, at times, allowed me the chunks of time to immerse myself into carrying out the research.   The reseaching and writing involved in a dissertation often took priority and every thing else had to come second.   To my wife,
and my children,   ,   ,   , I love you all very much and hope this achievement leads to a better life for all of us.

I choose to dedicate this dissertation to those individuals who contemplate an academic career but may wonder about their ability to pursue a doctoral program of study.   May they someday choose to step beyond their present bounds and take on the challenge of engaging in fruitful research which will further enhance their knowledge as well as make a contribution to their discipline of study.   For those with the curiosity and motivation to follow this road, the poem "The Road Not Taken", by Robert Frost has always been an inspiration to me. Perhaps it will be to others.

        Two roads diverged in a yellow wood,
        And sorry I could not travel both
        And be one traveler, long I stood
        And looked down one as far as I could

To where it bent in the undergrowth;

Then took the other, as just as fair,
And having perhaps the better claim,
Because it was grassy and wanted wear;
Though as for that the passing there
Had worn them really about the same,

And both that morning equally lay
In leaves no step had trodden black.
Oh, I kept the first for another day.
Yet knowing how way leads on to way,
I doubted if I should ever come back.

I shall be telling this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I-
I took the one less travelled by,
And that has made all the difference.

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Chapter I

INTRODUCTION

This dissertation investigates the effects of price, brand, and store information on buyers' perceptions of product quality. Additionally it investigates buyers' perceptions of value and willingness to buy within the conceptualization of price-quality perception proposed by Monroe and Krishnan (1984). An extension of this conceptualization was also tested.

OVERVIEW OF THE CONCEPTUAL MODEL

From a knowledge standpoint, the research tests a conceptualization of the price-perceived quality relationship and extends this conceptualization by examining how brand name and store name also influence the perception of quality.

Briefly, the model defines the relationship of three constructs: perceived quality, perceived value, and willingness to buy. These constructs are used to model the role price has in product quality perception. Price plays a dual role in a tradeoff between perceived quality and sacrifice. As price increases, perceived quality is greater and leads to a greater willingness to purchase based on perceived quality. At the same time, the higher price represents a

measure of what must be sacrificed to purchase the good and leads to a lesser willingness to buy. Perceived value represents a tradeoff between the two variables, perceived quality and sacrifice. Willingness to buy is positively related to perceived value. This model is extended to include the influence of brand name and store name in the quality perception conceptualization.

From a practitioner's viewpoint, the research offers insight into the advisability of altering price given existing brand and store images that are influenced by price as well as other marketing variables.

OVERVIEW OF THE RESEARCH

The research examines the relationship of the perception of quality, perception of value, and willingness to buy to the following informational cues: price, brand name, and store name. A brief explanation of the research design describes a 5 x 3 x 3 between groups factorial design. The price variable has five treatments where three (high, medium, and low) are predetermined to be acceptable prices, one is predetermined to be too high to invoke a positive willingness to buy, and a no price condition. The price treatment is crossed with brand name (high and low name) and no brand information and store name (high and low name) and no

store information. ANOVA, multiple comparisons and linear contrasts are used to evaluate the relationship of the constructs to the independent variables.

While past research has examined these information cues as main effects, there have been problems due to the significance of the statistical interactions of the main effects. In this research, if the significance of the interaction blocks interpretation of the results, the use of the no information treatments allows the design to be "pulled apart" to examine the individual effects when the masking interaction is removed from the analysis. When the interactions are significant, a plot of cell means will be shown with a non-statistical explanation of the interaction. Additionally, there has not been a sound explanation of the three-way interaction of price with brand and store name in the same study. Using the above methodological approaches, many of the problems that have plagued price perception research are lessened in this research.

While generality and realism of the study are important research concerns, price-perceived quality research has been inconclusive and fragmented, therefore it is important in this study to use an experimental factorial design to enhance precision in control and measurement of the dependent measures.

Five pretests were conducted to set the parameters of the study. The objectives of these pretests were to chose a set of products familiar to the subjects, choose a set of brand names and store names recognizable to the subjects, evaluate the quality perceptions of the different brand names and store names and to determine price manipulations.

The results of the study lend support to the extended conceptual model and its hypothesized relationships with the principal exception being the relationship of price-perceived value as moderated by perceived quality and sacrifice. The cognitive tradeoff in the data was dominated by the utility of sacrifice, rather than each having a strong influence at different price levels.

SIGNIFICANCE OF THE RESEARCH

It is hoped that this dissertation research increases knowledge of the price-perceived quality relationship. Additionally, it is expected that marketers may be better able to manage the informational cues of price, brand name, and store name to bring about more effective and efficient behavior by both consumers and marketers.

Knowledge

From a theoretical perspective the purpose of this research is two fold: (1) to test the above conceptualization of the price-perceived quality relationship as developed in Chapter II, and (2) to extend the conceptualization by examining how brand name and store name affect the perception of quality.

Using an experimental design, the principal objective is to maintain precision in controlling and measuring behavioral perception in order to gain a better understanding of the relationship within the conceptual model. To further assess the reliability of the measurements in price-perceived quality research, multiple constructs and multiple measures of these constructs are used.

The effect of price, brand name, and store name as product information cues has been examined only twice within one study (Andrews and Valenzi 1971, Render and O'Connor 1976). Other multi-cue research efforts used pairwise combinations of store name or brand name with price. The results have indicated that these three cues play a significant role in the perception of quality. To address the issue of realism, the subjects in this study made quality perceptions based on the three cues most often mentioned in the literature. A methodology utilizing a three way ANOVA

is used for examining troublesome three-way and two-way sta-
tistically significant interactions that have discouraged
the use of more sophisticated designs in the past. Since
most price-perception studies have not used no information
treatments, this methodology of dealing with statistical in-
teractions was not pertinent in past studies.

Practice

Today's competitive business environment places a premium
on a firm's ability to make good, fast, and frequent market-
ing decisions. Three important product information cues be-
lieved to influence consumer purchase behavior are examined
in this research.

The ability to place a product in stores with a suitable
image is not always directly controlled by the marketers of
the product. Typically a marketer may have to establish a
"track record" for the product before attaining the desired
store position for the product. In other cases, competitive
pressure may force the product to be more intensively dis-
tributed and thus lose, for instance, the appeal of being
exclusively in a "high image" store.

Brand name, similar to store name, is an entity that may
not be under the direct control of the manufacturing firm
but, rather, is managed through a marketing program over a

period of time. The objective of this program might be to associate high quality with the product name and thus allow the product to be more successful in a competitive market by being able to charge a "premium" price.

Conversely, price is different from store name and brand name in that it is more directly controlled by the marketer and, also the sudden impact of price changes is influential in the market. Price, as a part of the marketing mix, can be quickly adjusted to be consistent with the store name and brand name which change more slowly in their perceptual meaning. Price can also be manipulated in the market place to pull brand name and store name toward desired targets.

Today's manager needs to be more adept at understanding how to adjust price as the perception of a product's brand name and store positioning change over time or to find new target markets. Price perception studies need to focus on this relationship with brand name and store name to provide a model for practical use in today's marketing institutions.

In today's pricing environment there appears to be little latitude in making the wrong pricing decision. Pricing the product too low in the face of increasing developmental costs and shortening life cycles may diminish the necessary profits to cover the overall investment in the product. Pricing the product too high may seriously undercut the de-

mand for the product and thus jeopardize the ability to get sufficient returns to support the investment. It appears that price, while being directly controlled by management can be changed only in harmony with brand and store name.

Twelve years ago, Monroe (1973) observed that some problems in pricing are caused by the heavy reliance on the inverse price-demand function by price setters. It should be realized that a number of psychological and other contextual factors may lead to a perception of price by the buyer that is different from the perception assumed by the price setter. A decade later, this problem appears to persist. Much of what has been conceptualized in this research is of particular importance to the practitioner for better understanding the purchasing behavior of the consumer.

OVERVIEW OF CHAPTER II

Chapter II of this dissertation reviews the dissimilar paradigms for exploring the influence of price on consumer behavior, describes the conceptual model used in this research and reviews the price-perceived quality literature with the goal of isolating the conceptual and methodological issues of past research and formulates a research plan to overcome the problems raised in this chapter.

OVERVIEW OF CHAPTER III

By addressing the issues and propositions in Chapter II, this research should enhance our understanding of how consumer's perception of brand name and store name cues, as well as price, leads to an evaluation of product quality. The use of multiple indicators and no information treatments allow multiple approaches to interpreting the empirical results. The factorial design attempts to maximize precision in control and measurement of the variables.

OVERVIEW OF CHAPTER IV

A series of pretests was conducted to find the following parameters for use in phase II of the research.

1. Selection of calculators and stereo headset players as the experimental products on the basis of familiarity.

2. Selection of the brand names Hewlett Packard and Royal for calculators and Sony and Grand Prix for stereo headset players as high and low brand names based on quality perception.

3. Selection of the store names Virginia Tech Bookstore and Roses for the calculator and Best and K-Mart for stereo headset players as high and low quality stores.

4. Selection of prices of $17.00, $28.00, $39.00 and $50.00 as low, medium, high and too high prices respectively for the calculator and $34.00, $61.00, $88.00, and $115.00 as different price levels for the stereo headset players.

All the manipulations were set as a result of analyzing data collected from marketing management students, a population assumed to be similar to the groups used in phase II of the experiment.

OVERVIEW OF CHAPTER V

The fifth chapter begins with a description of the research instrument and how the experiemnt was conducted. Prelimary procedures prior to the data analysis were explained. The analysis of the data is described with a discussion of the results, that generally support the hypothesized relationship within the conceptual model. The strength of the support is disscussed in terms of a statistical and substantive context.

OVERVIEW OF CHAPTER VI

The concluding chapter summarizes the research with a discussion of the major findings and how these findings make a significant contribution to theoretical knowledge and marketing practice. A philosophical as well as a specific discussion on the limitations recognized in the research is followed by a plan for research that should be addressed in the future as part of a programatic investigation of this research paradigm.

SUMMARY

This chapter has introduced the need from a knowledge standpoint and a practioner's viewpoint to understand the relationship of price, brand name, and store name on the perception of product quality, value, and willingness to buy. A general overview of the conceptual model was given with a research plan to test this conceptualization. The significance of the research from both knowledge and practice perspectives was discussed. The chapter concluded with a brief introduction to each of the chapters in the dissertation.

Chapter II

REVIEW OF THE LITERATURE

OVERVIEW OF THE CHAPTER

This chapter reviews the literature that pertains to how price, brand name, and store name affect the evaluation of product quality.   In particular, the role that price plays in the consumer decision process, especially in regard to the perception of quality,   has not been adequately explained by past research.   Economists and behaviorists have developed dissimilar paradigms to explain the influence of price on consumer behavior.

The first part of this chapter reviews the economic and behavioral perspectives of the role price has in the perception of quality. The limitations of the economic theory are laid out, while the logic of the behavioral approach that overcomes these limitations is assembled from the literature.

The second part of the chapter describes the conceptual model used in this research.   The constructs of the model, perceived quality, perceived value, and willingness to buy are discussed in light of past research efforts and defined for this research.   Within this section, a review of past empirical research on the concept of acceptable price range

gives a logical explanation for the linkage of contructs within the conceptual model.

The last part of the chapter reviews the price-perceived quality research paradigm. The conceptual and methodological issues are isolated with a summary of recommendations for addressing the issues in this research.

THE ECONOMIC PERSPECTIVE

The economic model of buyer behavior assumes that the knowledge of prices for all goods, buyer's level of income, and buyer's taste and preference are the determinants of a buyer's purchase decision. Essentially, buyers have two decisions to make:

1. what products should be purchased, and

2. how much should be purchased of each product.

The quantity of each product to buy depends on

1. the price of that product,

2. the prices of all other products,

3. the income of the buyers, and

4. the buyers' tastes and preferences.

Given the prices of all products, and given the buyers' income, buyers make their purchases according to their own tastes and preferences.

As reviewed by Monroe (1979, p.23-24), the theory of buyer behavior based on the assumptions of rational behavior and utility maximization includes several additional assumptions about the buyer that would then justify the economic model of the downward sloping demand curve. The additional assumptions involving the economic model would be:

1. The buyer calculates deliberately and chooses consistently.

2. Deliberate choice rules out habit or impulse buying.

3. Consistent choice rules out vacillating and erratic behavior; the buyer acts predictably.

4. If the buyer prefers product A to product B, and prefers product B to product C, then consistency requires that (s)he prefers A to C.

5. Within these conditions of behavior, the buyer chooses so as to maximize utility.

6. To maximize utility the buyer knows all alternatives and is not ignorant about any aspect of the purchase.

7. Because of this perfect knowledge, there is never a gap between the satisfaction the buyer expects from a purchase and the actual fulfillment realized from the purchase.

8. Want and subjective utilities are not influenced by prices, i.e., higher-priced products do not provide

additional utility simply because of their higher prices.

9. Finally, it is assumed that total utility increases at a diminishing rate as more of a product or service is acquired.

These assumptions would then justify the economic model of the downward sloping demand curve.

Such curves, stating that as price rises demand decreases, and vice versa, form the basis for the economic theory of the market mechanism and for the pricing policy of business people. Shapiro (1968) notes the emphasis has characteristically been on such questions as "How much will unit volume increase if we cut the price?" and "If we raise the price will the additional revenue per unit more than compensate for the loss in unit volume?" However, the major criticisms of this model are the unrealistic assumptions of perfect information and perfect information processing by buyers.

Presumably it can be argued that buyers maximize their satisfaction by minimizing the price paid for each good. Economists see price as an indicator of sacrifice, but in general, do not consider price as an indicator of quality. Shapiro (1972) points out that the classical (economic) theory assumes given wants and preferences and further as-

sumes that these wants and preferences are independent of price. So, the change in quantity demanded is solely a function of the cost effect of price, not a function of perceptual changes caused by changes in price. The concern of economic theory with price and choice and not with price and perceived quality is explained by Scitovszky (1945, p100):

> Economists are wont to minimize the importance of the quality factor, fearing the havoc it may wreak with the whole theory of choice.

THE BEHAVIORAL PERSPECTIVE

The assumptions of the economic model, according to Scitovszky (1945) were probably reasonable in the early days of industrial capitalism when modern economic theory began. The range of consumer goods was limited and confined to staple commodities; and housekeeping required a thorough knowledge of its tools and raw materials. Whereas it was necessary for this buyer to be an expert in the markets where (s)he shopped, today's consumer is no longer an expert shopper. The rise in the standard of living has vastly expanded the range and variety of consumer goods and increased the share of complex technical commodities in the consumer's budget. As a result of these changes, the average consumer of today has become a layman not only when it comes to buying an automobile or a television set but also with respect

to prime necessities and household implements. Scitovszky concludes that the consumer of today has to judge quality by indices of quality such as price. Today, behavioral[1] science researchers, by relaxing the assumptions of perfect buyer information and information processing posit that buyers must make quality inferences from the information cues available, of which one is price.

As Scitovszky (1945) observed, the habit of judging quality by price, however, is not necessarily irrational. It merely implies a belief that price is determined by the competitive interplay of the rational forces of supply and demand; and this belief may be true or false. Thus, price might be used as an indicator of the qualities inherent in the product, and if so, a higher price may lead to a perception of greater product quality.

Shapiro (1968) cites two of the earlier price-perceived quality studies that contributed to the early thinking about this relationship. Leavitt (1954) and Gabor and Granger (1966) showed that customers use price as an indicator of quality. Using only price, other than alphabetic brand name labels, Leavitt found that a greater percentage of subjects

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[1] The term behavioral is being used to mean an approach to price behavior that embraces the thought of cognitive processes of the individual to be significant. It should not be confused with the behaviorist approach as suggested by Skinner.

chose the high priced alternative for the product categories with relatively high dissimilar brands than for products with more similar brands. A measure of satisfaction indicated that subjects tended to have more doubts when they chose the lower-priced brands than when they chose the higher priced brands. Leavitt suggested that demand curves may not invariably be negatively sloped, that price itself may have more than one meaning to a customer, and that a higher price may sometimes increase, rather than decrease his/her readiness to buy. One might guess that a high price may be an attracting instead of a repelling force for particular brands of many different brands of items. The Gabor and Granger study (1966), according to Shapiro (1968), provides a base for marketers and market researchers to use the concept of price as an indicator of quality. Although these conclusions were tentative, the thinking provided a starting point for more rigorous analysis.

Monroe and Petroshius (1981) note that following these initial studies, a number of research efforts were directed toward examining the effect of the price cue on subjects' perceptions of product quality and purchase offer attractiveness. In general the results of these studies support the conclusion that perception of product quality is positively related to price. Monroe and Krishnan (1984), in a

selective review of this research, quantitatively assessed the findings using meta analysis. From the limited data reported in each study, the quantitative integration of research strongly suggested that, in general, people do make positive inferences about product quality on the basis of price. Comprehensive qualitative reviews of the price-perceived quality literature by Monroe (1973) and Olson (1977) generally support the conclusion of a positive price-perceived quality relationship.

In an article by Knauth (1949, p.8), the strength of psychological pricing was summarized:

> In one case a retailer was able to purchase hosiery, having a normal market value of $2.00 per pair for about 65 cents a pair, and offered it at $ 1.00. A mere handful of customers responded. Why? Reasons were searched; the values were unquestioned; the advertising forceful and the day fair. But the price of $1.00 suggested just that value, as this is a normal price for medium-grade hosiery. Two weeks later, the same goods were advertised at $1.14, which suggested higher value with an enormous response.

The importance of the behavioral approach to the relationship of price-perceived quality is elaborated on in the following section that describes the conceptual model and the constructs to be used in this research.

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A CONCEPTUAL MODEL FOR PRICE-PERCEIVED QUALITY

Jacoby and Olson (1976) suggest that price as one of many objective external characteristics of a product is a stimulus that the consumer perceives. Therefore, price has both objective external properties and subjective internal characteristics that are derived from the perception of the price which results in some meaning to the consumer. This relationship is summarized by Jacoby and Olson (1976, p.4) in the following passage:

> A 79¢ price for toothpaste may be cognitively represented as "high priced" for some consumers and "moderately priced" for others, rather than as "79¢". Clearly, perceptions of the same objective price stimulus may vary considerably across consumers, and within one consumer, across products, purchase situations and time.

In the model as it is shown (Figure 1), the price is utilized as an objective price stimulus and also as a perceived price that carries the evaluative/affective aspect of the price information.

The perception of quality can be viewed as an input-process-output operation that influences the purchase decision. As shown in Figure 1, price may be used as an indicator of the amount of sacrifice needed to purchase the product, and also, price may be used as an indicator of quality. Thus as price increases, two essentially opposite perceptions are being evaluated by the purchaser. The perception of quality

and sacrifice based upon the price are then cognitively compared in a process of trading off the two inputs.

This tradeoff was observed by Scitovszky (1945) as a paradoxical situation where price is the index by which the average buyer judges quality. A commodity offered at a lower price than competing commodities would be both more attractive to the consumer on account of its greater cheapness and less attractive on account of its suspected inferior quality. The result of this cognitive comparison is perceived value. The perception of value in turn directly influences willingness to buy. Szybillo and Jacoby (1974) suggested this relationship in a hypotheses positing perceived worth, defined as value for the money, would have a stronger relationship with perceived likelihood of purchase than would perceived quality. A correlational analysis showed weaker correlation between perceived quality and willingness to buy for three products (.07, -.03, .49) than between perceived worth and willingness to buy (.72, .56, .46). The authors did not provide a post hoc explanation in the form of a conceptual relationship.

In a study of perception of product quality for a stereo FM cassette headset player, Dodds and Monroe (1985), found evidence that a price-perceived quality relationship existed. The conceptualized relationship of price to perceived

$$\text{O-Price} \longrightarrow \text{P-Price} \overset{+}{\nearrow} \text{PQ} \overset{+}{\searrow} \text{PV} \overset{+}{\longrightarrow} \text{WB}$$
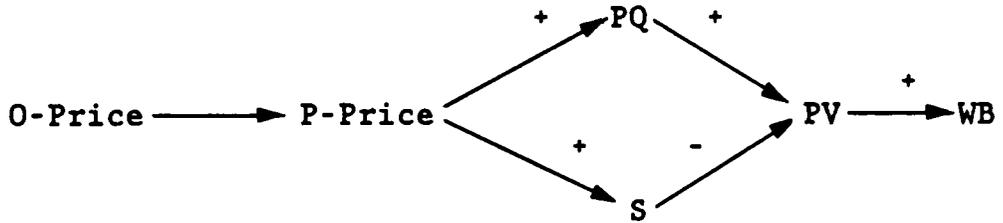
Where: O-Price is the objective price
P-Price is the perceived price
PQ is perceived quality
S is sacrifice
WB is willingness to buy
PV is perceived value

Figure 1:   Conceptual Relationship of Price and
Willingness to Buy

value and willingness to buy did not hold, but as a post hoc
explanation, this result may be due to the possibility of
the low- and high-price treatments being outside the sub-
jects' acceptable price range. A correlational analysis of
the data from this study indicates that the constructs, per-
ceived quality and willingness to buy, were slightly corre-
lated at .28, while perceived value and willingness to buy
were highly correlated at .84.

The conceptualization discussed above is empirically
tested along with an extension of this concept to include
the influence of brand name and store name in the perception
of product quality. This extended conceptualization is pre-
sented in Figure 2. As discussed earlier, the concept of
price had both subjective internal and objective external
characteristics. Hence, it appears logical that brand name
and store name, along with price, can act as a stimulus such
that the consumer will assign to the product some symbolic
meaning. Therefore in this conceptualization of perceived
product quality, it is argued that price, store name, and
brand name lead to perception of price, perception of store,
and perception of brand respectively, and that it is these
perceptions of the external product cues that will influence
the perception of product quality, value and thus determine
the consumer's willingness to buy.

In a quantitative assessment of the price-quality litera-
ture, Monroe and Krishnan (1984) observe that previous per-
ceived product quality conclusions indicate that brand name
information dominated price. However, they discovered that
price had a more positive effect on product quality percep-
tion when brand information was present than when brand in-
formation was absent. This finding suggests that the combi-
nation of price and brand information not only is strong,
but that the influence of price on quality perception be-
comes stronger in the presence of brand information than by
itself. Thus, the previous conclusion about brand name do-
minating the influence of price is incomplete. Since past
studies did not conceptualize the relationship in this man-
ner, the magnitude of the connection between price and brand
name has not been investigated.

Dodds and Monroe (1984) found that price in the presence
of brand name caused subjects to perceive the product to be
higher in quality and value, and to be more willing to pur-
chase the product than when brand name was absent. Not only
this, but the evidence is sufficient to argue that the brand
effect did not dominate price by its strong effect but en-
hanced the price effect.

BN ──────▶ P-Brand

SN ──────▶ P-Store

O-Price ──▶ P-Price

PQ

PV ──────▶ WB

S
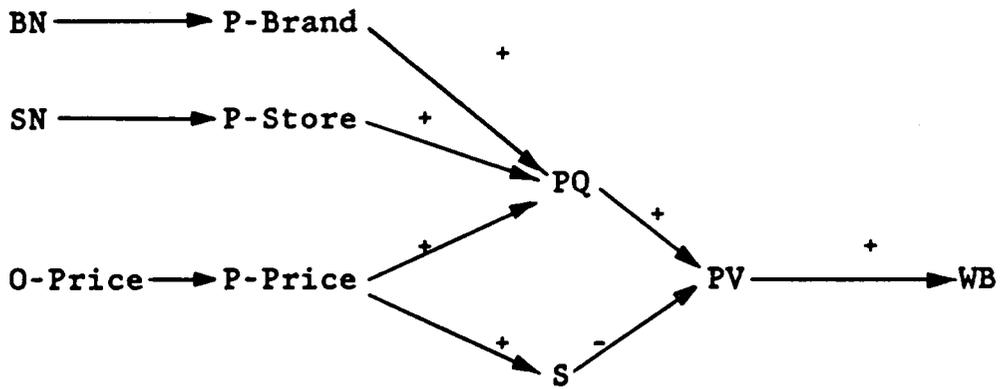
Where: BN is brand name
       SN is store name
       P-Brand is the perception of brand
       P-Store is the perception of store
       O-Price is the objective price
       P-Price is the perceived price
       PQ is perceived quality
       S is sacrifice
       WB is willingness to buy
       PV is perceived value

Figure 2:   Extended Conceptualization

Definitions of Constructs

Perceived Quality

Since we assume that buyers are not perfect information processors, then it follows that they will select a subset of information cues on which to base their perceptions of quality.   Information cues such as product characteristics, price, brand name, and store name or image are some of the cues used to form these impressions of product quality.

Past research efforts have done little to conceptualize the relationship between price and perceived quality. Olson (1977) writes that researchers seem to have examined the specific cues and products which interested them or which were readily available.   Few researchers have attempted to synthesize past efforts.   What is meant by perceived quality is not clear from past research as illustrated by the various operationalizations in past price-perceived quality literature.   There is a need to bring to a concensus what is meant by perceived-quality.

What is known about price and its effect upon perception of quality can be demonstrated by the way experiments have measured price effects and how price and other cues have been manipulated.   Many different definitions and, consequently, many different operationalizations of the perceived quality construct can be observed in past research.   As

shown in Table 1, 15 studies have measured only perceived quality. Four studies that have measured other operationalizations of perceived quality include type of store (Gardner 1970), sensory cues (Jacoby, Olson and Haddock 1971; Peterson 1970), and confidence in price (Lambert 1970). Finally two studies (Valenzi and Andrews 1971; Valenzi and Eldridge 1973) measured only sensory cues.

Olson (1977) suggests that quality perception may be merely another indication of overall attitude toward the product. For example, Deering and Jacoby (1972), Valenzi and Eldridge (1973), and Gardner (1974) all found significant, positive relationships between perceived quality and global measures of evaluations such as multi-attribute measures of attitude and overall affect toward the product.

Perception is the process by which one senses (in the form of seeing, hearing, touching, tasting and/or smelling) things (products and services) and attaches particular meanings to these sensations. Additionally, perception is influenced by individual needs, memories, and experiences. The dictionary definition of quality is: (Chaplin 1971)

1. A basic aspect of a sensation by means of which it is distinguished from all other sensations. Quality as used in this sense implies a difference in kind and not in degree.

TABLE 1

Dependent Measures in Price-Perceived Quality Studies

	PERCEIVED QUALITY				PERCEIVED VALUE					WILLINGNESS TO BUY				
	Perceived Quality	Type of Store	Sensory	Confidence in Price	Ease of Use	Attitude Toward Product	Acceptable Price Range	Value for the Money/ Perceived Value	Perceived Worth	Satisfaction	Willingness to Buy	Product Liking	Likelihood of Purchase	Choice
Andrews & Valenzi	x													
Cimbalo & Webdale	x													
Enis & Stafford	x													
Gardner - 1970	x	x									x	x		
Gardner - 1971	x					x								
Jacoby, Olson, Haddock	x		x											
Landon & Shafer	x													
McConnell	x													
Peterson & Jolibert	x													
Pincus & Walters	x													
Raju							x							
Rao														
Raxeisen	x									x	x			
Szybillo & Jacoby	x										x	x		
Valenzi & Andrews			x											
Valenzi & Eldridge			x											
Venkataraman	x													
Wheatley, Chiu	x													
Wheatley, Walton, Chiu	x												·	
Wheatley, Chiu, Goldman	x													
Wheatley, Chiu, Allen	x													
Gardner	x					x					x			
Lambert	x			x										
Lauridsen	x													x
Leavitt														x
Olson, Jacoby	x													
Peterson	x		x						x					
Petroshius	x							x			x			
Shapiro	x													
Tull, Boring, Gonsoir														x
Woodside	x				x									
Render O'Connor	x													

2. The relative level of goodness or excellence of any-
   thing.

The meaning of perception of quality could be stated as the
utility of all benefits gained by purchase. Therefore, the
perception of quality is an evaluation of the degree of ex-
cellence that a buyer attaches to a product or service based
on the interpretation of such sensory information. Thus,
the operationalization of the construct perceived quality
needs to incorporate the buyers' evaluation of the product,
store, or service in question.

Perceived Value

Monroe and Krishnan (1984) observe that price represents
a measure of sacrifice, but at the same time may also influ-
ence the perception of quality. These authors assert that
perceived value is a separate construct and represents a
trade off between the perceived quality of the product and
sacrifice required to obtain the product, where sacrifice is
seen as the utility of the monetary loss. Indeed twelve
studies, as shown in Table 1 have apparently measured a con-
struct similar to perceived value. The measurement of atti-
tude toward the product (Gardner 1971, 1974), ease of use
(Woodside 1974), acceptable price range (Raju 1977), value
for the money (Rexeisen 1982; Peterson 1970; Petroshius

1983,) and perceived worth (Rexeisen 1982, Szybillo and Jacoby 1972) may be considered as indicators of the trade off between perceived quality and sacrifice. However, what these studies have suggested, but not empirically shown, is that the price-perceived quality relationship occurs as a result of a complex process. That is, changes in price would affect the perception of quality and sacrifice. Yet at the same time other extrinsic cues, such as brand name and store image also influence the perception of quality, which as suggested above, is a determinant of buyers' perceived value. Therefore, the perception of value represents a cognitive tradeoff between the perceived quality, that is influenced by price, brand name, and store name and sacrifice, as influenced by the price, required to obtain the product. Hence, perceived product value could be seen as the utility of a product with regard to its possible purchase.

Willingness to Buy

Eight studies, in Table 1 have also measured willingness to buy as a part of the investigation of the price-perceived quality relationship. Willingness to buy was measured by such indicators as satisfaction (Cimbalo and Webdale 1973; Leavitt 1954), willingness to buy (Enis and Stafford 1969; Gardner 1970,1974; Szybillo and Olson 1972; Petroshius

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1983), product liking (Gardner 1970), and product choice (Lauridsen 1973; Leavitt 1954; Tull,Boring and Gonsior 1964). Only two studies used multiple measures of willingness to buy: willingness to buy and product liking (Gardner 1970); satisfaction and product choice (Leavitt 1954), while Petroshius (1983) used multiple indicators for the construct willingness to buy. Willingness to buy is used as a behavioral tendency which indicates the degree of liklihood of the subject to follow through on the outcome of the perception of value. Monroe and Krishnan (1984) conceptualized that willingness to buy was positively affected by perceived value. Their model linking these three contructs is presented next.

Linkages
Acceptable Price Range

The relationship of willingness to buy with the constructs of perceived value and perceived quality may be explained by the concept of the acceptable price range. Buyers generally have a set of prices that are acceptable to pay for a considered purchase rather than a single price. Therefore, a price may be unacceptable to pay if it is perceived to be either too low or too high. If a price is unacceptable to pay, then the inference is that there must

be little or no net perceived value in the offer (see Figure 3).

The concept that a buyer has a lower and upper price limit is derived from the area of psychophysics, the study of quantitative relationships between physical objects and corresponding psychological events. Human beings have upper and lower limits of response to physical stimuli such as sound where some sounds are either too low or high to hear. These low and high limits would constitute the absolute thresholds. It must be realized that these limits are not static, but rather, are changed by a variety of environmental stimuli including changing perceptions of price, brand name, and store name. This study will examine the change in acceptable price range due to the external cues of price, brand name, and store name.

Thresholds lead to the hypothesis that a buyer has lower and upper price thresholds, which implies that a buyer has a range of acceptable prices for a purchase. The research that establishes the empirical support for this hypotheses has been reviewed by Monroe (1973).

Monroe and Petroshius (1981) provided a link between the construct willingness to buy and the constructs perceived quality and value, where the authors observed that people apparently refrained from purchasing a product not only when

the price was considered too high, but will be suspect of the quality of a product if its price is too much below what they consider acceptable. The phenomenon of a buyer's refusal to buy if the price is too low is not considered in the economic theory of buyer behavior. Within the confines of this conceptualization, such a situation would occur where the utility inferred from the perception of quality is not greater than the utility to be sacrificed by paying the price.

Perception of Quality and Willingness to Buy

Even if there is a positive relationship between price and perceived quality, a researcher cannot make a direct inference between perceived quality and willingness to buy. The important point derived from this conceptualization is that perception of quality is seen as an evaluative process and is indirectly related to willingness to buy, which is a behavioral tendency. Therefore it would be questionable to infer perceived quality from a research setting that utilized product choice as the only dependent measure. Within the framework of this price-perceived quality conceptualization there is much research that needs to be done to provide a better understanding of this relationship and its influence on buyer behavior. We need to have better information on:
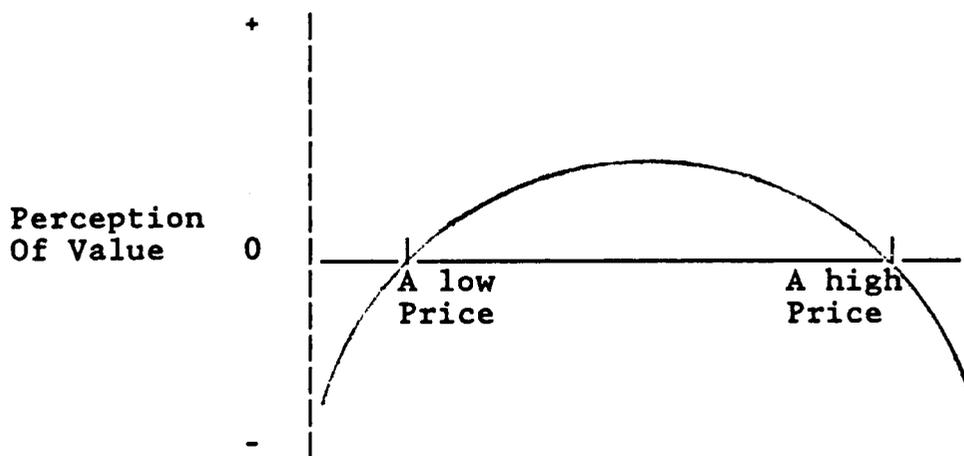
Figure 3: Conceptual Relationship Between Perception of Value and Price

1. How does the perception of different cues associated
    with the product influence the perception of quality
    by the consumer?

2. How does the perception of value change as additional
    information about brand name, store image or price
    becomes available?

3. What is the relationship between perceived quality
    and willingness to buy the product?

Theoretical Propositions for Product Quality Perception

From the preceding discussion of the conceptual model for
product quality perception and the three major constructs of
perceived quality, perceived value, and willingness to buy,
the following theoretical propositions are derived:

Propositions for Price Effects

1. There will be a positive relationship between buyers'
    perceived price and their perception of product qual-
    ity.

2. Buyers' perceptions of value will be positively re-
    lated to their perceived price for prices below the
    lower limit to a price within their acceptable price

range.   But,   as price   increases beyond this price,
there will be a negative relationship between buyers'
perceived price and their perception of product va-
lue.

3. Buyers' willingness to buy will be positively related
to their perceived price for prices below the lower
limit to a price within their acceptable price range.
But, as price increases beyond this price, there will
be a negative relationship between buyers' perceived
price and their willingness to buy.

Propositions for Brand Effects

1. The perception of product quality will be higher when
the buyers' perceptions of the product's brand name
is more favorable.

2. The perception of product value will be higher when
the buyers' perceptions of the product's brand name
is more favorable.

3. Willingness to buy the product will be higher when
the buyers' perceptions of the product's brand name
is more favorable.

Propositions for Store Effects

1. The perception of product quality will be higher when the buyers' perceptions of the store name is more favorable.

2. The perception of product value will be higher when the buyers' perceptions of the store name is more favorable.

3. Willingness to buy the product value will be higher when the buyers' perceptions of the store name is more favorable,

Propositions for Combined Effects and Consistency of Cues

1. Price and Brand Name

   a) Buyers' perceptions of product quality will be higher in situations where brand information is available and consonant with high price information than in situations where only price information is available.

   b) Buyers' perceptions of product quality will be lower in situations where brand information is available and consonant with low price information than in situations where only price information is available.

2. Price and Store Name

   a) Buyers' perceptions of product quality will be higher in situations where store name information is available and consonant with high price information than in situations where only price information is available.

   b) Buyers' perceptions of product quality will be lower in situations where store name information is available and consonant with low price information than in situations where only price information is available.

3. Price, Store Name, and Brand Name

   a) Buyers' perceptions of product quality will be higher in situations where store name and brand name information is available and consonant with high price information than in situations where only price and store name or price and brand name is available.

   b) Buyers' perceptions of product quality will be lower in situations where store name and brand name information is available and consonant with low price information than in situations where only price and store name or price and brand name is available.

These propositions argue that brand name and store name do not dominate price by their strong main effects, but rather will enhance the price effect. Past studies that varied brand information along with prices, generally, found a statistically significant brand name effect on quality perception, and a statistically insignificant effect due to price. (Monroe and Krishnan 1984) Therefore, price and brand name, price and store name, and price, brand name and store name will, if consistent, individually and additively influence the quality perception of products.

ISSUES IN PERCEPTION OF PRODUCT QUALITY

A Framework for Research

A useful framework for examining the evolution of the research on the price-quality relationship is McGrath and Brinberg's (1983) analysis of the research process. This framework, as shown in Figure 4, suggests that the price-perceived quality research should develop through three separate stages. Stage one involves the development, clarification, and selection of elements and relations within the conceptual, methodological, and substantive domains. An examination of the price-quality literature shows changes from single cue to multicue studies, some converging agreement upon the constructs of perceived quality, perceived value

and willingness to buy, and additional understanding of some of the important cues that affect the perception of quality. It is evident that as the other stages develop there is still a need for further development at this initial level to further clarify the basic elements of the research paradigm.

Stage two involves the combination and use of elements and relations from each of the three domains. It is probably best to describe the current state of price-perceived quality research to be following a path within McGrath and Brinberg's framework of building a set of observations and then explaining the research in terms of a set of meaningful concepts. The future of price-perceived quality research is to study the robustness of the stage two findings. The third stage would involve (1) replication efforts to determine if the price-perceived quality results can be reproduced if all facets of the research domains are kept the same, and (2) doing a systematic search for both the range and the limits of the price-perceived quality findings.

It can be observed that many of the price-perceived quality studies have floundered in stage two without any attempt to programmatically find the boundaries of the paradigm. What follows is a summary of a set of issues that have been drawn from the literature to guide exploration of the boun-

STAGE ONE: Prior validities as value

Development,clarification, and selection of elements and relations in the the conceptual, methodological, and substantive domains.

STAGE TWO: Internal Validities: validity as correspondence

Paths   Stage 2
                                                         outcome

  A   Step 1: Design ──► Step2: Implement ┐
(Experimental)
                                                        A set of
  B   Step 1: Hypothesis ► Step2: Test ───►empirical
(Theoretical)   findings

  C   Step1: Observations►Step2: Explain ┘
(Empirical)
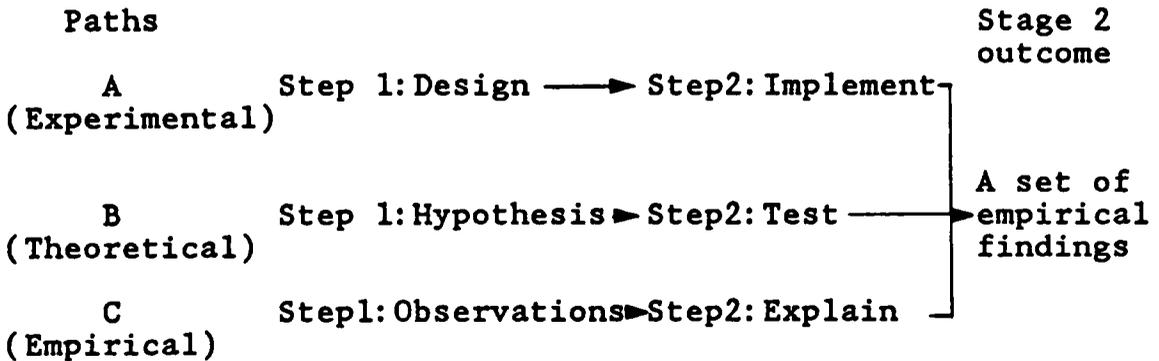
STAGE THREE: External Validities as Robustness

1. Replication: Will findings(of stage 2)be reproduced if
                all facets of all domains are kept the same?

2. Robustness analysis: Conceptual
   Does the finding hold?   Domain

                          with respect
       and   to all   Methodological
                          facets of   Domain

3. Boundry search:
   Where does it fail
   to hold?   Substantive
                                                      Domain
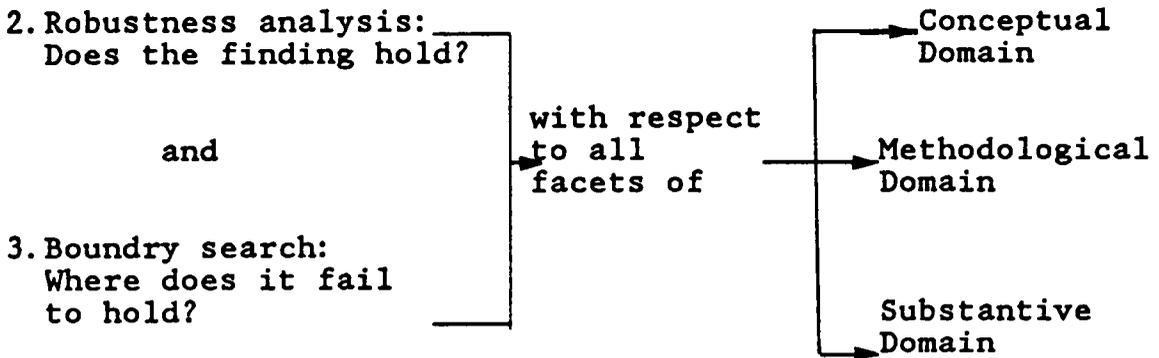
Figure 4:   A Framework for Research

Source: McGrath and Brinberg (1983)

daries of knowledge for the price-perceived-quality rela-
tionship.

The Price-Perceived Quality Paradigm

As early as 1945, Scitovsky (1945) suggested that in a
world of increasingly complex and technical products, con-
sumers find it difficult to be expert in judging the quality
of products that they use. Under such conditions, consumers
are likely to rely on various indices of quality, one of
which is price. Previous research on the relationship bet-
ween price and perceived quality can be examined in two
ways. First, single-cue studies generally have found a sta-
tistically significant price-perceived quality relationship.
However, Olson (1977) has documented the severe limitata-
tions of single-cue studies in that they are overly simpli-
fied and the results concerning price effects have doubtful
external validity, as well as in some cases, limited inter-
nal validity.

Second, the multi-cue studies have manipulated other cues
such as brand name, store image, and other information in
addition to price. Many of the multicue studies suggest
that the strength of the price-quality relationship depends
on other factors relating to the product (Monroe 1973).
While attempting to overcome the limitations of the single

cue studies, these multiple cue studies have typically found positive price-perceived quality relationships, although they have not always been statistically significant (Monroe and Krishnan 1984).

In a review by Olson (1977), the serious methodological and conceptual flaws of price-perceived quality research were noted. Confounding, the unintentional manipulation of two or more variables in a single independent variable, was a common problem. Thus the results of these studies which have a variety of alternative explanations may be of little value for understanding the price-perceived quality relationship. Moreover, demand characteristics, where subjects may have perceived the true purpose and hypotheses of the study and responded with product evaluations based upon these insights, were potentially present in many of the price cue studies.

Additional insight was gained when the inherent problems of previous price-perceived quality research were covered by Monroe and Krishnan (1984). These conceptual and methodological issues of research in price-perceived quality are summarized briefly with research recommendations in Tables 2 and 3.

TABLE 2

Conceptual Issues in Price-Perceived Quality Research

Issue: Stimulus Presentation

Problem: Observed variance in any experiment will be due not only to the manipulations of the independent variables but also to sensory, memory, and response variability.

Recommendation: Research efforts must attempt to isolate these sources of variance

Issue: Products

Problem: Research has rarely provided any explanation for product selection.

Recommendation: The confounds inherent in products can be better controlled through careful selection of the population of products and then randomly choose the products to be studied.

Price Treatment Issues:
Issue: 1. Price Levels

Problem: Price level and product represents a confound suggesting that price-perceived quality is a function of the price level of the product choosen. Much of the research has focused on inexpensive products.

Recommendation: Research needs to broaden the price/product combinations studied.

Issue: 2. Price Differences

Problem: If prices manipulated in a price-perceived quality experiment are not perceptually different, then not finding a statistically significant price-perceived quality relationship is inconclusive

Recommendation: Price differences must be pretested for perceptual differences.

TABLE 2

Conceptual Issues in Price-Perceived Quality Research -
continued

Issue: 3. Acceptable Price Range

Problem: Concept of range of acceptable prices helps to link
the perception of quality to willingness to buy through the
moderating variable perception of value.   Past research has
not always tested over the range of acceptable prices but
rather a small range of acceptable prices.

Recommendation: Research should test over the range of ac-
ceptable prices with prices also over and below this range.

Issue: 4. Order of Presentation

Problem: Most studies utilized a random presentation of
prices and thus produced a different and perhaps unknown
order effect.

Recommendation: Order of presentation must be constant
across treatment conditions or specifically manipulated.

Issue: 5. No Price Condition

Problem: Price present-absent studies are not conclusive.
These studies do not directly test the price-perceived qual-
ity relationship but instead test the marginal contribution
of price to buyer's product evaluations.

Recommendation: Both price absent and price present type of
manipulations must be utilized to determine: (1) the margi-
nal contribution of price, and (2) the effect of price dif-
ferences on buyer's product evaluations.

TABLE 2

Conceptual Issues in Price-Perceived Quality Research -
continued

Issue: 6. Price as a Between or Within Subjects Design

Problem: Past studies have sometimes used the inappropriate
design for the research issue in question.

Recommendation: Researchers must use a price manipulation
procedure that clearly operationalizes the type of price cue
being examined. Studies manipulating a price present-absent
condition should adopt a between-subjects design.   If price
information is manipulated by presenting subjects with actu-
al prices for different product samples to be judged, then a
within subjects design is appropriate, since the experimen-
tal situation created is analogous to the real world situa-
tion of examining and evaluating several different brands at
different prices.

TABLE 3

Methodological Issues in Price-Perceived Quality Research

Measurement Issues

Issue: 1. Scales

Problem: A plausible explanation for the variation in re-
sults of the price-perceived quality studies is the varia-
tion in rating scales used.

Recommendation: Multiple measurement procedures with the
same instrument.

Issue: 2. Multiple Indicators/Multiple Methods

Problem: Most studies treated perceived quality unidimen-
sionally, essentially prohibiting the assessment of reli-
ability and validity of the measures.

Recommendation: Use multiple measures of the dependent vari-
ables (multiple methods) and multiple indicators of each de-
pendent variable (multiple traits).

Issue: Independent Variables

Problem: The use of actual brand names and store names
represents additional differential information available to
subjects.   The magnitude of the effect of this differential
information on individual subjects may vary because of pre-
vious experiential information available in memory.

Recommendation: Potential confounds must be considered as
the manipulations are being determined and as much as possi-
ble controlled so the contribution to response variation can
be accounted for.

Conceptual Issues

Many of the conceptual issues that have been raised in price-perceived quality research are summarized in Table 2. What follows is a further discussion of some of the issues that are pursued in this research.

Sensory Cues

What senses are active in evaluating the perceived quality of a product? Being able to utilize taste, smell, visual, tactile, and audio senses should allow the consumer to get a multidimensional perspective of the product's perceived quality. Past research has not always allowed subjects to use a set of "normal" senses in evaluating the product. Additionally many studies have failed to control for the senses not being measured. For example, four studies of beer (Jacoby,Olson and Haddock 1971; McConnell 1968; Valenzi and Eldridge 1973; Valenzi and Andrews 1971) examined how price affects perception of quality where taste was used as a dependent measure. In all of these studies, however the taste sense was not isolated; the subjects were allowed to smell the products, see the products, and perhaps, hear the beer being poured into a glass. It must be argued that the variance accounted for when evaluating the price-perceived quality relationship through sensation of taste was not ex-

clusively produced by taste but by a combination of taste, smell, visual, and auditory senses. While it would be normal for beer consumers to be able to utilize these four senses in evaluating the quality , it is an interesting research question to partial out the variance due to sensory cues through a systematic series of manipulations. In this way, the variance of quality perception due to price and other characteristics of the product may be measured.

Products and Price Levels

Past research on price-perceived quality has utilized a variety of products. Prices have ranged from hundreds of dollars for appliances (Venkataraman 1981) to as little as $0.11 for table salt (Raju 1977). However, most products that have been utilized could typically be categorized as low to moderate in terms of prices. Also, only a few studies have attempted to explain why particular products were selected. Another concern is that the price levels of the products have been typically inexpensive. The research recommendation is to broaden the price/product combinations studied.

Price Differences

It was suggested by Andrews and Valenzi (1971) that in forming combined cue judgments about the expected quality of sweaters and shoes, price was clearly the dominant information. This finding is not consistent with the finding by Jacoby, Olson and Haddock (1971) that price cues had very little effect on quality judgments when embedded in a multi-cue situation including price, actual brand names, and tastes differences. Andrews and Valenzi offered an ad hoc explanation that prices for beer in the Jacoby, Olson, and Haddock study varied across a narrow range ($.99, 1.35, 1.60) while prices for sweaters and shoes ranged over a wide range ($7.00, 15.00, 30.00). This observation implies that the greater the amount of product price variation, the greater the potential influence of price cues.

Acceptable Price Range

In an earlier discussion, the concept of the range of acceptable prices helps to link the perception of quality to the willingness to buy through the moderating variable perception of value. Gardner (1970,1971) argued that selecting prices only from the acceptable price range is essential because eliminating extremely low and high prices removes a bias in favor of finding a price-perceived quality relationship. However, Monroe and Krishnan (1984) argue that se-

lecting prices only from the acceptable price range might result in a narrow price differential condition and thus might remove a condition where price has a positive effect on perceived quality.

No-Price Condition

Past studies have manipulated the price cue by providing subjects with different actual prices. Olson (1977) argued that from a theory-generating perspective, it might be more profitable to focus on the relative effects of price in general, rather than with specific levels of price. Therefore, Olson suggested that future research should manipulate the presence and absence of specific price information in order to interpret the effects of the price cue as a generic item of information by providing a baseline (provided by the the price-absent condition).

The price-absent condition provides a base line for examining the role price may play in buyer's evauations of products. But, it does not answer whether and to what extent price is used to judge product quality. Monroe and Krishnan (1984) argue this point in the following:

> The price-perceived quality hypothesis suggests
> that buyers will infer that higher-priced products
> are also of higher quality. This hypothesis spe-
> cifies a direction of relationship and also im-
> plies a comparative form of evaluation. Subjects
> exposed only to a no-price condition and asked to
> evaluate a product have no basis for judgement ex-

cept through the information provided by the researcher and information available from memory. Similarly, subjects exposed only to one price-present condition have little marginal information available on which to render a product evaluation. Testing the mean values in these two conditions, evaluates only the marginal contribution of price to buyers' evaluation of a product. It does not test whether buyers will impute greater quality for products that are higher priced than other products.

In summary, the following points are made:

1. The findings of price present-absent conditions are not conclusive;

2. it can be argued that the present-absent conditons studied do not directly test the price-perceived quality relationship;

3. but the present-absent conditions test the marginal contribution of price to buyers' product evaluations.

Price as a Between or Within Subjects Design

As argued in Table 2, it would be appropriate to use a between design in an experiment that has a no-price condition.

Methodological Issues

The methodological issues that have been raised in the price-perceived quality literature are summarized in Figure 3 What follows is a further discussion of some of these issues that are pursued in this research.

Measurement Isssues

These issues are discussed in chapter III under the section on dependent variables.

Independent Variables

The variables of price, brand, and store image have been studied with inconsistent results, but with convergent finding on the following relationships. Price, as a single cue is an indicator of quality. In multiple cue studies, brand interacts with price, as does store image, to give significant indicators of perceived quality. Brand and store independently have been also statistically significant. However, research has not adequately intrepreted the combination of brand name and store image with price, although two studies did examine this three way interaction with inconclusive results.

Price-Brand-Store Effects on Perception of Quality

Andrews and Valenzi (1971) and Render and O'Connor (1976) were the only studies to examine price, brand name, and store image as indicators of perceived quality. Because of the statistically significant three-way interaction, the main effects and two-way interaction effects in the Andrews and Valenzi study could not be interpreted. By using multi-

ple constructs, each with multiple indicators, and a no information treatment for each of the independent variables, it appears that higher order interactions can be pulled apart for the purpose of determining main effect sizes for price, brand and store name. The Render and O'Connor study (1976), while not having statistically significant interactions, used only 5 subjects per cell. Therefore, the acceptance of the results is questionable, since a post hoc calculation of power shows a 30% probability of confirming a true price effect and any of the interactions with price.

Monroe and Krishnan's review (1984) indicates that brand name and store name combine with the price cue to enhance the perception of product quality. What is not known is how store name and brand name join along with price to influence the perception of quality. While the examination of price, brand and store name in a single study can present troublesome problems, the use of no information cues for each independent variable can help to unravel these interactions such that the effects can be interpreted.

Brand Effects on Quality Perceptions

Olson's review (1977) noted that the effect of brand name generally was strong in the price cue literature, appearing both as a main effect and as an interaction effect. Howev-

er, a review of seven studies that examined price and brand effects reveals a lack of a consistent and clear relationship. Table 4 shows that differences in the types of products utilized, the price manipulations, and the brand manipulations offer plausible reasons for the mixed outcomes.

As interpreted by Raju (1977), the influence of brand name seems to depend on the way it is operationalized. In price and brand studies, the information about the brand is either a specific brand such as Sony, or the brand name is controlled by eliminating all information, i.e., using letters to denote brand names. This latter treatment simply neutralizes the effect. Rao (1971) did not manipulate brand so it is not known how information would react with brand, but found the information x price interaction to be statistically insignificant. Andrews and Valenzi (1971) operationalized brand name in terms of the degree of brand familarity. Render and O'Connor (1976), Peterson and Jolibert (1976), Raju (1977) and Wheatley, Walton and Chiu (1977) used actual names that can infer degree of brand familiarity. These studies provided a statistically or near significant brand x price interaction. Other researchers such as Gardner (1971) and Jacoby, Olson, and Haddock (1971) have operationalized brand mainly as a cue that was either present or absent. These studies did not yield a significant

TABLE 4

Summary of Price and Brand Effects on Quality Perceptions

Reference	Dependent Variables	Independent Variables	Products	ANOVA Design	Results (P-Values)				
					Price	Brand	Price x Brand	Price Manipulation	Brand Manipulation
Andrews & Valenzi (1971)	Perceived Quality	Price Brand Store	Sweaters Shoes	Within	.01	.01	.01	$7.00 15.00 30.00	Unknown Brand Moderately Known Brand Very Well Known Brand
Render & O'Connor (1976)	Perceived Product Quality	Price Brand Store	Shirts Desk Radio After-shave lotion	Between	.01 .01 .01	.25 NS .10	NS NS .05	$18.40,7.65 2.59;61.00 19.50,5.59; 49.09,3.19; .75	Van Heusen; Mac;Admiral, Realtone; English Leathe Mennen
Gardner (1971)	Perceived Prod. Qual. Willingness to Buy Attitude Toward the Product	Price Brand Product	Men's Dress Shirt Crest Tooth-paste Suit	Within	.50	.01	.30	$3.99, 5.25 6.50, 8.25; 10; 40.53; .58; .64; .69; .75; 60; 67.50; 75; 92.50; 110	Brand Absent Brand Present
Jacoby, Olson & Haddock (1971)	Perceived Quality & Sensory Perceptions	Price Brand	Beer	Within	.30	.25	.50	$ .99 1.35 1.68	Brand Absent Brand Present
Peterson & Jolibert (1976)	Perceived Quality	Price Brand Nationality	Soft Drink Concentrate	Between	.333	.004	.134	$ .29 .59 .89	Jet Bulls Jet 24
Raju (1977)	Overall Quality Durability Performance Exp. Satisfaction Exp. Post Purchase Satisfaction	Price Brand Product Familiarity	Stereo Receiver	Within	.01	.01	.01	$100, 130 175; 225; 250; 275; 325; 375; 400	Three Brand Names
Wheatly Walton Chiu (1977)	Overall Perceived Quality	Price Brand Prior Experience	Skis	Within	.01	.01	.10	$75.00 $165.00	Head Davos

price x brand interaction.   Raju concludes that the manipulation of brand name by degree of familiarity seems more desirable because for most products, the consumer is rarely in a situation where the brand name is not available

Monroe and Krishnan (1984) observe that previous conclusions indicate that brand name information dominated price information in the perception of quality. However, in their assessment of this literature they discovered that price had a more positive effect on product quality perceptions when brand information was present than when brand information was absent. This finding suggests that the combination of price and brand information not only is strong, but that the influence of price on quality perception becomes stronger in the presence of brand information than by itself. Thus, this previous conclusion about brand name dominating the influence of price is incomplete. Since past studies did not conceptualize the relationship in this manner, the magnitude of the connection between price and brand name has not been investigated.

Store Effects on Quality Perception

It would seem plausible to expect a statistically significant store main effect since store cues are likely to affect customers' product evaluations.   Also since stores are

often classified on the basis of price level such as depart-
ment stores and discount stores, a confound in the manipula-
tion would be expected.   As shown in Table 5, these results
have not been consistently produced.   Landon and Shafer
(1974) in a replication of Stafford and Enis' study (1969)
found the significant interaction between store image and
price obtained by Stafford and Enis was not reproduced in
their study.   Five of the six studies showed statistically
significant store effects while two of these studies showed
a statistically significant interaction of store image with
price, there was little consistency in results since only
two studies agreed with the intuitive reasoning for both
significant main and interaction effects.

Enis and Stafford (1969) hypothesized the interaction ef-
fects of price and store would be significant in influencing
product quality judgements. With a statistically non-signi-
ficant store effect but a statistically significant price x
store interaction, the authors concluded that the addition
of store image as information affected the respondents'
price based perception of product quality even though store
information per se had no significant effect on product
quality perception. Enis and Stafford also found an inverse
relationship of store prestige level and product quality
perception for the low priced carpet.   This suggested that

TABLE 5

Summary of Price and Store Effects on Quality Perceptions

Reference	Dependent Variables	Independent Variables	Products	ANOVA Design	Results (P-Values)			Price Manipulation	Store Manipulation
					Price	Store	Price x Store		
Andrews & Valenzi (1971)	Perceived Quality	Price Store Brand	Sweaters Shoes	Within	.01	.01	NS	$7.00 $15.00 $30.00	Discount Department Luxury (actual names)
Render & O'Connor (1976)	Perceived Product Quality	Price Brand Store	Shirts Desk Radio After shave lotion	Between	.01 .01 .01	.10 NS .05	.25 NS NS	$18.40;7.65 2.59;61.00 19.50;5.59; $9.09;3.19; .75	M&S Pogue, Zayre
Enis & Stafford (1969)	Perceived Quality	Price Store	Household Carpet	Within	.00	.25	.001	High Low	-High Prestige -Low Prestige
Enis & Stafford (1969)	Perceived Quality	Price Store	Household Carpet	Within	.01 .01 .05	.25 NS NS	.01 .05 .25	High Low	-High Prestige -Low Prestige
Landon & Shafer (1974)	Perceived Product Quality	Price Store Image Risk	Household Carpet	Within	.01	.01	NS	High Low	-High Image -Low Image
Szybillo & Jacoby (1974)	Perceived Quality Perceived Worth Perceived Likelihood of Purchase	Price Store Image Product Sample	Pantyhose	Within	NS	.01	NS	$0.98 1.67 2.49	High Quality Low Quality (actual names)

store image of a "prestige store" might be harmed by a line of low-priced merchandise.

The operationalization of store image has used terminology such as high prestige, high quality, and high image. Multicue studies that manipulate price and store have typically built information into the store variable by giving verbal cues as to the quality of the store (Enis and Stafford 1969; Landon and Shafer 1974; Szybillo and Jacoby 1972; Wheatley and Chiu 1977). Thus a store image might be operationalized as a high prestige or low prestige store. It is not clear from the reported research whether these types of manipulation give the same effect on quality perception. For instance, does high prestige versus high name give the same perceptions of quality given that all the other variables are held constant? Additionally, it is not known how strong these manipulations are in comparison to using discount stores or department stores or using actual store names that are known to the subject population.

SUMMARY

This chapter has focused on the conceptual, methodological and substantive issues in the perception of product quality. Tables 2 and 3 isolate the conceptual and methodological issues of this research paradigm. Tables 4 and 5

summarize the literature on price-brand and price-store effects on the perception of product quality. The discussion that focuses on these tables makes it clear that more work is necessary in the conceptual, methodological, and substantive areas.

Chapter III lays out the research design and methodology that is necessary to mold the conceptual model, propositions, and issues into an empirical experiment. Most important is the link provided by the theoretical propositions and operational hypotheses that tie together the conceptualization of perception of product quality and the empirical research design to test this concept.

Chapter III

RESEARCH DESIGN AND METHODOLOGY

OVERVIEW OF THE CHAPTER

This chapter extends Chapter II by operationalizing the theoretical hypotheses that are empirically tested in an experimental setting. From a practical point of view this research enhances our understanding of how consumers use brand name and store name cues, as well as price, as a means of evaluating product quality.

The first part of the chapter develops the operational hypotheses for each of the three information cues, price, brand name, and store name as they influence perceived quality, perceived value, and willingness to buy in the conceptualization presented in Chapter II. Additionally, hypotheses are made about the combination of these cues and the effects of the overall consistency of the three independent variables.

The second part describes the research designs used with a discussion on how they resolve the questions posed by the hypotheses. The linkage of the analysis to the operational hypotheses is then explicitly described. The ability to unravel the design and the use of ANOVA, multiple comparisons, and effect sizes allows the researcher to find suitable interpretations of the main and interaction effects.

The third part of the chapter presents the research plan for operationalizing the independent variables, measurement of the dependent indicators, recruitment of subjects, and collection of data.

The last section is a critique of the methodology that discusses the tradeoffs that are made, with recognition of those weaknesses that become a part of the research.

HYPOTHESES

At this point it is necessary to convert the propositional statements of Chapter II into hypotheses. What is now necessary, according to Dubin (1976), is to substitute operational terms into the statements of the propositions so that a parallel statement, called an hypothesis becomes empirically testable. The author goes on to state that the operationalizing of the terms of a proposition to make an hypothesis is a very crucial stage in the theory research cycle. While notions of validity have been debated at this stage, it should be pointed out that the empirical indicators chosen by researchers are a matter of consensus and not validation (Dubin 1976).

Based on the conceptualization of the price-perceived quality relationship, the theoretical propositions, and the review of the issues from the research on the perception of

price-brand cues and price-store cues, the following hypotheses are examined:

Price Effects H1:

1. As price increases from a low priced model to a higher priced model, subjects' perception of product quality, ceteris paribus, will also increase.

2. As price increases within the subjects' acceptable price range from the low priced model to the higher priced models, subjects' perception of value will increase and then decrease. Additionally, as price increases to a model perceived to be too high in price, subjects' perception of value will continue to decrease.

3. As price increases within the subjects' acceptable price range from the low priced model to the higher priced models, subjects' willingness to buy will increase and then decrease. Additionally, as price increases to a model perceived to be too high in price, subjects' willingness to buy will continue to decrease.

As price increases it would be expected that perceived quality would continue to increase. But at some acceptable price, perceived value and, also, willingness to buy would

both decrease because the sacrifice demanded becomes too im-
portant in the tradeoff with perceived quality. Thus, it
would be expected that perceived value and willingness to
buy would decrease after first increasing.

Brand Effects H2:

1. Subjects' perception of quality will be greater in
    situations where the perception of brand name is more
    favorable than in situations where it is less favora-
    ble.

2. Subjects' perception of value will be greater in si-
    tuations where the perception of brand name is more
    favorable than in situations where it is less favora-
    ble.

3. Subjects' willingness to buy will be greater in situ-
    ations where the perception of brand name is more fa-
    vorable than in situations where it is less favora-
    ble.

Store Effects H3:

1. Subjects' perception of quality will be greater in
    situations where the perception of store name is more
    favorable than in situations where it is less favora-
    ble.

2. Subjects' perception of value will be greater in situations where the perception of store name is more favorable than in situations where it is less favorable.

3. Subjects' willingness to buy will be greater in situations where the perception of store name is more favorable than in situations where it is less favorable.

Combined Effects and Consistency Cues H4:

1. Brand Name and Price

    a) If the brand name information is perceived by the subject to be consistently high with the price (high price and high brand name perception), then this information will cause subjects to perceive the product to be higher in product quality than in a condition where brand name is absent.

    b) If the brand name information is perceived by the subject to be consistently low with the price (low price and low brand name perception), then this information will cause subjects to perceive the product to be lower in product quality than in a condition where brand name is absent.

2. Store Name and Price

a) If the store name information is perceived by the subject to be consistently high with the price (high price and high brand name perception) then this information will cause subjects to perceive the product to be higher in product quality than in a condition where store name is absent.

b) If the store name information is perceived by the subject to be consistently low with the price (low price and low brand name perception) then this information will cause subjects to perceive the product to be lower in product quality than in a condition where store name is absent.

3. Brand Name, Store Name, and Price

a) If the brand name and store name information is perceived by the subject to be consistently high with the price (high price, high brand name and store name perception), then this information will cause subjects to perceive the product to be high‒er in product quality than in a condition where either brand name or store name or both are ab‒sent.

b) If the brand name and store name information is perceived by the subject to be consistently low with the price (low price, low brand name and

store name perception), then this information will cause subjects to perceive the product to be lower in product quality than in a condition where either brand name or store name or both are absent. Additionally, an exploratory analysis will be conducted to examine how inconsistent information (e.g. high price and low brand name perception) influences the perception of quality. The marginal contribution of extrinsic cues such as price, brand name and store name on buyer's product evaluation will be examined.

METHODOLOGY

McGrath (1982, p74) asserts that it would be desirable to maximize (1) generality with respect to populations, (2) precision in control and measurement of variables, and, (3) realism of the context within which these behaviors are observed. However, this maximization is not possible, but rather, depending on the research objective, one would chose to optimize one or two of these conditions at the expense of minimizing the other(s), as shown in Figure 5.

McGrath (1982) pointedly makes this clear in the following passage

> To maximize on one desideratum (boldly grabbing that horn) is to have relatively unfavorable levels of the other two (that is, to get part way impaled on both of the other two horns). Conversely, to optimize between two desiderata (snugly

Obstrusive
Research
Operations

B

Laboratory
Experiment

Experimental
Simulations

Judgement
Tasks

II

II

Field
Experiments

III

I

Sample
Surveys

III

I

Field
Studies

IV

IV

C

A

Formal
Theory

Computer
Simulations

Unobstrusive
Research
Operations

Universal
Behavior Systems

Particular
Behavior Systems

Figure 5:   Research Strategies
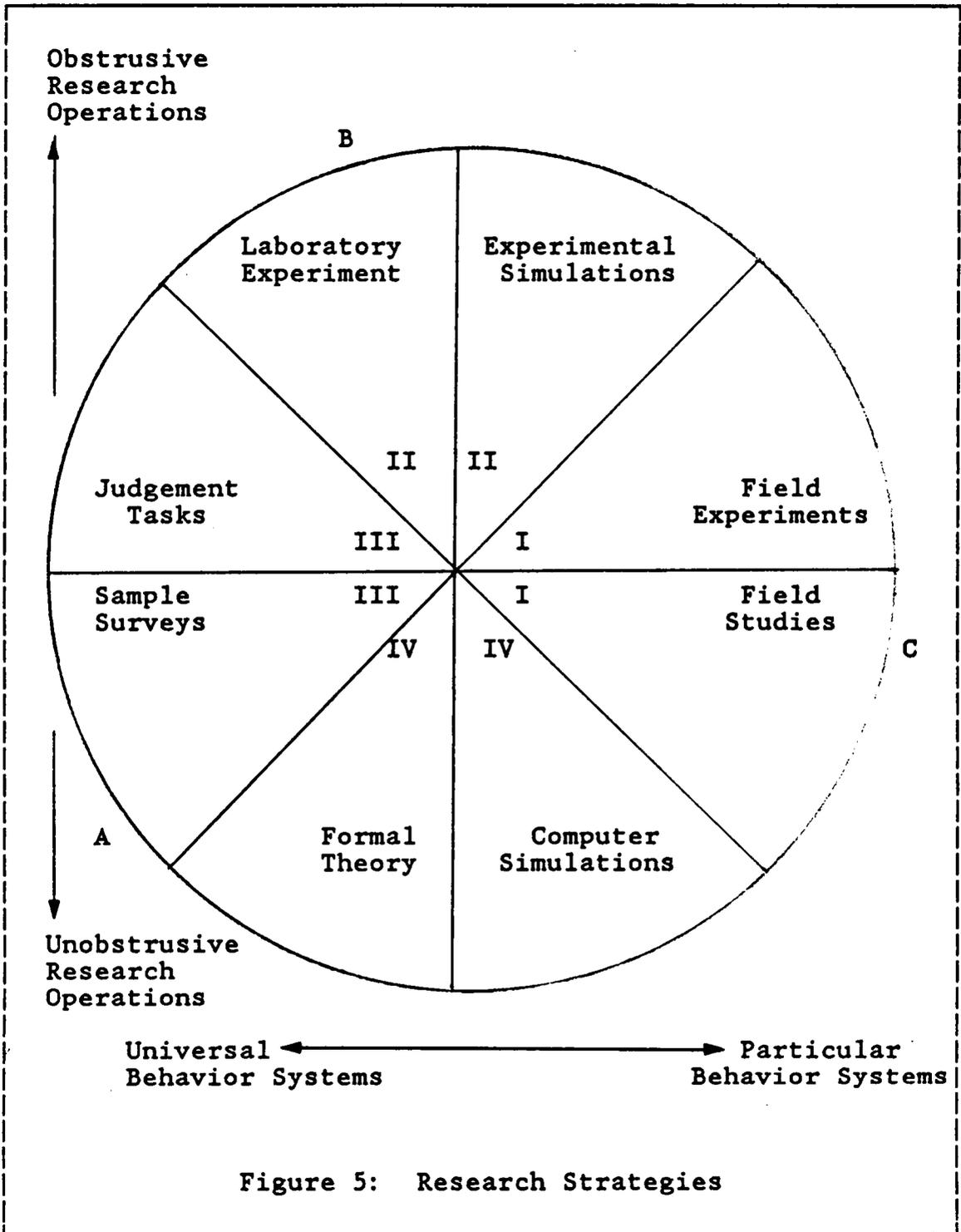
Key to Figure

   I. Settings in natural settings
  II. Contrived and created settings
 III. Behavior not setting dependent
  IV. No observation of behavior required

  A. Point of maximum concern over population
  B. Point of maximum concern with precision
     of measurement of behavior
  C. Point of maximum concern with system
     character of contexct (setting

Source: McGrath (1982)

  Figure 5: Research Strategies - continued

fitting between those two horns) is to guarantee a minimum on the third desideratum (that is, to get impaled, to the hilt, on the third horn).

Since historically, price-perceived quality research has been fragmented and inconclusive it would seem imperative to choose a research strategy to focus on precision in control and measurement of variables. A secondary, but important concern would be to minimize the problems of realism and generality. In sum, it is argued that internal validity has strong priority over external validity in this study.

The choice of a factorial experimental design comes from the stage of the paradigm development that looks for robustness and the boundaries of the price-perceived quality concept. The information cues of price, brand name and store name are manipulated to examine the main and interaction effects on the subjects' perception of quality and value and willingness to buy.

The factorial designs in Figure 6 allow partial replication of the past price-perceived quality studies, and offer a model of the cognitive process that leads up to product choice. In Figure 6, price is crossed with brand name and store name in a three-way between factorial design. Five price manipulations are used where one manipulation is a no price information treatment. The four treatments, where price information is offered, allows the analysis of the

price main effect hypothesis as well as presenting different conditions for testing the brand and store name main effects.

Brand name and store name is operationalized where subject perception of the variables have either high or low favorable perceptions. Additionally, brand name and store name variables both have a no information manipulation. By adding absent conditions to the design, four important concerns are addressed.

1. The relative effects of the three extrinsic cues can be evaluated. One cell (#45), where no extrinsic information (price, brand name or store name) is provided sets a base line of quality perception in the absence of any extrinsic product information. The influence of the individual cues then can be compared to this base line, and with each other. Additionally, the marginal effect of combining cue information (price-brand name, price-store name, brand name-store name, and price-brand name-store name) can be evaluated. By measuring these effects in an incremental fashion, the research provides a better understanding of how these three cues influence product perception.

2. The design can be pulled apart into sub-designs to re-examine the strategies of past studies of price,

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BRAND NAME	PRICE					STORE NAME
	TOO HIGH	HIGH	MEDIUM	LOW	NO PRICE	
HIGH	1	2	3	4	5	HIGH
HIGH	6	7	8	9	10	LOW
HIGH	11	12	13	14	15	NO
LOW	16	17	18	19	20	HIGH
LOW	21	22	23	24	25	LOW
LOW	26	27	28	29	30	NO
NO	31	32	33	34	35	HIGH
NO	36	37	38	39	40	LOW
NO	41	42	43	44	45	NO

Note: The number in each cell represents a cell number.

Figure 6:   Research Design

price-brand, price-store and price-brand-store studies in a situation where product, sample population and independent measures are held constant. Additionally, this strategy examines the influence of brand name and store name, in the absence of price information, on the perception of product quality.

3. It is possible to examine price, brand name, and store name main effects without being concerned with statistically significant interactions since appropriate sub-designs can be analyzed where the interaction is removed. In addition, for significant interactions, a plot of cell means are shown with an interpretation.

4. The design in this research indirectly addresses the issue raised by Enis and Stafford (1969) that the name of prestigious stores might be harmed by a line of low priced merchandise. While this research does not measure perception of stores, the perception of low priced products in high prestige stores could be indirectly related to the perception of the store. Also, it is possible to test whether the brand image of a prestigious brand might be harmed by a low price or placement in a store with low image.

RESEARCH PLAN

The research proceeds in two phases. The first phase concentrates on

1. choosing a population of products that subjects are familiar and/or knowledgeable about,

2. choosing a population of brand names and store names that are recognized by the subject populations,

3. evaluating the quality of brands (e.g. high and low quality brands),

4. evaluating the quality of stores (e.g. high and low quality stores),

5. and setting the price manipulation such that it covers the acceptable price range of the subject population.

Phase two would test the price-brand-store-perceived quality relationship. This research examines the influence of external information cues of price, brand name, and store name on the perception of product quality. It is argued that since these cues are external to the product itself then the assumption is made that any internal product characteristics should be held constant. Therefore this research proceeds with a method of stimulus presentation where internal product cues are held constant. Since the presence of a product may intrigue a subject more than any of the ex-

ternal cues of this research, only the product description will be used to control for intrinsic cue information.

As discussed above, several studies evaluated perceived quality on one sensory cue (e.g. taste), but failed to control for the other senses (such as touch and smell). This type of study could be seen as a case of under control of sensory variance. In other studies, subjects were given a product description but were not exposed to any of the sensory cues that would be normally used in evaluating quality in a product choice situation. This situation could be typlified as over control.

In regard to the concern of realism it would be important to assess the effects of over and under control. Future research should be conducted where subjects in the experimental cells would be allowed to utilize different combinations of sensory cues in evaluating products.

Sample and Products Used

It has been debated whether or not it is methodologically acceptable to use students as subjects (Calder,Phillips,Tybout 1981,1982,1983 and Lynch 1982,1983). There appears to be reasonable grounds for using a college student population. The need to build realism and generality is of importance, but, since the objective of this re-

search is to test theoretical propositions and not to generate findings that can be directly applied to a particular situation, as Calder, Phillips, and Tybout (1981) suggests homogeneous respondents are desired to allow for more precise theoretical understanding. As argued by Petroshius (1983), a more representative sample of the population is not necessary since statistical generalization of the findings is not the goal. Any relevant sample such as students provides a test of the suggested propositions and allows for the theoretical findings to be interpreted.

In phase one, about 140 subjects were used to choose a population of brand names and store names that are recognized by the subject population, evaluate the quality perceptions of these brands and stores, and assess the acceptable price range for the different brands.

Phase two was planned to have 630 subjects with 14 subjects per cell. Subjects would be randomly assigned to treatment groups and be asked to evaluate product quality, value, and willingness to buy for a particular set of extrinsic cues. Subjects would then repeat this evaluation process for another product. In addition, subjects would be asked to respond to questions that measure the way consumers shop and their feeelings about shopping. Information pertaining to the research hypothesis would be obtained from

the subjects by the researcher repeating the data collection during several sessions. After responding to the specific treatments, subjects would provide information about their demographic characteristics and their past experience with the product. Manipulation checks would be made for the independent variables. Subjects would be asked what they thought the researcher was trying to determine in the experiment with the purpose of ascertaining whether any of the subjects had any knowledge of the manipulations of the independent variables or of the price-perceived quality relationship.

Subjects were recruited from marketing managnement classes at Virginia Polytechnic Institute and State University with an inducement of two extra credits to be added to the final average of those students who cooperate in completing the experiment. In research by Dodds and Monroe (1984), this method of recruiting subjects was sucessful in obtaining a 90% response rate from the solicited population. Phase one subjects were recruited in the same manner.

The selection of a population of products was guided by the considerations used by Petroshius (1983):

1. The subjects should be potential purchasers and/or users of the products.

2. The products should represent different price ranges to increase the generalizability of the findings across product categories.

3. Since it is desired to use subjects of both sexes in the study, the product should normally be used by both males and females to avoid sexual bias.

Dependent Variables

The three theoretical constructs, perceived quality, perceived value and willingness to buy discussed above are used as the dependent variables. To be able to assess the reliability of the measures, multiple indicators are used for each construct.

A measure is reliable to the extent that independent but comparable measures of the same trait or construct of a given object agree. Reliability depends on how much of the variation in scores is attributable to random or chance error. (Churchill 1979) While the fundemental objective in measurement is to produce scores which approximate true scores as closely as possible, the true score is never known for sure and, therefore, measures are always inferences. The quality of these inferences, according to Churchill, depends directly on the procedures that are used to develop the measures and the evidence supporting their "goodness."

Past research in price perception research has typically not used multiple measures; therefore the assessment of reliability and validity has not been done. Churchill (1979) points out three measurement differences that are attributed to single-item measures and how these problems can be diminished with multi-item measures:

1. Individual items usually have considerable uniqueness in that each item tends to have only a low correlation with the attribute being measured and tends to relate to other attributes as well. With multi-item measures, the uniqueness of the items can be averaged out when they are combined.

2. Single items tend to catergorize people into a relatively small number of groups. For example, a seven point rating scale can at most distinguish between seven levels of an attribute. Multi-item measures allow combining of items where one can make relatively fine distinctions among people.

3. Individual items typically have considerable measurement error; they produce unreliable responses in the sense that the same scale position is unlikely to be checked in sucessive administrations of an instrument. With multi-item measures, the reliability tends to increase and measurement error decreases as the number of items in a combination increases.

In research conducted by Dodds and Monroe (1984), multi-item measures were used to assess the three constructs, perceived quality, perceived value, and willingness to buy. To assess the reliability of the measures, a correlation analysis and a factor analysis with a varimax rotation was performed on the fourteen dependent variables. Table 6 illustrates the variety of indicators and how they were grouped together to describe the three constructs.

While essentially the same scale will be used in this research, the method of purifying the measures will follow the measurement model that is described below. The goal of most scientific research is the investigation of the relations among variables which are constructs such as attitudes or perceptions. Before these relationships can be analyzed, the variables of interest must first be measured. As discussed above, the observed measurements are never perfect but, rather, indirect estimates of the intended construct. The measurement model specifies the causal relations between the theoretically defined variables of interest and the responses to the observed variables, which are presumed to be determined by the theoretical variables. A measurement model for the three constructs, perceived quality, perceived value, and willingness to buy, was developed and the measures evaluated and purified in the following manner. In

TABLE 6

Example of Multiple Indicators for Three Constructs

PERCEIVED QUALITY

The likelihood that the SONY WALKMAN FM stereo cassette headset player will be reliable is:(very high to very low).

The workmanship of the SONY WALKMAN FM stereo cassette headset player appears to be:(very high to very low)

This SONY WALKMAN FM stereo cassette headset player appears to be of: (very good quality to very poor quality)

The likelihood that this SONY WALKMAN FM stereo cassette headset player is dependable is:(very high to very low)

This SONY WALKMAN FM stereo cassette headset player would seem to be durable.(strongly agree to strongly disagree)

PERCEIVED VALUE

This SONY WALKMAN FM stereo cassette headset player is a: (very good value for the money to very poor value for the money)

At the price shown this SONY WALKMAN FM stereo cassette headset player is:(very economical to very uneconomical)

I would consider this SONY WALKMAN FM stereo cassette headset player to be a good buy.(strongly agree to strongly disagree)

The price shown for this SONY WALKMAN FM stereo cassette headset player is :(very acceptable to very unacceptable)

TABLE 6

Example of Multiple Indicators for Three Constructs -
Continued

PERCEIVED VALUE

I would consider this SONY WALKMAN FM stereo cassette
headset player to be:(very expensive to very inexpen-
sive)

This SONY WALKMAN FM stereo cassette headset player
appears to be a bargain.   (strongly agree to strongly
disagree)
WILLINGNESS TO BUY

The likelihood that I would not buy this SONY WALKMAN
FM stero cassette headset player but continue to
search for a SONY WALKMAN FM stereo cassette headset
player is :(very high to very low)

The likelihood that I would purchase this SONY WALKMAN
FM stereo cassette headset player is :(very high to
very low)

If I were going to buy a SONY WALKMAN FM stereo cas-
sette headset player, I would consider buying this mo-
del at the price shown. (strongly agree to strongly
disagree)

general, a measurement model is evaluated by comparing the observed correlations between the variables with the correlations predicted by the model. The residual matrix, which is the difference between the correlation of the observed data and the the correlation reproduced from the model, contain values near zero when a good fit exists, whereas values greater than zero indicate some degree of a lack of fit or meaning the indicators are measuring more than one trait.

While the above description gives a global view of this approach, more specific procedures need to be explained. From a substantive viewpoint of theory building, according to Gerbing and Hunter (1982), the most important criterion is content. The authors argue that each item should be concise and unambiguous, and their meaning of all the items in a cluster should be similar. The items should be worded so that they do not discriminate between the individuals in the sample. If everyone agrees or everyone disagrees with an item, the item would have no variance and, thus, would not correlate with anything else. In summary, the first step of this analysis specifies that items should not be mixed together in the same construct unless the items share a specific and common meaning. The items in table 6, tend to conform to this requirement and are used in this research.

The patterning of the item correlation or covariance structure is the key idea underlying the statistical evaluation of a measurement model.   Not only must the constructs show homogeneity of content, the observed correlations must conform to the product rules of internal and external consistency.

Hunter and Gerbing (1982) outline the statistical test for internal consistency.   If all the items in a cluster(construct) measure the same factor, then the correlations between the items will satisfy a product rule for internal consistency.   If Xi and Xj are two items in the same unidimensional cluster and T is the cluster true score, then the correlation between the items should satisfy the product rule:

$$r(Xi\ Xj) = r(Xi\ T) \times r(Xj\ T)$$

That is, the correlation between two items in the same cluster should be the product of their correlations with the underlying trait.

This research tests for internal consistency by:

1. Estimating the factor loading $r(Xi\ T)$ from the data, and

2. determining whether the product rule reproduces the inter-item correlations.

A rough test is to examine whether all the items have about the same correlation (factor loading) with the cluster true score, if so, then any two items within a cluster will have about the same correlation.

A second test, for external consistency (parallelism), specifies how items composing a unidimensional cluster should correlate with variables outside of the cluster. As used by Hunter and Gerbing, the general statement of parallelism is that the items in a unidimensional cluster have similar patterns of correlations with items in other clusters or other traits. The formal statement of parallelism, called the product rule for external consistency is shown below:

$$r(Xi\ U) = r(Xi\ T)\ x\ r(T\ U)$$

where $r(Xi\ U)$ is the correlation between an item in one construct and another construct, $r(Xi\ T)$ is the correlation between an item in one construct and that construct, and $r(T\ U)$ is the correlation between the two constructs. A second version of the product rule for external consistency reproduces the correlation between two items in different constructs.

A rough test is to examine whether all the items in a construct have about the same correlations with another construct, if so, then these items will all have about the same correlation with items in other clusters.

The method of visually examining the data is used to test for internal and external consistency. Items that do not meet the above criteria can be removed or placed in another cluster in an effort to purify the measurement model. The value of coefficient alpha, as a quantitative assessment of reliability, should be only interpreted after the constructs have been demonstrated to satisfy the criteria of internal and external consistency.

In summary, according to Churchill (1979 p.66):

> Marketers are much better served with multi-item than single item measures of their constructs, and they should take the time to develop them. This conclusion is particularly true for those investigating behavioral relationships from a fundamental as well as applied perspective, although it applies also to marketing practioners.

Measurement of the Dependent Measures

The measurement of the three constructs is made by the use of a seven point interval scale. Subjects were asked to circle the number on the scale which best reflects their reaction to the question. Each number had a verbal cue that was considered appropriate for that number on the scale, e.g. the number "3" on may be cued by "slightly high" on scale from very high to very low.

Independent Variables

The manipulation of the independent variables can address the problem of realism in addition to the primary concern of precision. As discussed above, the relationship between price, brand name, and store name has been studied only twice (Andrews and Valenzi 1971; Render and O'Connor 1976). Intuitively it seems to be clear that a purchaser would place importance on extrinsic cues such as price, brand name, and store name. Although this importance has been shown to be true in price-brand name and price-store name research, the relationship of brand name and store name in the presence of price information has not been adequately analyzed. Therefore to address the concerns of realism, the artificiality of holding brand or store name constant must be relaxed to examine the interrelationship of these three cues on the perception of quality, value, and willingness to buy.

Price

The price variable is manipulated over the purchasers' acceptable price range as estimated in a pretest. Three prices that are a priori determined to be significantly different are positioned as being a high price, a medium price, and a low price for a particular product, but within

the subject's acceptable price range. While the subjects were not given any additional price information that would indicate a particular price level (e.g. high, medium, or low), a manipulation check was made to determine how the subjects perceived the price to be positioned.

Additionally, one price treatment was set above the acceptable price range for the purpose of testing the relationship between perceived quality and perceived value. As discussed earlier, consumers may refrain from purchasing a product when the price was considered too high. In a study by Dodds and Monroe (1984), three price treatments ($29.95, $79.95, and $129.95) were utilized in the perception of quality for a stereo headset player. Evidence indicated that the $29.95 price was the highest in perceived value and willingness to buy. An explanation for this result would be that the hypothesis was assuming that the price points being tested ranged over the acceptable price limits whereas the medium- and high-price treatments may have been outside this range. Therefore only the decrease in perceived value and willingness to buy was shown empirically to occur. An alternative explanation may be that the three prices may have been acceptable but on the downward part of the curve. As discussed earlier, one price treatment is used to provide no price information for the purpose of evaluating the incremental effects of additional extrinsic information.

Brand Name

Actual brand names are used that are chosen from a population of brand names for a product type known to the subjects. These brand names were selected, in the pretest, such that the subjects viewed the two as being significantly different in the perception of quality, along with familiarity and knowledge of the brand name. This allows the two brand names to be compared by the phase II subjects as high and low quality brands. Also, as in the price variable, there was a no brand name treatment.

Store Name

Actual store names are used that are chosen from a population of store names that are known to the subjects. These store names had to meet the criteria of being significantly different in the pretest on quality of products carried in the store, store quality, and satisfaction with the store. This would then allow the store name to be compared as having high or low perceptions of quality.

Linkage of the Analysis to the Hypotheses

The objectives of this research effort are to resolve the issues discussed in Chapter II and formulated as research questions in the hypotheses of Chapter III. Also, an inter-

est of the research is to replicate past design strategies in the price-perceived quality paradigm. These studies can be categorized as:

1. Price only studies.

2. Price and brand studies.

3. Price and store studies.

4. Price, brand, and store studies.

The goal of this section is to explicitly explain how this research design leads to an empirical investigation of the hypotheses. The first step of the analyses would be to test the overall 4 x 2 x 2 factorial, shown in Figure 7, which is a sub-design of the overall design shown in Figure 6 (the no information treatments are removed). If there are no significant interactions, then statistical interpretation of the price, brand name, and store name main effects is possible. If there are significant interactions then the following analysis would be necessary

Planned Analysis of the Price Effect

In analyzing the hypotheses about the price effects, the three way design can be broken down into two 4 x 2 factorial designs that are shown in Figure 8. One design (a) has price and brand name as the information cues and where store name is absent. The other design (b) has price and store

PRICE X BRAND X STORE

BRAND NAME	PRICE				STORE NAME
	TOO HIGH	HIGH	MEDIUM	LOW	
HIGH	1	2	3	4	HIGH
HIGH	6	7	8	9	LOW
LOW	16	17	18	19	HIGH
LOW	21	22	23	24	LOW

Note: The number in each cell represents a cell number.

Figure 7:   Three Way Factorial Design

name as the information cues but where brand name is absent.
If there are significant two-way interactions that prevent
an interpretation of the price effect, then this effect can
be tested in the one-way design shown in Figure 9 The stra-
tegy is to find the price main effects that are unencumbered
by a significant interaction. In addition to this process,
the price effect can be tested using the design in Figure 7
where the analysis is run as four separate one-way designs.
This adds to the analysis, as it examines the price effect
under various combinations of brand name and store name
treatments.

Hypothesis 1.1 would be analyzed in four separate proce-
dures:

1. A necessary but not sufficent step is to test for
   significance of the price effect in the appropriate
   design that is not hindered by a significant interac-
   tion. If the price effect is statistically non-sig-
   nificant than this would negate the purpose of steps
   2 and 3 below, since failing to reject the null hy-
   pothesis leads to the inference that all the means
   for the price treatment are equal. Rejection of the
   null hypothesis does give some information concerning
   the population means, but it does not indicate which
   means differ from each other and what relationship
   exists.

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(a) PRICE X BRAND

	PRICE			
BRAND NAME	TOO HIGH	HIGH	MEDIUM	LOW
HIGH	11	12	13	14
LOW	26	27	28	29

(b) PRICE X STORE

	PRICE			
STORE NAME	TOO HIGH	HIGH	MEDIUM	LOW
HIGH	31	32	33	34
LOW	36	37	38	39

note: The number in each cell represents a cell number.

Figure 8: Two-Way Factorial Sub-Design

2. Multiple comparisons procedures have been developed
   to answer the question of which means are statisti-
   cally significant. Duncan's Multiple Range test is
   very powerful. That is, there is a high probability
   of declaring a difference when there is actually a
   difference between the population means. Research in
   marketing has an interest in substantive differences
   as well as statisical differences. Therefore, by
   controlling the error rate at a step-wide basis, the
   possibility of arriving at substantive and statisti-
   cal significance is enhanced.

3. This hypothesis suggest a linear trend and therefore
   this trend should be tested. Hays (1973) lays out a
   method for planned comparisons for trends. This
   method has one standard set of weights for investi-
   gating linear trends, an orthogonal set for quadratic
   trends, and another set for cubic trends. These
   standard sets of comparison weights are called coef-
   ficients of orthogonal polynomials. While Hays (1973
   p. 688) does not elaborate on the theory, he summar-
   izes the concept as follows:

   > Orthogonal polynomial coefficients are so
   > derived that the particular comparisons
   > among means each represent one and only one
   > kind of possible trend or form of relation-
   > ship in this data.

Using this approach the hypothesis can be evaluated for a linear trend. In particular, a test for a linear trend in a one-way anova is examined. The exact methodology is elaborated on in Hays (1973 p.691-693).

4. The last step is to calculate the effect size for price such that a substantive interpretation can be made. This is especially useful when comparisons are to be made to the other extrinsic information cues. This topic is discussed in more detail in a later section under exploratory research.

The testing of hypothesis 1.2 and 1.3 follow the procedure for 1.1 but since these hypotheses suggests a quadratic trend where as price increases beyond a price within the acceptable upper limit, perception of value and willingness to buy will decrease. The procedure described by Hays (1973 p.691-693) was used for testing quadratic trends.

Planned Analysis of Brand Effects

The objective is to examine the brand effect in as many possible situations with price and store name information but unencumbered by significant interactions. If the brand effect is unhindered in the analysis of the design in Figure 7, then an analysis can be made at this point. If there is

a significant store name-brand name interaction, the 4 x 2 factorial design in Figure 8 (a) is analyzed. Additionally, subdesigns are analyzed where the store name is held constant at a high or low level. A plot of the significant interaction are interpreted. In the designs where the brand name main effect is unencumbered by a significant interaction with other treatment variables, one sided t-tests resolve the hypothesized issues. The influence of brand name information is also evaluated and interpreted, as discussed later.

Planned Analysis of Store Effects

The strategy of analyzing store name effects is the same as that for brand name effects.

Planned Analysis of the Combined Effects

The analysis would utilize a one sided t-test of cell means as well as a linear contrast for Hypothesis 4.3, to provide empirical test for the hypotheses. Figure 10 shows the particular cells from Figure 6 to be examined for each of the hypotheses.

Planned Analysis for the Exploratory Research

PRICE

```
+-----------------------------------------------+
|                   PRICE                       |
|  -------------------------------------------  |
|         |        |          |             |   |
| TOO     |        |          |             |   |
| HIGH    | HIGH   | MEDIUM   | LOW         |   |
|         |        |          |             |   |
|  ------- -------- ---------- -----------      |
|         |        |          |             |   |
|   41    |  42    |   43     |    44       |   |
+-----------------------------------------------+
```

note: The number in each cell represents a cell number.

Figure 9:   One-Way Factorial Sub-Design

HYPOTHESES	CELLS
H4.1a H4.1b	12 > 42 29 < 44
H4.2a H4.2b	32 > 42 39 < 44
H4.3a	2 > 1/3(12+32+42)
H4.3b	24 < 1/3(29+39+44)

Figure 10:   Analysis of the Combined Effects

Since one cell (#45) is a treatment where no extrinsic information is given, it can be established as the base for evaluating the effect size between all the other treatments on perception of quality. Effect size means the degree to which the phenomenon is present in the population or the degree to which the null hypothesis is false (Cohen 1977). According to Cohen (1977, p.10)

> It can now readily be made clear that when the null hypothesis is false to some specific degree, i.e., the effect size is some specific non-zero value in the population. The larger this value, the greater the degree to which the phenomenon under study is manifested.

The following is summarized from Cohen (1977,p274-279). The need for a numerical index for the degree of departure from no effect, where population means are equal, is satisfied for two means when the difference in means is standardized by dividing it by the within-population standard deviation (Figure 11 (a)). This would be the effect size for a t-test analysis.

In analysis of variance where there are typically more than two means, the spread of the means is represented not by their range as in a two mean case, but by a quantity formally like a standard deviation, again dividing by the common standard deviation of the populations involved (Figure 11 (b)). The f can take on values between zero, when the population means are all equal, and an indefinitely large number when the population means are very different.

$$d = \frac{m_1 - m_2}{\sigma} \quad \text{where } m_1 \text{ \& } m_2 \text{ are the means}$$

(a)

$$f = \frac{\sigma_m}{\sigma} \quad \text{where } \sigma_m = \sqrt{\frac{\sum_{i=1}^{k} (m_i - m)^2}{k}}$$

(b)

$$d = \frac{m_{max} - m_{min}}{\sigma}$$

(c)

$$f = \frac{d}{2} \sqrt{\frac{k+1}{3(k-1)}} \quad \text{where k is number of means}$$

(d)

$$d = 2f \sqrt{\frac{3(k-1)}{k+1}}$$

(e)

Figure 11:   The Effect Size Index: f

1. The standardized mean differences of the price information, store name information and brand name information are computed and compared. Interest focused on which source of information has the greatest individual effect.

2. The standardized mean difference between the combinations of price-brand name, price-store name, and brand name-store name is compared. Interest focused on (a) which combination is strongest in effect, (b) the marginal effects, (c) whether the combinations are additive, and (d) what is the overall influence of having inconsistent cues, such as low price, high quality brand name, and low quality store name.

3. The standardized mean difference between the combination of price-brand name-store name is computed. The same questions outlined in point 2 are examined here.

The results from this exploratory section provides valuable substantive evidence toward theory building in regards to the relationship of extrinsic product cues as they influence the perception of product quality.

METHODOLOGICAL PROBLEMS OF CONDUCTING RESEARCH

The goal of a research endeavor is to come to a conclusion about the research problem or question. Simple as this goal may appear to be, the research process is fraught with many tradeoffs that must be made. The outcome of these decisions can easily diminish the value of the intended outcome. Since these tradeoffs are necesary, it is imperative that the researcher be aware of the strengths and weaknesses of the research such that the importance of the outcome can be properly interpreted in light of known weaknesses. Since all research strategies and methods are flawed, it appears that any single research question should be examined in a series of experiments satisfying different sets of McGrath's three research needs. Since historically, price-perceived quality research has been fragmented and inconclusive, an experimental design was chosen to focus on precision in control and measurement of variables. A secondary, but important concern was to minimize the problem of generality and realism.

The Experimental Design

From a definitional point of view, this study creates a buying situation where the conditions of price, brand, and store name are manipulated while all other variables are

controlled. The design is intended to observe and measure the effects of the manipulation of the independent variables on the dependent indicators of perceived quality, perceived value, and willingness to buy.

Past research in price-perception studies have typically been experimental in design. Fromkin and Streufert (1976) indicate the most important feature of laboratory experiments is the use of control to identify sources of variation. The control of the variables, as they observe, increases confidence in the conclusion that the observed behavior can be attributed to conditions varied by the experimenter because elimination of uncontrolled variables reduces the number of alternative explanations. Past research is typified by studies that held so much constant that there was limited opportunity to assess the value of more complicated models. The early studies, where only price was manipulated, were criticized as being overly simplified and the results concerning price effects have doubtful external validity as well as limited internal validity. While the argument against external validity is implicit with the amount of control, the limitation on internal validity is due to the isolation of price from its relationship to brand, store name and other informational cues that are used by purchasers. Later studies, paired price with other cues such as

brand or store name. While results have not always been statistically significant, the relationship has usually been positive.

The research takes the price-perceived quality paradigm a step further to address the concerns of realism. The artificiality of holding brand or store name constant is relaxed to examine the effects of price, brand and store name, singularly and interactively on the perception of quality, value and the willingness to buy. There is a need to bring more realism and generality into the experimental situation setting. Unfortunately, the experimental activity of creating what is supposed to be an isolated aspect of a real life purchasing situation not merely influences the outcome of the experiment, but affects it by the alteration of the phenomenon of quality perception. This implies that the very act of bringing perception of quality and value and willingness to buy into an experimental setting usually changes its nature.

Strengths and Weaknesses of the Proposed Experimental Design

In light of the many dilemmas that are encountered in research, good research can be accomplished only if the inherent problems are discovered and minimized or at least understood how they limit the outcome of the research. The

following discussion focuses on some of the critical ques-
tions of an experimental research design.

Number of Variables

Only two studies (Andrews and Valenzi 1971;   Render and
O'Connor 1976) in price-perceived quality research have exa-
mined price, brand name and store name as independent varia-
bles.   Because the first study did not use multiple indica-
tors of the dependent measures and no information
treatments, the ability to interpret the interaction effects
was limited.   The second study, while not having significant
interactions, had insufficient power to argue confidence in
the statistical conclusions. By using multiple measures for
each construct and having no information conditions, this
research is better able to pull apart the significant rela-
tionship of the anticipated interactions.

Sample Size

This study plans to have enough observations to yield sa-
tisfactory power of .80. This would mean an 80% probability
of correctly rejecting the null hypothesis.   In a quantita-
tive review of the price perceived quality literature, Mon-
roe and Krishnan (1984) report a combined price effect size
(f) that ranged from .284 to .504 where Cohen (1977,

p284-288) posits an effect size of $f=.10$ as small, $f=.25$ as medium and an $f=.40$ as large. At a minimum this argues that the past studies were able to find a medium sized price effect (Table 7). In an experimental study by Dodds and Monroe (1984) where the same scales were used as in this study, the price effect size ranged from $f=.417$ to $.628$. Therefore, it can be argued that the research measures an effect size that is characterized at a minimum by Cohen as being "medium" in size. Table 8 indicates that a cell size of 12 is sufficient to detect a medium or large price effect size with power of $.80$ at a significance level of $.05$.

The experimental design's principal restraint on sample cell size is the number of desired treatments. With three variables, the minimum number of treatment cells is 8 (2X2X2), but for purposes of increased data points, it is desirable to have more than two conditions per variable. Also, the approach of using no information treatments for each of the three independent variables puts a strain on securing a sufficient number of subjects to insure satisfactory power. The design in this research was a 5 x 3 x 3 between factorial. With 45 cells, it is possible to obtain 14 subjects per cell.

TABLE 7

Estimation of Effect Size For Price

__From Monroe & Krishnan:__ (p 25)

	$\underline{r}$	$\underline{d}$	$\underline{f}$
Between High and Low Prices	.450	1.0078	.504
Between High and Medium Prices	.300	.6289	.314
Between Low and Medium Prices	.245	.5639	.282

$$\text{where} \quad d = 2r/(1-r^2)^{\frac{1}{2}} \quad f = 1/2 \ d$$

$$\begin{array}{cc} \text{(Rosenthal)} & \text{(Cohen)} \\ \text{p62} & \text{p279} \end{array}$$

__From Doods & Monroe__

	Λ_h	η^2_{mult}	$\underline{f}$
Odd Price (one way) w/Sony	.797	.203	.505
Odd Price (one way) w/o Sony	.788	.212	.518
Odd Price (two way) x Brand	.852	.148	.417
Even Price (one way) w/Sony	.717	.283	.628
Even Price (one way) w/o Sony	.796	.204	.506
Even Price (two way) X Brand	.850	.150	.420

$$\eta^2 = 1 - \Lambda_h \qquad f = (\eta^2/(1-\eta^2))^{\frac{1}{2}}$$

$$\begin{array}{cc} \text{(Green p333)} & \text{(Cohen p284)} \end{array}$$

TABLE 8

Sample Size Demands for the Main and Interaction Effects in
the Factorial Design

Price x Brand x Store
(4 x 2 x 2)

				Nc	
EFFECT	a	u	POWER	f=.10	f=.25
(P)PRICE	.05	3	.80	70	12
(B)BRAND	.05	1	.80	50	9
(S)STORE	.05	1	.80	50	9
P X B	.05	3	.80	70	12
P X S	.05	3	.80	70	12
B X S	.05	1	.80	50	9
P X B X S	.05	3	.80	70	12

where: a is the significance criterion;
u is the degrees of freedom of the numerator;
f is the effect size;
and Nc is the cell size.

For a=.05, u=3, power=.80, and f=.10
from Cohen (1977,p384,Table 8.4.4)

Nc =16
where Nc = (n'-1)(u+1)/(number of cells) + 1
and n' is the tabled value.

TABLE 9

Power Analysis - 4 x 2 x 2 Design

POWER

EFFECT	u	n'	f=.10	f=.25	f=.40
PRICE	3	52.75	.200	.875	.995
BRAND	1	104.5	.301	.947	.995
STORE	1	104.5	.301	.947	.995
P x B	3	52.75	.200	.875	.995
P x S	3	52.75	.200	.875	.995
B x S	1	104.5	.301	.947	.995
PxBxS	3	52.75	.200	.875	.995

Level of significance is .05
DF in the denominator is 207
Number of subjects per cell is 14

Presence of Artifacts

It is reasonable to assume that subjects' responses may
be determined by factors other than the intended treatment
variables. Their reponses could be influenced in part by
motives aroused by the subjects' awareness of their partici-
pation in the research. Two types of artifacts are dis-
cussed with recommendation for overcoming them.

Subjects may sometimes infer the hypotheses and attempt
to be "good" subjects by giving the intended responses. To
minimize this, the objective of the research was disguised
in the form of a consumer survey. Additionally, after the
experimental data had been collected, the subjects were
asked to indicate what they thought the experiment was about
and what the researcher expects to find. Any responses that
indicate knowledge of the hypotheses were eliminated.

A second artifact is evaluation apprehension where the
subject is concerned with winning a positive evaluation from
the researcher or at least providing no grounds for a nega-
tive one. This type of behavior can bias responses. To
minimize this effect, subjects were told at the beginning of
the experiment that the researcher is not interested in in-
dividual responses but in normative responses of groups of
individuals.

Pre-research Exposure

People come to an experiment from different settings and different experiences. Random assignment to groups enhanced the homogenity between treatment groups and thus alleviate this problem.

Efficiency

A tight experimental design that specifically addresses the key issues of the the research is desired. This is a postive feature that is gained at the expense of not using a design that features realism or generality as primary goals. A design that works toward enhancing the internal validity of the study is considered vital in experimental research.

Causality

By controlling all variables except for price, brand, and store name through an experimental design, there is sufficient reason to argue that there is no rival hypotheses to explain the effect. These control strategies provide the potential to specify cause-effect relationships; that is, to state with a high degree of confidence that changes in price cause changes in perceived quality.

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Appropriateness of the Sample

The ability to generalize from an experimental design is typically limited to the sample population. The use of college students in research experiments has been argued by Calder, Phillips, and Tybout (1981,1982,1983). Also, the value of the study is enhanced by using products that are appropriate to the student population.

Cost

Cost in terms of time and money is obviously a limiting factor in this reseach and therefore precludes some desirable features of research such as obtaining truly random samples of the general population and collecting the data in a much less obstrusive manner. Additionally, to gain cost-time effectiveness, the design gives up a lot in terms of qualitative information that can be gathered in other types of designs such as field studies and interviews.

Information Yield

Fromkin and Streufert (1976) summarize that an experimental strategy studies a phenomena in greater depth and detail and with greater precision of measurement in exchange for a reduction of breadth of information. Thus precision is, at times, obtained at the expense of generality. Therefore,

the intended outcome of the study is a better understanding of the extended conceptual model.

SUMMARY

This chapter presented the operational hypotheses to be investigated in this study. Following this discussion, the methodology used to examine the relationship between price, brand name, and store name and the perception of quality was presented.

The research plan, to follow this methodology, consists of two phases. The first phase addressed the methodological issues in Chapter II. In particular, the choice of a population of products, the evaluation of the perceptual quality differences in store names and brand names, the development of descriptions of stores and brands as perceived by the subject population. Briefly, the thrust of this effort is to enhance arguments of validity for the experiments in phase two by a priori setting the manipulations of the independent variables to be significantly different.

Phase two tested the operational hypotheses where three dependent variable constructs were examined, in a 3 way factorial design, each of which was measured by multiple items, on an interval scale, all relating to product evaluation. Specifically, these constructs were perceived product quality, perceived value, and willingness to buy.

The chapter concluded with a review of the methodological problems that impede the conduct of research. Additionally, the strengths and weaknesses of this research are discussed with the limitation defined.

Chapter IV

PRETEST RESULTS AND ANALYSIS

OVERVIEW OF CHAPTER

To test the conceptualized model described in Chapter II and to use the methodology described in Chapter III, a series of pretests were necessary to determine products, price, brand names and store names used in the research. As discussed in Chapter II , the general objectives of the pretesting is were to:

1. choose a set of products familiar to the subjects,

2. choose a set of brand names and store names that are recognizable to the subjects,

3. evaluate the perceptions of quality of brands (e.g. high and low brand image),

4. evaluate the perceptions of quality of stores (e.g. high and low store image), and

5. determine the price manipulations over an acceptable range of prices.

To accomplish these objectives, it was necessary to conduct five separate pretests. The purpose of this chapter is to discuss the specific details of each pretest.

The first pretest gathered information about subjects' knowledge of five products, including brand and store names

that would be considered when buying these products, and acceptable range of prices for each product. On the basis of the subjects' product knowledge, two products were chosen for further study. For each product, a list of brand and store names were compiled, as well as acceptable price ranges. These variables were further examined in the following pretests.

The second pretest was designed to determine two brand names and store names for each product. Additionally, the price categorized in the first pretest as low, medium, high, and too high were evaluated for perceptual quality differences. Based on the this pretest, Sony and Grand Prix brand names for FM stereo cassette headset players and Texas Instruments and Royal for business-use pocket calculators were, categorized as high and low brands of perceived quality. For store names, the Virginia Tech Bookstore and Roses for calculators and Best and K-Mart for headset players were chosen on the basis of being perceived by subjects as high and low in quality.

Using multiple indicators of product quality, the four manipulations were tested. For calculators, the prices of $17.00, $28.00, $39.00, and $50.00 provided clear evidence of the conceptualized positive price-perceived quality relationship. These manipulations were selected to be used in

the phase II experiment where the conceptualized model was tested. The price manipulations of $34.00, $52.00, $70.00 and $88.00 for headset players did not provide clear evidence of the conceptualized relationship and, therefore, were retested.

The third pretest, retested the price manipulation for the headset player and evidence of a positive price-perceived quality relationship was found. The selected price manipulations, extending over a wider range then before were $34.00, $61.00, $88.00 and $115.00.

The fourth pretest, using multiple indicators of product quality, evaluated the brand names and store names selected from pretest 2 for each product. The results indicated support for the use of Sony and Grand Prix as high and low perceived quality brand names for headset players. Texas Instruments and Royal as brand names for calculators were not shown to be significantly different and, therefore were evaluated again in the fifth pretest. This pretest confirmed the selection of store names as determined in the second pretest.

The fifth pretest reexamined the quality difference between brand names for business-use pocket calculators. The results of the pretest, based on the measurement of five indicators of quality indicated that Hewlett Packard and Royal

were statistically different in terms of perceived quality. These brand names were selected for use in the phase II experiment.

An assessment of reliability was made for each of the pretests where multiple indicators were used. Using Cronbach's alpha, values between .892 and .958 were obtained for the situations where multiple indicators of perceived quality were used.

OBJECTIVES, PROCEDURES AND RESULTS OF THE FIRST PRETEST

The initial test in the first pretest was intended to:

1. ascertain subjects' familiarity with five products thought to be appropriate for purchase by college students;

2. collect a sample of brand names and store names that these subjects would consider buying for each of the five products; and

3. determine prices that are perceived to be low, medium, high and too high for each of the five products.

Using the survey booklet shown in Appendix B, 22 marketing management students read product descriptions for five products and were asked to give their assessments about the products, brand names, store names, and price ranges. The following sections will review the procedures and results of this pretest.

Product Knowledge

For each product, subjects were asked to indicate their knowledge of the product on a five point scale. The results in Table 10 indicate that the subjects were on the average more knowledgeable about the business use calculator and the FM stereo cassette headset player than the black and white television, clock-radio and the compact 35 MM camera.

Store Knowledge

For each product, subjects were asked to list up to eight stores in the Blacksburg/Roanoke area that would be appropriate for buying each particular product. Subjects were then asked to rate the overall quality of each store, using a single indicator. Table 11 compiles the results of this exercise on the basis of frequency (number of times listed) and quality. A review of this table indicates a viable mix of store names that have differing perceptions of quality. The names selected from this pretest were used in the next pretest.

Brand Knowledge

Similar to the exercise for gathering store names, subjects were asked to list brands for each product and to rate the overall quality of each brand. Table 12 shows the set

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TABLE 10

Product Knowledge

Product	Mean	Std. Dev.
Business Use Calculator	3.30	0.78
FM Stereo Cassette HeadsetPlayer	3.27	0.98
12" Black and White Television	3.50	0.74
AM-FM Digital Clock Radio	3.60	0.73
Ultra-Compact 35 MM Camera	3.59	0.96

5 Point Scale

Extremely Knowledgeable				Not Knowledge-able At All
1	2	3	4	5

TABLE 11

Knowledge of Stores

Product	Store	Frequency		Quality	
		Number	Rank	Mean*	Rank
Business-Use	Roses	13	1	3.31	11
Calculator	K-Mart	12	2	2.92	7
	VT Bookstore	11	3	2.18	4
	Best	10	4	1.90	3
	Sears	6	5	2.67	6
	Mish-Mish	4	6	1.75	2
	J.C. Penneys	4	6	2.25	5
	People's	1	8	3.00	8
	Hills	1	8	3.00	8
	Hecks	1	8	3.00	8
	Circuit City	1	8	1.00	1
FM Stereo	K-Mart	13	1	3.15	7
Cassette	Roses	11	2	3.73	8
Headset	Best	8	3	1.88	3
Player	System Center	8	3	1.63	1
	Sears	6	5	2.50	5
	J.C. Penneys	5	6	2.60	6
	BST	4	7	2.00	4
	Hecks	3	8	3.67	9
	Circuit City	3	8	1.67	2
12" Black	Roses	13	1	3.8	8
and White	K-Mart	12	2	3.25	6
TV	Sears	9	3	2.56	5
	Best	8	4	2.00	3
	J.C. Penneys	5	5	2.00	3
	Hills	4	6	3.25	6
	Circuit City	4	7	1.50	2
	Grand Piano	2	8	1.00	1

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TABLE 11

Knowledge of Stores - continued

Product	Store	Frequency		Quality	
		Number	Rank	Mean*	Rank
Ultra	Ritz Camera Shop	10	1	1.20	1
Compact	Roses	9	2	3.78	9
35 MM	K-Mart	9	2	3.33	8
Camera	Best	8	4	2.13	4
	Sears	7	5	2.14	5
	J.C. Penneys	5	6	2.40	6
	Ewald-Clarke	4	7	1.50	2
	John's Camera	3	8	2.00	3
	Brendles	2	9	2.50	7
AM-FM Digital	Roses	16	1	3.56	9
Clock Radio	K-Mart	16	1	3.18	7
	Sears	10	3	2.10	3
	Best	8	4	1.88	2
	J.C. Penneys	6	5	2.33	4
	Hills	3	6	3.00	6
	Circuit City	3	6	1.67	1
	Hecks	2	8	3.50	8
	Brendles	2	8	2.50	5

*Five point scale: 1-very high quality
                   5-very low quality

of brands and subjects' quality perceptions. It appeared that many of the brands listed were ones that had favorable quality perceptions. Therefore several more were added in the second pretest to obtain brands perceived to be low in quality.

Price Perceptions

For each product, subjects were asked to indicate the prices that are acceptable in terms of whether they would consider paying for them. After marking acceptable prices on a continuum of prices, subjects then categorized prices as: (1) low but acceptable, (2) high but acceptable, (3) medium, i.e. neither too high nor too low, and (4) unacceptably high. Table 13 shows the distribution of these price perceptions and the average price for each category.

Results from the First Pretest

As a result of this first pretest, the following decisions were made:

   1. The business-use calculator and the FM stereo cassette headset player were chosen for further study because they were rated the highest in product cate-

OKe

TABLE 12

Knowledge of Brands

Product	Brand	Frequency Number	Rank	Quality Mean*	Rank
Business Use Calculator	Texas Instruments	20	1	2.70	5
	Hewlett Packard	12	2	1.00	1
	Sharp	10	3	1.60	2
	Casio	9	4	2.67	4
	Royal	2	5	3.50	6
	Canon	2	5	2.00	3
FM Stereo Cassette Headset Player	Sony	19	1	1.26	1
	Panasonic	9	2	1.89	3
	Sanyo	7	3	1.71	2
	Soundesign	4	4	2.75	4
	GE	4	4	2.75	4
12" Black and White TV	Sony	19	1	1.57	1
	RCA	17	2	1.82	5
	Zenith	15	3	2.27	7
	Panasonic	6	4	2.33	8
	Quasar	5	5	1.60	2
	Magnavox	5	5	1.60	2
	GE	3	7	1.67	4
	Sanyo	3	7	1.67	4
	Sharp	1	9	2.00	6

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TABLE 12

Knowledge of Brands - continued

Product	Brand	Frequency Number	Rank	Quality Mean*	Rank
Ultra	Canon	14	1	1.50	3
Compact	Nikon	12	2	1.17	1
35 MM	Minolta	10	3	2.00	7
Camera	Kodak	10	3	1.90	6
	Pentax	6	5	1.83	5
	Olympus	5	6	1.40	2
	Konica	4	7	2.50	9
	Yashica	3	8	1.67	4
	Pentax	1	9	2.00	7
Clock	Sony	13	1	1.69	2
Radio	Panasonic	10	2	1.90	4
	GE	6	3	1.83	3
	Soundesign	3	4	2.67	7
	Lloyds	3	4	2.67	7
	Sanyo	3	4	1.00	1
	Emerson	2	7	2.00	5

*Five point scale: 1-very high quality
5-very low quality

TABLE 13

Knowledge of Prices

Product: Business Use Calculator

Frequency Count

Price	Average Price	$9	13	17	21	25	29	33	37	41	45	>45
Low	$21.90	1	2	7	5	2	4	1				
Medium	$29.40			2	3	4	3	6	1	2	1	
High	$39.20					1	4	2	3	4	6	2
Too High	$46.70						1	2	4	4	3	7

Product: FM Stereo Cassette Headset Player

Frequency Count

Price	Average Price	$19	28	37	46	55	64	73	82	91	100
Low	$34.13	6	5	4	4	3					
Medium	$49.70	1	1	5	3	6	5	1			
High	$70.54			1	2	3	2	6	5	2	1
Too High	$77.90			1		2	3	5	3	4	4

Product: 12" Black and White Television

Frequency Count

Price	Average Price	$59	69	79	89	99	109	119	129	139	149
Low	$69.45	7	9	4	2						
Medium	$83.54		4	10	3	4	1				
High	$99.90			3	5	7	3	2	2		
Too High	$111.70				1	3	3	5	4	4	2

TABLE 13

Knowledge of Prices - continued

Product: AM FM Digital Clock Radio

Frequency Count

Price	Average Price	$9	15	21	27	33	39	45	51	57	63
Low	$21.30	2	5	8	5	1	1				
Medium	$30.30		1	3	6	8	3	1			
High	$41.70				3	2	6	7	2	1	1
Too High price	$47.70				1	1	4	4	7	2	3

Product: Ultra Compact 35 MM Camera

Frequency Count

Price	Average Price	$40	59	78	97	116	134	151	169	187	205
Low	$74.40	4	6	5	4	3					
Medium	$107.30		1	6	4	4	4	3			
High	$141.90			1	1	6	4	2	5	2	1
Too High	$158.70				1	1	7	2	3	3	4

gory knowledge by the subjects. Secondly, the headset player was chosen in order to replicate an earlier study by Dodds and Monroe (1985). Also, using the headset player will extend the previous research to cover store name manipulations and differing brand information.

2. The composite list of brand and store names for the two chosen products as provided by the subjects, along with additional brands and stores added by the researcher, were used in the next pretest.

3. The average prices that were compiled from subject input were selected with a minor modification. To test for linear and quadratic trends, the use of orthogonal polynomial coefficients requires the price treatments to represent equally spaced unit intervals. Therefore the price manipulations for the calculator to be pretested were $50.00, $39.00, $28.00, and $17.00. The price manipulations for the FM stereo cassette headset player were $88.00, $70.00, $52.00, and $39.00.

The following section reports on the pretest that utilized the brand names, store names, and price manipulations that were selected after the first pretest.

OBJECTIVES, PROCEDURES, AND RESULTS OF THE SECOND PRETEST

The second pretest utilized the results of the first pretest to examine the price, brand name, and store name manipulations for the business-use calculators and FM stereo cassette headset player. One objective was to choose two brand names and store names for each product to be used in the fourth pretest. Secondly, the four prices (low, medium, high, and too high) for each product were evaluated for quality perception differences.

The fifty-eight marketing management students participating in this pretest evaluated either the brand names and a price treatment for calculators and store names and a price treatment for a headset player, or a brand name and a price treatment for a headset player and store names and a price treatment for a calculator. In all, four treatments were used as shown in Table 14 Appendix C shows the response booklet used for one of the four treatments. In all treatments, subjects evaluated the brand or store names before evaluating the price so as not to bias the brand and store perceptions if the price had been given first.

TABLE 14				
Pretest #2 Design				

Treatment	Questions 1-16	17-21	22-43	44-48
1	Calculators		Headset Players	
	Brand	Price $50	Store	Price $70
2	Brand	Price $39	Store	Price $34
3	Headset Players		Calculators	
	Brand	Price $88	Store	Price $28
4	Brand	Price $52	Store	Price $17

Brand Names

Subjects were asked to assume an interest in buying either a calculator or a headset player, as described for them. For each brand name, subjects were asked to indicate their knowledge of the brand on a five point scale and their assessment of the brand's quality on a seven point scale. As shown in Table 15, Texas Instruments was the calculator brand name that subjects were most knowledgeable about and, also, was the brand with the highest quality rating. Conversely, Royal and Albinar were brand names that were lowest in quality and brand knowledge. While Albinar appeared to be a likely candidate for a low perceived-quality brand name, Royal was selected since it had a higher level of knowledge among subjects. A paired comparison t-test between Texas Instruments and Royal brand calculators showed the two to be statistically different (p=.0001) on the basis of brand knowledge and quality.

For the FM stereo cassette headset player (Table 16) subjects were most knowledgeable about and perceived the most quality in the Sony brand name. On the low end, Transcend, Grand Prix, and Stewart were closely bunched together as being low in quality. Since Grand Prix was highest in knowledge among the subjects, it was compared with Sony in a t-test, and the two mean ratings were statistically different (p=.0001).

Based on these results, it was decided to use the Sony and Grand Prix brand names for the headset player, and Texas Instruments and Royal for the cassette in the third pretest where quality differences would be evaluated using multiple indicators of perceived quality.

Store Names

Using the same procedure as above for brand names, subjects were asked to assume interest in buying one of the two products used in this pretest. For each store name, subjects were asked to indicate their knowledge of the store and their assessment of the quality for the store where the particular product was sold. For calculators, , Circuit City, a store in Roanoke, had the highest quality assessment, but did not fare well, comparatively, in terms of store knowledge (Table 17). The Virginia Tech Bookstore and Best were consistently high in knowledge of the store name and quality perception. The Virginia Tech Bookstore was chosen on the basis of higher knowledge because Best was chosen as the high quality store for the headset player. Roses was chosen as the low quality store on the basis of having the lowest quality rating but having a higher level of store knowledge than other possible candidate stores.

TABLE 15

Brands For Calculators

Knowledge (K)

BRAND	N	MEAN	STANDARD DEVIATION
TEXAS INST.	29	1.10	0.98
SHARP	29	1.69	1.20
HEWLETT-PACK.	29	2.21	1.50
CASIO	29	2.28	1.19
CANON	29	2.45	1.21
SANYO	29	2.66	0.97
ROYAL	29	3.45	0.98
ALBINAR	29	3.69	0.85

QUALITY (Q)

BRAND	N	MEAN	STANDARD DEVIATION
TEXAS INST.	29	0.69	1.17
HEWLETT-PACK.	29	0.86	1.68
SHARP	29	1.14	1.06
CANON	29	1.48	0.83
SANYO	29	1.69	1.28
CASIO	29	2.00	1.56
ROYAL	29	3.14	1.21
ALBINAR	29	3.52	1.35

PAIRED COMPARISONS T TEST

BRANDS	MEAN DIFFERNCE	STD ERROR OF MEAN	T	PR>|T|
K)TEXAS INST-ROYAL	-2.34	0.27	-8.73	0.0001
Q)TEXAS INST-ROYAL	-2.45	0.32	-7.56	0.0001

TABLE 16

Brands For FM Stereo Cassette Headset Players

Knowledge

BRAND	N	MEAN	STANDARD DEVIATION
SONY	29	1.41	0.95
G E	29	1.48	1.06
PANASONIC	29	1.59	1.09
SANYO	29	1.76	1.21
SOUND DESIGN	29	3.10	1.01
GRAND PRIX	29	3.76	0.51
STEWART	29	3.86	0.35
TRANSCEND	29	3.93	0.37

QUALITY

BRAND	N	MEAN	STANDARD DEVIATION
SONY	29	0.55	0.91
PANASONIC	29	1.00	1.13
SANYO	29	1.14	1.06
G E	29	1.31	0.93
SOUND DESIGN	29	3.14	0.92
STEWART	29	3.69	1.28
TRANSCEND	29	3.79	1.24
GRAND PRIX	29	3.90	1.35

PAIRED COMPARISONS T TEST

BRANDS	MEAN DIFFERNCE	STD ERROR OF MEAN	T	PR>|T|
K)SONY-GRAND PRIX	-2.34	0.17	-14.07	0.0001
Q)SONY-GRAND PRIX	-3.34	0.30	-11.04	0.0001

K-Mart was evaluated very similarly to Roses, but was not chosen since it was the store used for the headset player product.

A paired comparison t-test between the Virginia Tech Bookstore and Roses, as stores for buying calculators, was statistically different on the basis of store knowledge (p=.0135) and store quality (p=.0001).

The process of choosing different store names for headset players presented some interesting but, perhaps, not surprising results. As shown in Table 18, Circuit City, Best, and the System Center had the best quality ratings but Best was chosen as the high quality store on the grounds that the subjects were most knowledgeable about it in comparison to the other two. K-Mart, Hills, Roses, and Hecks were grouped as low quality stores, but since K-Mart had a very high level of knowledge by the subjects, it was chosen. The paired comparision t-test between the stores, Best and K-Mart, showed the two to be statistically insignificant on the basis of store knowledge (p=.6081) but significantly different on the basis of store quality (p=.0001).

In summary, the store names Virginia Tech Bookstore and Roses, for the calculator, and Best and K-Mart, for the headset player, were chosen for further testing when multiple indicators would be used to ascertain more reliably the perceived quality difference between them.

TABLE 17

Stores For Calculators

Knowledge

STORE	N	MEAN	STANDARD DEVIATION
V T BOOKSTORE	29	1.20	0.90
BEST	29	1.28	0.80
SEARS	29	1.34	1.11
J C PENNEYS	29	1.52	1.02
K MART	29	1.62	1.15
PEOPLES	29	1.66	1.20
ROSES	29	1.72	1.16
MISH-MISH	29	1.97	1.05
CIRCUIT CITY	29	2.17	1.28
HILLS	29	2.72	1.07
HECKS	29	2.83	1.17

QUALITY

STORE	N	MEAN	STANDARD DEVIATION
CIRCUIT CITY	29	0.90	0.94
BEST	29	1.24	1.06
V T BOOKSTORE	29	1.28	0.96
MISH-MISH	29	1.48	1.43
J. C. PENNYS	29	1.90	1.23
SEARS	29	2.10	1.23
PEOPLES	29	3.03	1.18
HILLS	29	3.03	1.02
K MART	29	3.24	1.30
HECKS	29	3.34	1.04
ROSES	29	3.48	1.30

PAIRED COMPARISONS T TEST

STORES	MEAN DIFFERENCE	STD ERROR OF MEAN	T	PR>|T|
K)VT BOOKSTORE-ROSES	-0.52	0.20	-2.64	0.0135
Q)VT BOOKSTORE-ROSES	-2.21	0.25	-9.01	0.0001

Price Manipulations

The price manipulations were tested with subjects random-
ly assigned to one of four treatment groups. Each subject
evaluated a price treatment for a calculator and a headset
player (see Table 14). Five measures of quality were used,
as shown in the survey booklet (Appendix C). These measures
were standardized, a technique for removing location and
scale attributes from the set of data, to a mean of 0 and a
standard deviation of 1. Using equal weights, the standard-
ized measures were averaged into an index for perceived
quality. This procedure allowed the use of ANOVA to test
for significance of the price treatments on the index of
perceived quality for the the two products. For calcula-
tors, the analysis indicated that, overall, the prices were
significant at $p=.0244$. Duncan's multiple range test which
controls the type I step wise error rate, indicated statis-
tical significance only for the high and low prices of
$50.00 and $17.00 (Table 19). By plotting the means the po-
sitive price-perceived quality relationship is clearly evi-
dent across the prices (Figure 12). Therefore, it is a
plausible argument to consider all price comparisons to be
in the hypothesized direction.

TABLE 18

Stores For FM Stereo Cassette Headset Players

Knowledge

STORE	N	MEAN	STANDARD DEVIATION
SEARS	29	0.90	0.67
BEST	29	1.24	1.09
K MART	29	1.38	1.01
ROSES	29	1.41	1.02
J. C. PENNYS	29	1.41	1.02
BOOKS S & T	29	1.76	1.09
CIRCUIT CITY	29	1.90	1.23
HILLS	29	2.55	1.09
SYSTEM CTR.	29	2.59	1.18
HECKS	29	2.69	1.28
BRENDLES	29	3.17	1.07

QUALITY

STORE	N	MEAN	STANDARD DEVIATION
CIRCUIT CITY	29	0.93	1.07
BEST	29	1.10	1.18
SYSTEM CTR.	29	1.34	1.47
BOOKS S & T	29	1.62	1.29
SEARS	29	1.79	1.29
J.C. PENNYS	29	1.97	1.40
BRENDLES	28	2.61	1.42
ROSES	29	3.31	1.37
HILLS	29	3.31	1.23
HECKS	29	3.38	1.59
K MART	29	3.45	1.33

PAIRED COMPARISONS T TEST

STORES	MEAN DIFFERNCE	STD ERROR OF MEAN	T	PR>|T|
K)BEST-K MART	-0.14	0.27	-0.52	0.6081
Q)BEST-K MART	-2.34	0.34	-6.87	0.0001

```
+------------------------------------------------------------------+
|                                                                  |
|                          TABLE 19                                |
|                                                                  |
|           Duncan's Multiple Range Test - Calculators             |
|                                                                  |
|                                                                  |
|   DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE:Quality Index        |
|   ALPHA=0.05  DF=54  MSE=0.620075                                |
|   WARNING: CELL SIZES ARE NOT EQUAL.                             |
|   HARMONIC MEAN OF CELL SIZES=14.4828                            |
|   MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY               |
|   DIFFERENT.                                                     |
|                                                                  |
|   DUNCAN     GROUPING            MEAN      N   PRICE             |
|                                DIFFERENCE                        |
|                                                                  |
|                       A       -0.46128    15   $17.00           |
|                       A                                          |
|               B       A       -0.08030    14   $28.00           |
|               B       A                                          |
|               B       A        0.10762    14   $39.00           |
|               B                                                  |
|               B                0.43578    15   $50.00           |
+------------------------------------------------------------------+
```

```
QUALITY |
        |
   0.50 |
        |                                                    A
        |
        |
        |
   0.25 |
        |
        |
        |                                           A
        |
   0.00 |
        |
        |                            A
        |
        |
  -0.25 |
        |
        |
        |A
  -0.50 |
        |
        |
       -+------------+------------+------------
        $17          $28          $39          $50

                        PRICE
```
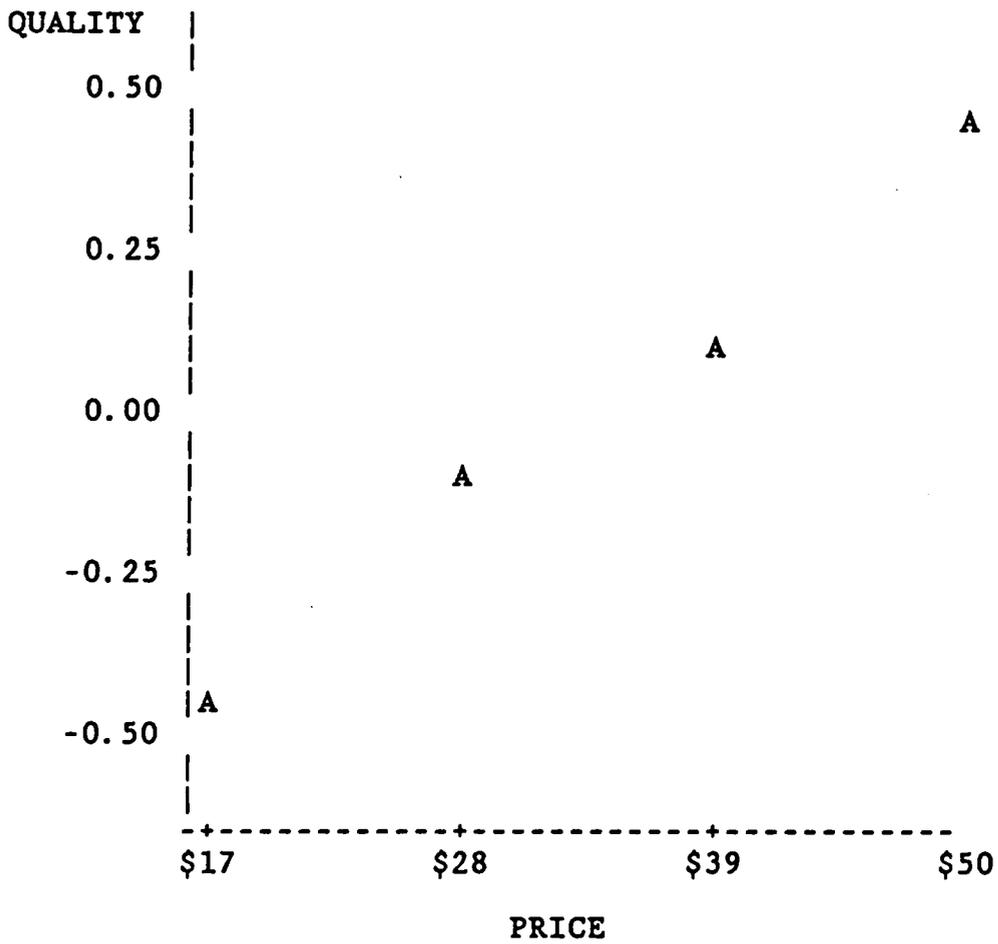
Figure 12:   Plotting of Standardized Means of Quality for
             Different Prices of Calculators

The analysis of price differences for the stereo headset player did not provide similar results. The analysis of variance was non-significant (p=.4305). Therefore, intuitively all multiple comparisons were also non-significant (Table 20). A plotting of the means for the data confirmed that the price-perceived quality relationship was not monotonically positive across all prices (Figure 13). An examination of the standardized data indicated that some responses were far from the conceptualized position (Table 21). With standardized means, the two higher prices should have values that are negative in value and the two lower prices should have values that are positive in value. If these observations, as noted in the table, were removed and new means plotted, then the positive price quality relationship becomes closer to the conceptualized relationship (Figure 14).

In conclusion, the price manipulations for the calculator appeared to be acceptable for use in phase II. But, the problem in the test of price differences for the headset player needed further investigation. Rather than to rely on an arbitrary procedure to eliminate outliers, and the fact that, overall, the prices were shown to be statistically

non-significant, another pretest was conducted where prices were changed to $34.00, $61.00, $88.00, and $115.00 to represent wider price differences.

OBJECTIVES, PROCEDURES, AND RESULTS OF THE THIRD PRETEST

This pretest (Appendix D) was conducted using sixty marketing management students, 15 randomly assigned per cell, to test for the significance of price for a headset player in a situation similar to the previous test, but where differences between prices were increased. The analysis showed that, overall, the prices were significantly different at $p=.04$. The plotting of the means shows a positive price-perceived quality relationship (Figure 15). Duncan's multiple range test for the quality index variable indicated the price of $34.00 to be significantly different from $88.00 and $115.00 (Table 22).

OBJECTIVES, PROCEDURES, AND RESULTS OF THE FOURTH PRETEST

To further assess quality perceptions for brand names and store names associated with business-use calculators and FM stereo cassette headset players, 47 marketing management students were randomly assigned to groups, and asked to respond to questions designed to measure quality perceptions, given brand or store name information (See Appendix E and

```
                        TABLE 20

      Duncan's Multiple Range Test - Headset Players


   DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUAL2
   ALPHA=0.05   DF=54   MSE=0.764557
   WARNING: CELL SIZES ARE NOT EQUAL.
   HARMONIC MEAN OF CELL SIZES=14.4828
   MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
   DIFFERENT.

   DUNCAN    GROUPING              MEAN      N   PRICE
                                 DIFFERENCE

             A                   -0.27818   14   $34.00
             A
             A                   -0.03483   15   $70.00
             A
             A                    0.03425   14   $88.00
             A
             A                    0.26249   15   $52.00
```

```
Quality
   0.3
      |
      |              A
      |
   0.2
      |
      |
      |
   0.1
      |
 MEAN |
      |                                        A
   0.0
      |
      |                          A
      |
  -0.1
      |
      |
      |
  -0.2
      |
      |
     |A
  -0.3
   -+------------+------------+------------
   $34          $52          $70          $88

                    PRICE
```
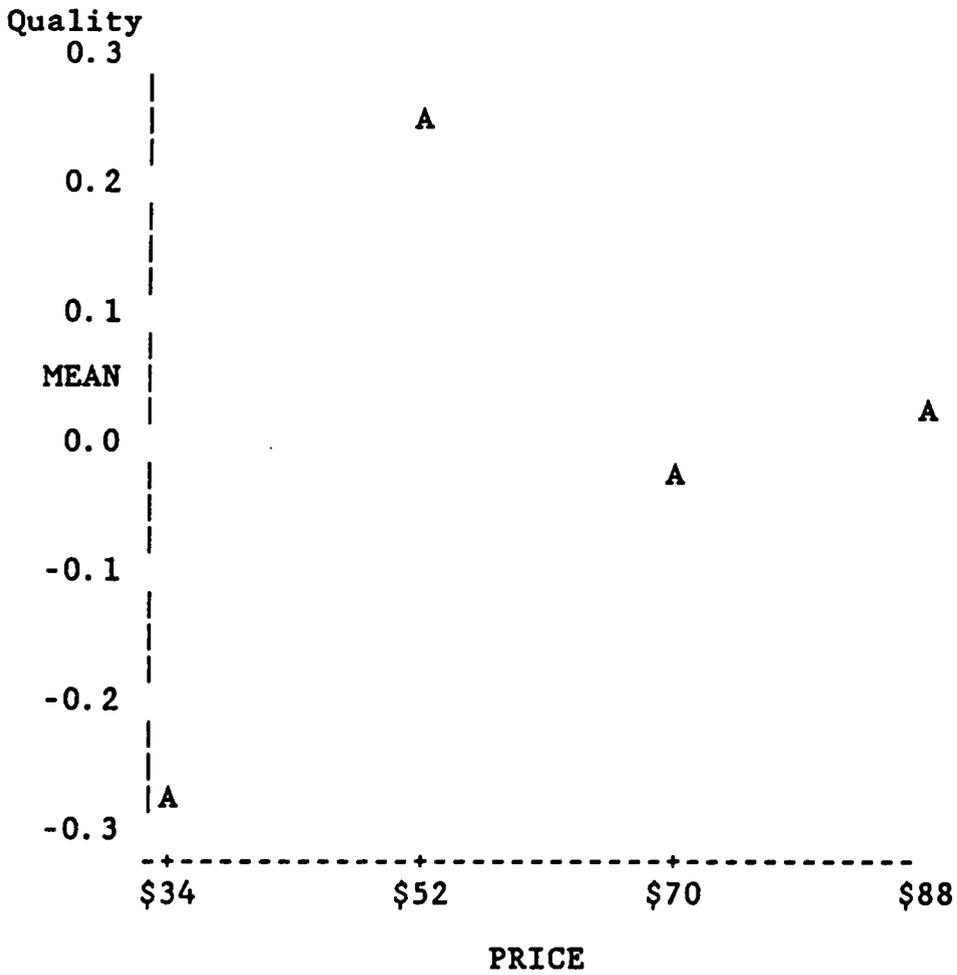
Figure 13: Plotting of Standardized Means of Quality for
            Different Prices of Headset Players

TABLE 21

Data for Perception of quality - Headset Players

OBS	PRICE	QUALITY	OUTLIERS
1	$88	-0.5760	
2		-0.7768	
3		1.0024	
4		-0.0624	
5		1.1668	X
6		-0.5760	
7		0.2773	
8		-0.7768	
9		-0.7886	
10		0.4770	
11		-0.5676	
12		0.6348	
13		1.2031	X
14		-1.1165	
15	$70	-0.4478	
16		0.4502	
17		0.2857	
18		2.0648	X
19		-0.0624	
20		-0.5760	
21		2.2316	X
22		-0.4478	
23		1.3175	
24		-1.6664	
25		-1.1259	
26		-0.7768	
27		-0.2632	
28		0.1396	
29		-0.6006	

TABLE 21

Data for Perception of quality - Headset Players - continued

OBS	PRICE	QUALITY	OUTLIERS
30	$52	-0.4371	
31		-0.2310	
32		-0.4394	
33		0.8006	
34		-0.7768	
35		-0.0880	
36		-1.4935	X
37		-0.0635	
38		-1.3290	X
39		1.0024	
40		-0.9531	
41		0.2796	
42		0.7909	
43		-0.2471	
44		-0.7523	
45	$34	-0.0601	
46		-0.2280	
47		0.4586	
48		0.1406	
49		-0.2800	
50		0.8177	
51		0.1128	
52		-0.0635	
53		0.1128	
54		0.1128	
55		1.7157	
56		-0.5760	
57		-0.4371	
58		2.0682	

```
Quality
   0.3
      |                                    A
      |
      |
   0.2
      |
      |
      |
   0.1
      |                 A
MEAN  |
      |
   0.0
      |
      |
      |
  -0.1
      |
      |
      |
  -0.2
      |
      |
      |A
  -0.3
      -+------------+------------+------------
       $34         $52          $70          $88

                         PRICE
```
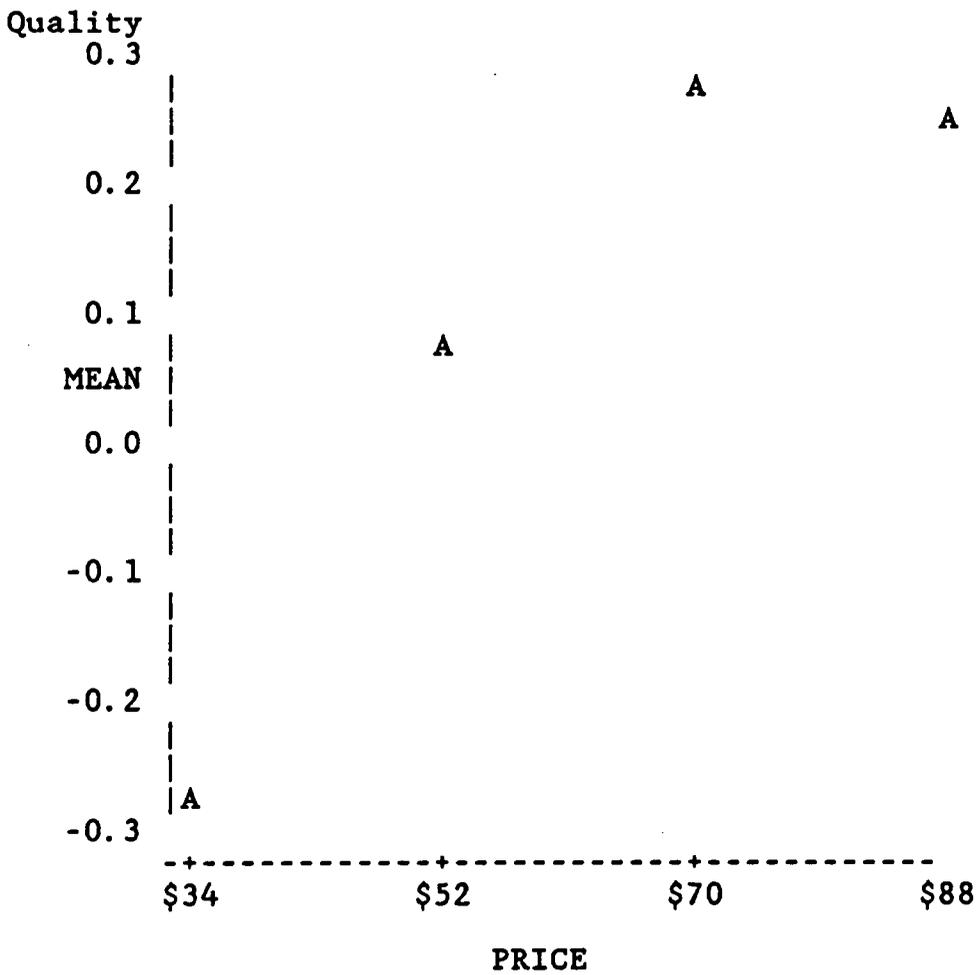
Figure 14: Plotting of Standardized Means of Quality for
            Different Prices of Headset Players - without
            outliers

```
QUALITY
   0.3 +                                                      A
       |                                   A
       |
   0.2
       |
       |
   0.1
       |
       |
   0.0
       |
       |
  -0.1 +                    A
       |
       |
  -0.2
       |
       |
  -0.3
       |
       |
  -0.4
       |
       |A
  -0.5
       -+------------+------------+------------
        $34         $61          $88          $115
```
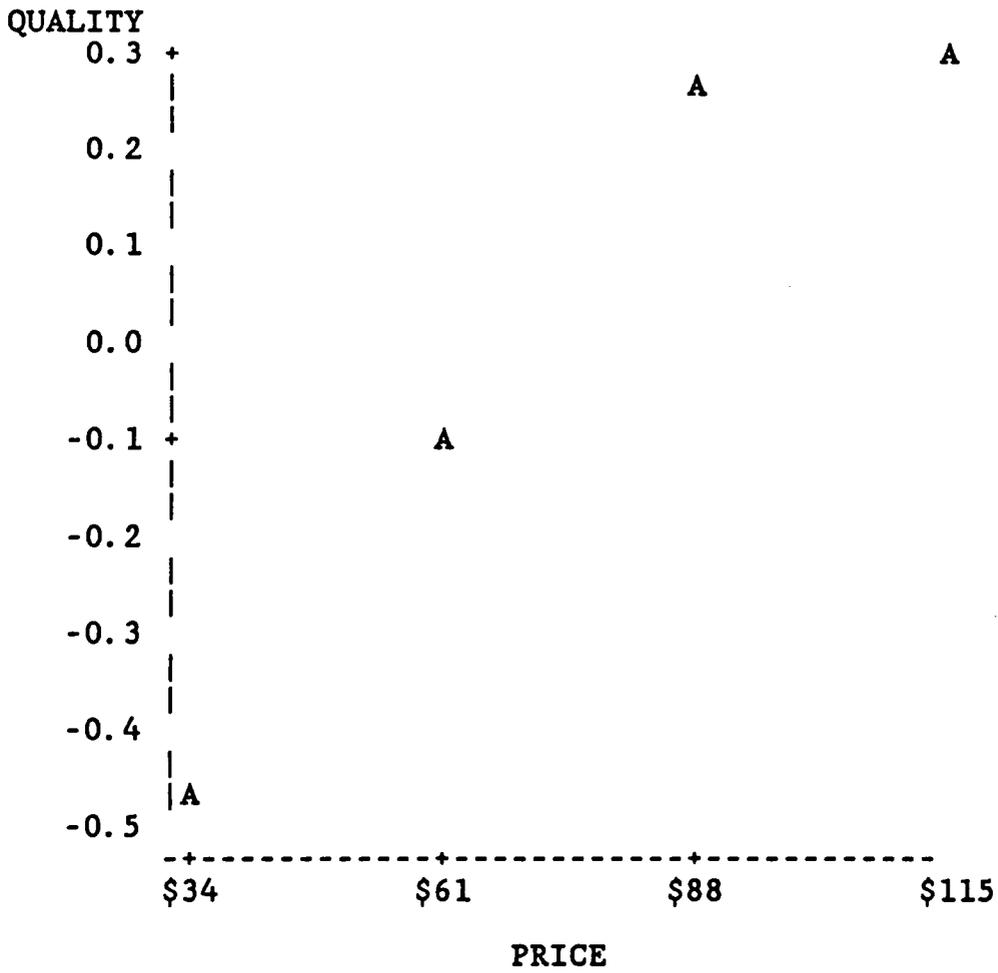
PRICE

Figure 15: Plotting of Standardized Means of Quality for
            Different Prices of Headset Players - retest

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TABLE 22

Duncan's Multiple Range Test - Headset Players-retest

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: Quality Index
ALPHA=0.05 DF=56 MSE=0.706606
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN DIFFERENCE	N	PRICE
		A	-0.47973	15	$34.00
		A			
	B	A	-0.10948	15	$61.00
	B				
	B		0.27731	15	$88.00
	B				
	B		0.31190	15	$115.00

F). Subjects for each treatment group read a product description for either the calculator or the headset player. Then, given the brand name for that product, they were asked to rate the product's quality, using a seven point semantic differential scale. The ratings measured their perceptions of reliability, workmanship, overall quality, dependability, and durability. Two additional variables, familiarity and knowledge of the brands and stores were also measured. Additionally, subjects were asked to evaluate the products they might find in a particular store by responding from the above seven scales plus a scale for satisfaction.

Brand Name Differences in the Perception of Quality

In the analysis of the data, the brand names, Grand Prix and Sony for the headset player and, Royal and Texas Instruments for the calculators were compared in t-tests. For both products, the quality indicators were standardized and, using equal weights, averaged to obtain an index for quality. The means and standard deviations are reported in Table 23. The familiarity and knowledge measures were not standardized.

Three t-test analyses for brand differences were run for each product: (1) familiarity with brand, (2) knowledge of brand, and (3) standardized perceived quality index. The

results of the analysis (Table 24) for the stereo headset player were positive. The data indicated a statistically significant difference between brands in familiarity but no significant difference in brand knowledge. The standardized perceived quality index was significantly different for the two brands (p=.0054). The direction of the means in all the comparisons favored Sony over Grand Prix as the "better" brand. The conclusion from this analysis and the results from a previous pretest (Table 16) appear to support the use of Sony and Grand Prix as high and low perceived-quality brands in phase II.

While an earlier analysis, Table 15, indicated that Texas Instruments was perceived to be significantly higher in perceived quality than Royal, the results of this pretest were different. As shown in Table 25, subjects indicated, with statistical significance, a higher familiarity and knowledge for Texas Instruments, but index of quality was non-significant (p=.9910). This result was confirmed by comparing the means for each individual indicator of the index. Table 23 indicates that the five individual indicators of quality were close in value, suggesting visually non-significance for each indicator. Also, both brands were close to the standardized mean, indicating that Texas Instruments and Royal were not evaluated to be high and low, repectively, in

quality, but suggested that they were seen as brands in the middle of the quality range.

A fifth pretest was run where these brands were evaluated again with two other brands.

Store Name Differences in the Perception of Quality

During the same pretest session, the subjects were asked to evaluate perceptions of store quality. Subjects were randomly assigned to one of four store name treatments; (1) Virginia Tech Bookstore, (2) Roses, (3) Best, and (4) K-Mart. Subjects were asked to evaluate, in general, products that might be found in a particular store, by reponding to five scales, used in previous research (Petroshius 1983; Dodds and Monroe 1984), that measure perception of quality, for the products found in the store. Also, indicators for overall store quality, satisfaction and knowledge were evaluated. As with the analysis for brand differences, the five product quality indicators were standardized and averaged to give a standardized index of product perceived quality. The other indicators were not standardized and were evaluated individually (Table 26).

In analyzing the store names, Virginia Tech Bookstore and Roses, for buying calculators, the former name was seen to be clearly different and more favorable in all four t-tests

TABLE 23

Means for Brand Differences

BRAND	N	MEAN	STANDARD DEVIATION
Grand Prix			
Reliable	12	0.84364772	1.17375737
Workmanship	12	0.52222533	1.20759792
Quality	12	0.25255403	1.21074420
Dependable	12	0.77153098	1.10806329
Durable	12	0.41600858	0.94630933
Quality Index	12	0.56119333	1.04831518
Familiarity	12	4.16666667	1.85047087
Knowledge	12	3.08333333	1.37895437
SONY			
Reliable	12	-0.36221011	0.51328916
Workmanship	12	-0.42179739	0.69720698
Quality	12	-0.52722959	0.40470715
Dependable	12	-0.49428679	0.53881189
Durable	12	-0.37558669	0.85524267
Quality Index	12	-0.43622211	0.39400950
Familiarity	12	2.75000000	1.71225529
Knowledge	12	2.58333333	0.79296146

TABLE 23

Means for Brand Differences - continued

BRAND	N	MEAN	STANDARD DEVIATION
Royal			
Reliable	12	-0.22034449	0.71061666
Workmanship	12	-0.10712315	0.73492069
Quality	12	0.25255403	1.03576571
Dependable	12	-0.12198745	0.96823861
Durable	12	-0.13810811	0.97827621
Quality Index	12	-0.06700183	0.57309968
Familiarity	12	4.66666667	1.77525073
Knowledge	12	2.83333333	0.83484711
Texas Instruments			
Reliable	11	-0.28482886	1.03933132
Workmanship	11	0.00730385	1.14562798
Quality	11	0.02413257	1.06769080
Dependable	11	-0.16937100	0.91756358
Durable	11	0.10656679	1.15987188
Quality Index	11	-0.06323933	0.94396831
Familiarity	11	0.54545455	0.68755165
Knowledge	11	1.45454545	0.68755165

TABLE 24

t-tests For Brand Differences

Buying Stereo Headset Players

Familiarity WITH BRAND

BRAND	N	MEAN	STD DEV	STD ERROR
Grand Prix	12	4.16666667	1.85047087	0.53418493
Sony	12	2.75000000	1.71225529	0.49428553

VARIANCES	T	DF	PROB > |T|
UNEQUAL	1.9465	21.9	0.0645
EQUAL	1.9465	22.0	0.0645

Knowledge OF BRAND

BRAND	N	MEAN	STD DEV	STD ERROR
Grand Prix	12	3.08333333	1.37895437	0.39806984
Sony	12	2.58333333	0.79296146	0.22890826

VARIANCES	T	DF	PROB > |T|
UNEQUAL	1.0889	17.6	0.2909
EQUAL	1.0889	22.0	0.2880

STANDARDIZED PERCEIVED QUALITY INDEX

BRAND	N	MEAN	STD DEV	STD ERROR
Grand Prix	12	0.56119333	1.04831518	0.30262253
Sony	12	-0.43622211	0.39400950	0.11374075

VARIANCES	T	DF	PROB > |T|
UNEQUAL	3.0852	14.0	0.0080
EQUAL	3.0852	22.0	0.0054

TABLE 25

t-tests For Brand Differences

Buying Calculators

Familiarity WITH BRAND

BRAND	N	MEAN	STD DEV
Royal	12	4.66666667	1.77525073
TI	11	0.54545455	0.68755165

VARIANCES	T	DF	PROB > |T|
UNEQUAL	7.4550	14.5	0.0001
EQUAL	7.2085	21.0	0.0001

Knowledge OF BRAND

BRAND	N	MEAN	STD DEV	STD ERROR
Royal	12	2.83333333	0.83484711	0.24099960
TI	11	1.45454545	0.68755165	0.20730462

VARIANCES	T	DF	PROB > |T|
UNEQUAL	4.3373	20.8	0.0003
EQUAL	4.2996	21.0	0.0003

STANDARDIZED PERCEIVED QUALITY INDEX

BRAND	N	MEAN	STD DEV	STD ERROR
Royal	12	-0.06700183	0.57309968	0.16543963
TI	11	-0.06323933	0.94396831	0.28461716

VARIANCES	T	DF	PROB > |T|
UNEQUAL	-0.0114	16.2	0.9910
EQUAL	-0.0117	21.0	0.9908

for mean differences, while three were statistically signi-
ficant (Table 27). Importantly, subjects rated the VT Book-
store statistically significantly higher in overall per-
ceived store quality and in the perception of the products
that would be carried in the store with p values of .0885
and .0098 repectively.

The results of the analysis for store names, Best and K-
Mart, were similar (Table 28) to the previous analysis. As
expected subjects were very knowledgeable about both stores,
but the overall perception of store quality and of the pro-
ducts carried by the store were statistically significant in
favor of Best (respective p-values were .0317 and .0164).

The conclusions from this pretest and past pretests (Ta-
ble 17 and 18) makes a strong argument to position the Vir-
ginia Tech Bookstore and Roses at the high and low end of
the store quality continuum for the purchase of business-use
calculators. Also, the results are conclusive to use Best
and K-Mart as high and low quality stores for the purchase
of FM stereo cassette headset players.

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TABLE 26

Means for Store Differences

STORE	N	MEAN	STANDARD DEVIATION
Virginia Tech Bookstore			
Reliable	12	-0.36277218	0.81267152
Workmanship	12	-0.14946981	0.64691273
Quality	12	-0.45707629	0.63802440
Dependable	12	-0.37108265	0.66948755
Durable	12	-0.49932203	0.58308251
Quality Index	12	-0.36794459	0.58026002
Store Quality	12	1.75000000	1.21543109
Satisfaction	12	2.08333333	1.08362467
Knowledge	12	1.16666667	0.57735027
Roses			
Reliable	12	0.59413199	1.00767991
Workmanship	12	0.54436537	1.03680303
Quality	12	0.65409193	0.96327143
Dependable	12	0.46340943	0.96664956
Durable	12	0.49932203	1.16616503
Quality Index	12	0.55106415	0.96504072
Store Quality	12	2.66666667	1.30267789
Satisfaction	12	2.66666667	1.49747262
Knowledge	12	1.91666667	0.66855792

TABLE 26

Means for Store Differences - continued

STORE	N	MEAN	STANDARD DEVIATION
Best			
Reliable	12	-0.36277218	0.92658809
Workmanship	12	-0.58311680	1.11681800
Quality	12	-0.67930993	0.70489086
Dependable	12	-0.62143027	0.83600796
Durable	12	-0.43690678	0.98219553
Quality Index	12	-0.53670719	0.83824330
Store Quality	12	1.16666667	1.11464086
Satisfaction	12	1.50000000	1.44599761
Knowledge	12	1.66666667	0.98473193
K-Mart			
Reliable	11	0.14335895	1.02473979
Workmanship	11	0.20533227	0.86508350
Quality	11	0.52613923	0.98112842
Dependable	11	0.57720381	1.02833855
Durable	11	0.47662558	0.76913866
Quality Index	11	0.38573197	0.85598518
Store Quality	11	2.27272727	1.19087439
Satisfaction	11	1.81818182	1.32801972
Knowledge	11	1.63636364	0.67419986

TABLE 27

t-tests For Store Differences

Buying Calculators

Store Quality

STORE	N	MEAN	STD DEV	STD ERROR
VTBS	12	1.75000000	1.21543109	0.35086473
Roses	12	2.66666667	1.30267789	0.37605072

VARIANCES	T	DF	PROB > |T|
UNEQUAL	-1.7823	21.9	0.0886
EQUAL	-1.7823	22.0	0.0885

Satisfaction WITH STORE

STORE	N	MEAN	STD DEV	STD ERROR
VTBS	12	2.08333333	1.08362467	0.31281550
Roses	12	2.66666667	1.49747262	0.43228311

VARIANCES	T	DF	PROB > |T|
UNEQUAL	-1.0932	20.0	0.2873
EQUAL	-1.0932	22.0	0.2861

TABLE 27

t-tests For Store Differences - continued

Buying Calculators

Knowledge OF STORE

STORE	N	MEAN	STD DEV	STD ERROR
VTBS	12	1.16666667	0.57735027	0.16666667
Roses	12	1.91666667	0.66855792	0.19299605

VARIANCES	T	DF	PROB > |T|
UNEQUAL	-2.9412	21.5	0.0077
EQUAL	-2.9412	22.0	0.0076

STANDARDIZED PERCEIVED QUALITY INDEX

STORE	N	MEAN	STD DEV	STD ERROR
VTBS	12	-0.36794459	0.58026002	0.16750664
Roses	12	0.55106415	0.96504072	0.27858326

VARIANCES	T	DF	PROB > |T|
UNEQUAL	-2.8272	18.0	0.0112
EQUAL	-2.8272	22.0	0.0098

TABLE 28

t-tests For Store Differences

Buying Stereo Headset Players

Store Quality

STORE	N	MEAN	STD DEV	STD ERROR
Best	12	1.16666667	1.11464086	0.32176910
K-Mart	11	2.27272727	1.19087439	0.35906214

VARIANCES	T	DF	PROB > |T|
UNEQUAL	-2.2941	20.5	0.0325
EQUAL	-2.3010	21.0	0.0317

Satisfaction WITH STORE

STORE	N	MEAN	STD DEV	STD ERROR
Best	12	1.50000000	1.44599761	0.41742355
K-Mart	11	1.81818182	1.32801972	0.40041301

VARIANCES	T	DF	PROB > |T|
UNEQUAL	-0.5501	21.0	0.5881
EQUAL	-0.5480	21.0	0.5895

TABLE 28

t-test For Store Differences - continued

Buying Stereo Headset Players

Knowledge OF STORE

STORE	N	MEAN	STD DEV	STD ERROR
Best	12	1.66666667	0.98473193	0.28426762
K-Mart	11	1.63636364	0.67419986	0.20327891

VARIANCES	T	DF	PROB > |T|
UNEQUAL	0.0867	19.5	0.9318
EQUAL	0.0853	21.0	0.9328

STANDARDIZED PERCEIVED QUALITY INDEX

STORE	N	MEAN	STD DEV	STD ERROR
Best	12	-0.53670719	0.83824330	0.24198000
K-Mart	11	0.38573197	0.85598518	0.25808924

VARIANCES	T	DF	PROB > |T|
UNEQUAL	-2.6073	20.7	0.0166
EQUAL	-2.6098	21.0	0.0164

OBJECTIVES, PROCEDURES, AND RESULTS OF THE FIFTH PRETEST

The results of fourth pretest were not conclusive in the support of Texas Instruments and Royal as high and low quality brand names for business-use pocket calculators. Using a sample of 45 marketing management students, subjects were asked to evaluate the quality of four brands, Albinar, Hewlett Packard, Texas Instruments, and Royal. Subjects read a product description for the calculator and then proceeded to evaluate the different brands. Five indicators of quality were used to assess perceived quality (See Appendix G).

An inspection of the means in Table 29 shows visually the difference in quality between the Texas Instruments and Hewlett Packard names as high quality brands and the Albinar and Royal names as low quality brands. While Albinar represents a brand that was rated lower in overall quality by the subjects, Royal was chosen on the basis of having a higher degree of knowledge in a previous pretest. Hewlett Packard, was chosen on the basis of high quality peception overall and on each of the individual quality indicators. A t-test analysis between Hewlett-Packard and Royal as shown in Table 30, was significant (p=.0001).

Therefore, the conclusion was drawn that Hewlett Packard and Royal were perceived as being at the high and low end of the quality spectrum and were statistically different.

TABLE 29

Perceived Quality Differences for Brands

VARIABLE	N	MEAN	STANDARD DEVIATION
Albinar			
Reliable	45	0.68567132	0.78386825
Workmanship	45	0.61313042	0.79271804
Quality	45	0.59178275	0.78283425
Dependable	45	0.59730341	0.73265822
Durable	45	0.60225789	0.78951609
Quality Index	45	0.61802916	0.65268421
Hewlett Packard			
Reliable	45	-0.71683820	0.79799880
Workmanship	45	-0.67601560	0.82918728
Quality	45	-0.54105852	0.90641553
Dependable	45	-0.56365251	0.95499663
Durable	45	-0.60122162	0.87050139
Quality Index	45	-0.61975729	0.80002953
Royal			
Reliable	45	0.54542037	0.69948168
Workmanship	45	0.53452396	0.72962106
Quality	45	0.47342620	0.87188830
Dependable	45	0.53000162	0.79991289
Durable	45	0.43739768	0.73622460
Quality Index	45	0.50415397	0.61115834
Texas Instruments			
Reliable	45	-0.51425349	0.86404770
Workmanship	45	-0.47163879	0.92104141
Quality	45	-0.52415044	0.84012288
Dependable	45	-0.56365251	0.82310358
Durable	45	-0.43843394	1.00605579
Quality Index	45	-0.50242584	0.76278309

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+---------------------------------------------------------------+
|                          TABLE 30                             |
|                                                               |
|              t-tests for Brand Differences                    |
|                                                               |
|   VARIABLE: Quality Index                                     |
|                                                               |
|    Brand                    N         MEAN        STD DEV      |
|                                                               |
|   Hewlett Packard          45    -0.61975729    0.80002953     |
|   Royal                    45     0.50415397    0.61115834     |
|                                                               |
|    VARIANCES        T        DF    PROB > |T|                 |
|                                                               |
|    UNEQUAL      -7.4888     82.3      0.0001                   |
|    EQUAL        -7.4888     88.0      0.0001                   |
|                                                               |
+---------------------------------------------------------------+
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ASSESSMENT OF RELIABILITY

There were six situations in the series of pretests where multiple indicators of perceived quality were used. To assess the reliability of the measures, correlation analyses of the five indicators were run. The reliability of the product quality, using Cronbach's Alpha, resulted in values from .892 to .958.

A summary of the reliability for each use of the multiple indicators is presented.

1. The second pretest evaluated the influence of price differences on the perception of quality for both calculators and FM stereo Cassette Headset Players. Table 31 for calculators and Table 32 for Headset players show the correlational data and Cronbach's Alpha of .892 and .922 repectively.

2. In the third pretest, a retest of the price perceived quality relationship for FM stereo casette headset players, the correlational data was similar to data from the original test (Table 33). The reliability, in terms of Cronbach's Alpha was .928.

3. The influence of brand and store name on the perception of product quality was assessed using multiple indicators. Table 34 for brand names and Table 35 for store names show the correlational data and Cronbach's Alpha of .896 and .958 repectively.

4. The final pretest reanalyzed brand differences for calculators. As shown in Table 36, Cronbach' Alpha was .945.

It was concluded that these indicators provided reliable measures of the perceived quality construct.

CHAPTER SUMMARY

The objectives of the pretest as stated at the beginning of this chapter have been met in the following ways:

1. The products, business-use calculators and FM stereo cassette headset player, were chosen on the basis of having the highest familiarity by subjects.

2. From a population of brand and store names as provided by the subjects, specific brand and store names were chosen that provided plausible support for high and low quality images. For the calculator, Hewlett Packard and Royal were chosen for brand names, and the Virginia Tech Bookstore and Roses were chosen as the store names. For the headset player, Sony and Grand Prix were chosen to be manipulations for brand while Best and K-Mart were chosen to be the treatments for store names.

3. For calculators, prices of $17.00, $28.00 and $39.00 appear to cover the continuum of low to high prices

TABLE 31

Reliability Assessments for Multiple Indicators of
Perceived Quality - Prices For Calculators

VARIABLE	N	MEAN	STD DEV
Reliable	58	1.62068966	1.10545039
Workmanship	58	1.60344828	0.97224023
Quality	58	1.41379310	0.99179941
Dependable	58	1.82758621	1.24446749
Durable	58	2.17241379	1.32635804

CORRELATION COEFFICIENTS

	Reliable	Workman.	Quality	Dependable	Durable
Reliable	1.00000	0.51053	0.73773	0.80606	0.55990
Workman.	0.51053	1.00000	0.71898	0.47900	0.43488
Quality	0.73773	0.71898	1.00000	0.68423	0.62497
Dependable	0.80606	0.47900	0.68423	1.00000	0.66668
Durable	0.55990	0.43488	0.62497	0.66668	1.00000

Cronbach's Alpha = .892

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TABLE 32

Reliability Assessments for Multiple Indicators of
Perceived Quality - Prices For FM Stereo Cassette
Headset Players

VARIABLE	N	MEAN	STD DEV
Reliable	58	1.91379310	0.99621182
Workman.	58	1.82758621	1.15679429
Quality	58	1.63793103	1.13475055
Dependable	58	1.82758621	1.14152762
Durable	58	2.17241379	1.21594568

CORRELATION COEFFICIENTS

	Reliable	Workman.	Quality	Dependable	Durable
Reliable	1.00000	0.64149	0.67027	0.78891	0.64974
Workman.	0.64149	1.00000	0.80697	0.73438	0.53288
Quality	0.67027	0.80697	1.00000	0.77713	0.68178
Dependable	0.78891	0.73438	0.77713	1.00000	0.74223
Durable	0.64974	0.53288	0.68178	0.74223	1.00000

Cronbach Alpha = .922

TABLE 33

Reliability Assessments For Multiple Indicators of
Perceived Quality - Prices for FM Stereo Cassette
Headset Players

Retest

VARIABLE	N	MEAN	STD DEV
Reliable	60	1.85000000	1.23267657
Workmanship	60	1.51666667	1.09686250
Quality	60	1.43333333	1.21245886
Dependable	60	1.86666667	1.34626497
Durable	60	2.11666667	1.36657020

CORRELATION COEFFICIENTS

	Reliable	Workman.	Quality	Dependable	Durable
Reliable	1.00000	0.64747	0.80404	0.87631	0.67463
Workman	0.64747	1.00000	0.72092	0.70169	0.54709
Quality	0.80404	0.72092	1.00000	0.82515	0.65434
Dependable	0.87631	0.70169	0.82515	1.00000	0.75482
Durable	0.67463	0.54709	0.65434	0.75482	1.00000

Cronbach's Alpha = .928

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+-----------------------------------------------------------------+
|                                                                 |
|                          TABLE 35                               |
|                                                                 |
|      Reliability Assessments for Multiple Indicators of         |
|               Perceived Quality - Store Name                    |
|                                                                 |
|                                                                 |
|         VARIABLE          N        MEAN      STD DEV             |
|                                                                 |
|         Reliable      47  1.68085106  0.95795032                |
|         Workmanship   47  1.89361702  0.96084298                |
|         Quality       47  1.68085106  1.12494218                |
|         Dependable    47  1.78723404  0.99861143                |
|         Durable       47  2.00000000  1.33514370                |
|                                                                 |
|                                                                 |
|                  CORRELATION COEFFICIENTS                       |
|                                                                 |
|         Reliable Workman. Quality  Dependable Durable           |
|                                                                 |
| Reliable   1.00000  0.76533  0.81121  0.81375  0.79886          |
| Workman.   0.76533  1.00000  0.81262  0.79153  0.79645          |
| Quality    0.81121  0.81262  1.00000  0.90582  0.85396          |
| Dependable 0.81375  0.79153  0.90582  1.00000  0.84785          |
| Durable    0.79886  0.79645  0.85396  0.84785  1.00000          |
|                                                                 |
| Cronbach's Alpha = .958                                         |
|                                                                 |
+-----------------------------------------------------------------+
```

TABLE 36

Reliability Assessments for Multiple Indicators of
Perceived Quality - Brand Names

VARIABLE	N	MEAN	STD DEV
Reliable	180	2.00000000	1.42601527
Workmanship	180	1.84444444	1.41351111
Quality	180	1.60000000	1.31429612
Dependable	180	1.74444444	1.32075068
Durable	175	1.87428571	1.36717320

CORRELATION COEFFICIENTS

	Reliable	Workman	Quality	Dependable	Durable
Reliable	1.00000	0.90630	0.77202	0.75045	0.74194
Workman.	0.90630	1.00000	0.74517	0.69678	0.72175
Quality	0.77202	0.74517	1.00000	0.84192	0.81145
Dependable	0.75045	0.69678	0.84192	1.00000	0.77245
Durable	0.74194	0.72175	0.81145	0.77245	1.00000

Cronbach's Alpha = .945

with the strong possibility that subjects will consider a $50.00 price to be too high to be acceptable. With the headset player, after running an additional pretest, prices of $34.00, $61.00, and $88.00 appear to show quality differences with a price of $115.00 possibly to be evaluated as being higher than an acceptable price.

Chapter five presents the analysis and results of phase II. The results of the pretest reported in this chapter will be the basis for the independent manipulations in phase II.

Chapter V

RESULTS AND ANALYSIS

OVERVIEW OF THE CHAPTER

This chapter presents the results and analysis of the experiments in phase 2. First, an explanation of the experimental instrument is given. Next, the conduct of the experiment is explained. Third, prelimary procedures on the data prior to data analysis are delineated. The analysis of the data for two experimental treatments are discussed involving ANOVA, Duncan's multiple range test, analysis of trend, and t-tests as they pertain to the three dependent measures of perceived quality, perceived value, and willingness to buy. Additionally, a discussion of the exploratory research questions is presented with a summary of observational statements. Finally, the results of the experiment are discussed both in statistical and substantive terms in respect to the 15 hypotheses presented in Chapter III.

THE EXPERIMENTAL INSTRUMENT

A twenty four page instrument was used to collect data for this research as well as related data that will be analyzed later in conjunction with the research data. A description of each section of the instrument follows (a copy, which represents one of forty five possible cells is shown in Appendix H):

Coverpage

The first page contains general instructions for the subjects in conducting the data gathering session. Also, fourteen spaces are provided for the entry of the manipulation codes as follows:

1. Columns 1-2. These columns were used to identifiy the subjects To control for order bias, half of the booklets for each cell were reversed in the order that the two products were to be evaluated. The first column identifies which product was evaluated first: 1 for the calculator or 2 for the stereo headset player. The second column identified the subjects within each of the cells. Codes ran from 11 to 19 or 21 to 29, depending on the order of the manipulated product types.

2. The next six digits were the manipulation codes for the calculator that are found on page 6 of the instrument. The last six digits were the codes for the headset player that are found on page 16 of the booklet.

    a) The first number represents the product: 1 for the calculator and 2 for the stereo headset player.

    b) The next two digits, from 01 to 45, identifies the treatment cell. (For a description of these treatments, see Figures 16 and 17)

    c) The last three digits represented the price, brand name, and store name manipulations. The price codes, from 1 to 5, represents the five price manipulations: the brand name codes, from 1 to 3, represented the three brand name manipulations:, and store name treatments were represented in the same manner as brand name.

Attitude Survey

The attitude survey, on pages 2 to 5, with 55 questions was placed in the experiment to help disguise the experimental manipulations and to provide a more complete profile of the subjects for a later analysis. All statements are con-

BRAND NAME	PRICE					STORE NAME
	(TOO HIGH) $50	(HIGH) $39	(MEDIUM) $28	(LOW) $17	(NO PRICE)	
(HIGH) Hewlett-Packard	1	2	3	4	5	(HIGH) VT Bookstore
(HIGH) Hewlett-Packard	6	7	8	9	10	(LOW) Roses
(HIGH) Hewlett-Packard	11	12	13	14	15	(NO)
(LOW) Royal	16	17	18	19	20	(HIGH) VT Bookstore
(LOW) Royal	21	22	23	24	25	(LOW) Roses
(LOW) Royal	26	27	28	29	30	(NO)
(NO)	31	32	33	34	35	(HIGH) VT Bookstore
(NO)	36	37	38	39	40	(LOW) Roses
(NO)	41	42	43	44	45	(NO)

Note: The number in each cell represents a cell number.

Figure 16: Operationalization of the Research Design for the Calcualtor Experiment

BRAND NAME	PRICE					STORE NAME
	(TOO HIGH) $115	(HIGH) $88	(MEDIUM) $61	(LOW) $34	(NO PRICE)	
(HIGH) Sony	1	2	3	4	5	(HIGH) Best
(HIGH) Sony	6	7	8	9	10	(LOW) K-Mart
(HIGH) Sony	11	12	13	14	15	(NO)
(LOW) Grand Prix	16	17	18	19	20	(HIGH) Best
(LOW) Grand Prix	21	22	23	24	25	(LOW) K-Mart
(LOW) Grand Prix	26	27	28	29	30	(NO)
(NO)	31	32	33	34	35	(HIGH) Best
(NO)	36	37	38	39	40	(LOW) K-Mart
(NO)	41	42	43	44	45	(NO)

Note: The number in each cell represents a cell number.

Figure 17: Operationalization of the Research Design for the Stereo Headset Player Experiment

cerned with the way subjects shop and the feelings they have about shopping. Responses were obtained using a Likert type scale from 1 to 7, anchored by strongly agree and strongly disagree respectively.

The First Experimental Treatment

The first page of this section, (pages 6 to 10), sets up the experimental treatment, where according to the appropriate treatment, subjects were given price, and/or brand name, and/or store name, or no extrinsic information at all. All subjects were given identical product descriptions and asked to assume interest in buying the product. After reading the information, subjects evaluated the product by responding to the seventeen dependent measures. When subjects did not have price information, the questions pertaining to perception of value and willingness to buy were not relevant and therefore subjects were asked to enter "1" for these questions.

Importance of Different Store Characteristics

Thirty two characteristics that might pertain to stores, in general, were evaluated in this section. Subjects were asked to react to the relative importance, on a seven point scale, from very important to very unimportant for each characteristic in terms of what they thought a store should be like. This data will be analyzed later with the immediate research data. The present intent was to place a buffer between the two experimental designs.

General Evaluation of Products Found in Specific Stores

This section, pages 14 and 15, utilizing the store name used in the first experimental manipulation, asked subjects to evaluate the quality of products that would be found in that specific store. This data, in a later analysis can be compared to the evaluation of the specific product evaluated within that store, but the immediate need was to have a buffer between the designs.

Second Experimental Treatment

The description of the treatments for the stereo headset player were on pages 16 to 20.

Demographic Data and Manipulation Checks

The last section gathered demographic data about the subjects and their knowledge about the products. Manipulation checks for the three treatment variables, price, brand name, and store name were made. Also a question measuring whether the treatment variable was perceived to be the same as intended was included, for example, whether a high price treatment was perceived as a high price. The last question asked subjects to speculate what the purpose of the study was.

Random Pairing of the Two Product Treatments

Each subject evaluated the calculator and the stereo headset player. The two product treatments were combined in a random fashion, but with the following restriction. Since some treatment cells had missing price, brand name, and store name information in different combinations, product treatments were randomly paired only if they contained the same types of information, e.g. a product treatment with price and brand name information would be grouped with the other product treatment with only price and brand name information. The purpose of this restriction is to avoid the carryover of information gained in the first experimental treatment to the second treatment where that information is

missing. This condition could be illustrated in a situation where price, brand name, and store name is provided in the first experimental setting, but only price and brand name is provided in the second setting. An artifact might be introduced into the experiment if the subject assumed the same store name in the second setting when no store name information was intended. The random pairing was the same for all booklets in each cell.

CONDUCT OF THE EXPERIMENT

Participants in this experiment were undergraduate students enrolled in Marketing Management classes at Virginia Tech during the Winter quarter, 1985. A total of 625 subjects participated in one of four data gathering sessions, held in large lecture halls over a period of 12 days.

In each session, booklets and op-scan sheets were distributed to the subjects. Subjects were told that a mistake had been made in collating the booklets and, therefore, some of the booklets were "inadvertently" put together. Pages 16 to 20 were switched with pages 6 to 10 but subjects were told that this "error" would not cause any problems and, therefore, they should go through the booklet on a page by page basis, but were warned to be careful to record the responses in the correct pages on the op-scan. The subjects

were asked to record the six digit numbers that appeared on page 6 and 16 of the survey booklet onto the cover page, but were not told the meaning of these manipulation codes. The next step was to have the subjects record these 12 numbers along with a two digit subject code that was preprinted on the cover page onto the opscan sheet. After requesting the subjects to fill in the appropriate circled numbers on the op-scan, they were asked to put the op-scans away and to read page 1.

The researcher then read the directions and asked if there were any questions. After questions were fully answered, the subjects were asked to turn the page and begin the exercise. After the first 55 questions were answered, the subjects were asked to record the answers onto the op-scan sheet and then to continue. The purpose of these directions were to "force" the subjects to concentrate on the exercise and then, only after the section has been completed, transfer the responses to the op-scan sheet.

When all subjects had completed the experiment, the response booklets and op-scan sheets were collected. Subjects were thanked for their cooperation and then dismissed.

PRELIMINARY PROCEDURES

Prior to analyzing the data, several procedures were conducted as explained below:

Case Deletions

Evidence of demand characteristics were probed by examining the question concerning the purpose of the study. Since subjects, who had knowledge of the experiment's purpose might respond in favor of the hypothesis, it is important to identify these subjects and eliminate their responses, No observations were deleted because no subject guessed the true purpose or hypotheses.

The op-scans were examined for errors in transferring the manipulation codes and completing the questions. One observation was eliminated because of a defective booklet and two other observations were removed because the subjects failed to complete the survey.

Since the robustness of the analysis depends, to a degree, on equal cell sizes, the order of deletion to gain equal cell size was determined in advance. Since subjects were randomly assigned to one of four sessions and booklets from each cell were placed in a random order, it was determined to delete booklets with the highest subject number. This allowed the removal of 37 observations to obtain 13 subjects per cell or 585 usable observations.

Dependent Measures

The remaining 585 observations constituted the data for the subsequent analysis. The dependent measures of these observations required two additional procedures before the analysis could be initiated.

Reverse Scoring

In general, the seven point scales utilized a "1" as a positive or favorable response while a "7" denoted an unfavorable or negative reponse. Two measures, one measuring the likelihood of continuing to search and the other, concerning the expensiveness of the product, had to be reversed scored for purposes of conformity to the general direction of the scale.

Reliability of Dependent Measures

As discussed in Chapter III, the observed measurements are never perfect, but rather, indirect estimates of the intended construct. The measure is reliable to the extent that independent but comparable measures of the same trait or construct agree. As suggested by Churchill (1979) three procedures may be used to assess reliability of the measuring instruments: (1) correlation analysis, (2) factor analysis, and (3) coefficient alpha for internal consistency.

The correlation matrices in Tables 37 and 38 are derived from the 36 cells that contain price information. The nine non-price cells were not used since subjects responded only to perceived quality measures. These matrices will be partitioned by dependent variable group and be the input to the following exploratory and confirmatory factor analysis which includes the correlation analysis that Churchill suggests.

Exploratory Factor Analysis. The results of an exploratory factor analysis, indicate three factors with eigenvalues greater than one emerged for the business calculator and two factors for the stereo headset player (Table 39 and 40). These three factors accounted for over 80% of the variance in both experiments. The seventeen measures loaded onto the three constructs in the manner that had been contemplated by analyzing the content of each measure. The communality estimates for each variable indicate that most of the variance for each variable is explained in a three factor model. Two indicators, search (#6) and expensiveness (#12) had considerably lower communality estimates, indicating that their variance is not explained in the three factor model. A discussion of problems for these two indicators will be discussed later.

Based on this preliminary analysis, it was concluded that the following three groups of variables provided reliable

TABLE 37

CORRELATION MATRIX - BUSINESS CALCULATORS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	100	82	80	86	73	42	33	8	45	45	13	-14	38	13	34	39	37
2	82	100	81	81	75	38	33	9	42	44	15	-13	36	15	33	38	38
3	80	81	100	84	73	42	37	8	45	47	16	-15	37	14	37	40	39
4	86	81	84	100	73	44	38	10	46	49	17	-13	38	19	38	41	41
5	73	75	73	73	100	38	28	4	37	40	8	-12	30	11	29	33	32
6	42	38	42	44	38	100	43	26	52	62	35	12	57	35	55	58	58
7	33	33	37	38	28	43	100	72	77	61	70	35	63	65	65	59	60
8	8	9	8	10	4	26	72	100	71	49	80	54	58	72	59	51	53
9	45	42	45	46	37	52	77	71	100	73	75	35	74	69	77	70	70
10	45	44	47	49	40	62	61	49	73	100	59	21	78	56	84	88	87
11	13	15	16	17	8	35	70	80	75	59	100	54	67	77	68	61	62
12	-14	-13	-15	-13	-12	12	35	54	35	21	54	100	27	56	33	26	24
13	38	36	37	38	30	57	63	58	74	78	67	27	100	66	87	80	80
14	13	15	14	19	11	35	65	72	69	56	77	56	66	100	69	61	62
15	34	33	37	38	29	55	65	59	77	84	68	33	87	69	100	87	86
16	39	38	40	41	33	58	59	51	70	88	61	26	80	61	87	100	92
17	37	38	39	41	32	58	60	53	70	87	62	24	80	62	86	92	100

Description of Dependent Measures

1 Reliable
2 Workmanship
3 Quality
4 Dependable
5 Durable
6 Search
7 Value
8 Economical
9 Good Buy
10 Purchase
11 Acceptable
12 Expensive
13 Conditional Buy
14 Bargain
15 Consider Buying
16 Probability of Buying
17 Willingness to Buy

TABLE 38

CORRELATION MATRIX - STEREO HEADSET PLAYER

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	100	84	80	87	77	39	40	7	34	40	15	-26	30	13	34	37	39
2	84	100	84	83	75	34	35	1	27	34	8	-33	23	5	28	30	33
3	80	84	100	83	75	33	30	-1	23	33	6	-37	19	0	21	26	30
4	87	83	83	100	80	37	37	5	32	40	14	-30	28	10	32	36	38
5	77	75	75	80	100	32	40	10	34	40	17	-27	28	11	33	35	36
6	39	34	33	37	32	100	47	29	49	57	37	10	46	36	53	53	55
7	40	35	30	37	40	47	100	68	63	63	69	26	64	63	71	65	61
8	7	1	-1	5	10	29	68	100	74	54	74	55	61	73	63	58	56
9	34	27	23	32	34	49	80	74	100	75	75	32	75	72	81	75	72
10	40	34	33	40	40	57	63	54	75	100	65	23	73	59	84	86	85
11	15	8	6	14	17	37	69	74	75	65	100	47	72	70	74	68	67
12	-26	-33	-37	-30	-27	10	26	55	32	23	47	100	32	52	34	29	29
13	30	23	19	28	28	46	64	61	75	73	72	32	100	71	84	78	75
14	13	5	0	10	11	36	63	73	72	59	70	52	71	100	73	65	65
15	34	28	21	32	33	53	71	63	81	84	74	34	84	73	100	91	87
16	37	30	26	36	35	53	65	58	75	86	68	29	78	65	91	100	89
17	39	33	30	38	36	55	61	56	72	85	67	29	75	65	87	89	100

Description of Dependent Measures

1	Reliable	7	Value	13	Conditional Buy
2	Workmanship	8	Economical	14	Bargain
3	Quality	9	Good Buy	15	Consider Buying
4	Dependable	10	Purchase	16	Probability of Buying
5	Durable	11	Acceptable	17	Willingness to Buy
6	Search	12	Expensive		

measures of the three underlying constructs for both experimental treatments.

Construct	Variables
Perceived Quality	1,2,3,4,5
Perceived Value	7,8,9,11,12,14
Willingness to Buy	6,10,13,15,16,17

Confirmatory Factor Analysis. Given this evidence that each group of variables was tapping a separate construct, the variables were further analyzed for internal and external consistency using confirmatory factor analysis.

The first step of this analysis specifies that items should not be mixed together in the same construct unless the items share a specific and common meaning. The items in Table 41 appear to conform to this requirement.

The second step evaluates the internal consistency of each construct. The items within the construct should have about the same correlations with one another. As shown in Tables 42 and 43, indicator 12, a measure of perceived value intended to tap the dimension of expensiveness, has low correlation with other perceived value measures. In the same manner, indicator 6, measuring the propensity to continue searching rather than to buy, has relatively low correla-

TABLE 39

Varimax Rotated Factor Pattern - Business Calculators

		Willingness To Buy (WB)		Perceived Quality(PQ)		Perceived Value(PV)	
1	Reliable	21		90	*	2	
2	Workmanship	19		90	*	4	
3	Quality	23		89	*	3	
4	Dependable	23		90	*	5	
5	Durable	17		84	*	0	
6	Search	67	*	31		8	
7	Value	37		30		71	*
8	Economical	27		0		87	*
9	Good Buy	51		37		66	*
10	Purchase	83	*	31		30	
11	Acceptable	41		4		81	*
12	Expensive	4		-21		75	*
13	Conditional Buy	77	*	21		43	
14	Bargain	42		3		77	*
15	Consider Buy	81	*	18		45	
16	Probability Buy	87	*	21		32	
17	Willingness to Buy	86	*	21		33	

VARIANCE EXPLAINED:

PROPORTION	0.287	0.268	0.247
CUMULATIVE	0.287	0.555	0.802

FINAL COMMUNALITY ESTIMATES: TOTAL = 13.634015

Reliable	Workmanship	Quality	Dependable	Durable
0.851058	0.838571	0.84004	0.867122	0.74055

Search	Value	Economical	Good Buy	Purchase
0.5540	0.730555	0.827568	0.826355	0.869633

Acceptable	Expensive	Conditional Buy	Bargain
0.827720	0.607155	0.817024	0.770834

Consider Buy	Probability Buy	Willingness to Buy
0.884462	0.894590	0.886714

TABLE 40

Varimax Rotated Factor Pattern - Stereo Headset Player

		Perceived Value (PV)	Perceived Quality(PQ)	Willingness to Buy (PV)
1	Reliable	8	90 *	21
2	Workmanship	1	91 *	16
3	Quality	-3	91 *	15
4	Dependable	5	91 *	20
5	Durable	12	86 *	15
6	Search	10	25	71 *
7	Value	74 *	34	32
8	Economical	89 *	-2	20
9	Good Buy	74 *	23	48
10	Purchase	42	24	78 *
11	Acceptable	78 *	2	41
12	Expensive	64 *	-44	9
13	Conditional Buy	59 *	14	63 *
14	Bargain	78 *	-3	39
15	Consider Buy	57 *	16	74 *
16	Probability Buy	48	19	78 *
17	Willingness to Buy	45	21	79 *

VARIANCE EXPLAINED:

PROPORTION	0.284	0.273	0.244
CUMULATIVE	0.284	0.557	0.801

FINAL COMMUNALITY ESTIMATES: TOTAL = 13.628719

Reliable	Workmanship	Quality	Dependable	Durable
0.854903	0.854875	0.847286	0.877796	0.784880

Search	Value	Economical	Good Buy	Purchase
0.575676	0.760081	0.832945	0.825259	0.850012

Acceptable	Expensive	Conditional Buy	Bargain
0.777416	0.617139	0.760941	0.759886

Consider Buy	Probability Buy	Willingness to Buy
0.905319	0.878822	0.865482

tions with the other dependent measures clustered within the willingness to buy construct. They do not show a stronger tendency to be clustered with the other constructs, since their correlation with indicators of the other constructs is small. These variables (6 and 12) were dropped from the measurement model with the results, as shown in Table 44 and 45, showing a stronger argument for internal consistency. The correlations within each construct are relatively large and equal. Also, the indicators have about the same factor loadings with the construct they are intended to be defining. This rough test satisfies one argument for internal consistency.

The third step is to test for external consistency. A rough test examines whether all the items in a construct have about the same correlation with another construct, and if so, these items should all have about the same correlations with indicators in other clusters. The general statement of external consistency is that the items have similar patterns of correlation with items in other constructs. Indicators 7 and 9, while showing good internal consistency in Tables 44 and 45, show a tendency in both experiments to have higher correlations with the perceived quality con-

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TABLE 41

Dependent measures of the Experiment

Perceived Quality Indicators

1. The likelihood that the Business Use Pocket Calculator would be reliable is: (from very high to very low)

2. The workmanship of the Business Use Pocket Calculator would be: (from very high to very low)

3. This Business Use Pocket Calculator should be of: (from very good quality to very poor quality)

4. The likelihood that this Business Use Pocket Calculator is dependable is: (from very high to very low)

5. This Business Use Pocket Calculator would seem to be durable.(From strongly agree to strongly disagree)

Perceived Value Indicators

7. This Business Use Pocket Calculator is a: (from very good value for the money to very poor value for the money)

8. At the price shown this Business Use Pocket Calculator is: (very economical to very uneconomical)

9. I would consider this Business Use Pocket Calculator to be a good buy. (From strongly agree to strongly disagree)

11. The price shown for this Business Use Pocket Calculator is : (from very acceptable to very unacceptable)

12. I would consider this Business Use Pocket Calculator to be: (From very expensive to very inexpensive)

14. This Business Use Pocket Calculator appears to be a bargain. (From strongly agree to strongly disagree)

TABLE 41

Dependent measures of the Experiment - continued

Willingness to Buy

6. The likelihood that I would not buy this Business
   Use Pocket Calculator but continue to search for a
   Business Use Pocket Calculator is : (from very high
   to very low)

10. The likelihood that I would purchase this Business
    Use Pocket Calculator is : (from very high to very
    low)

13. If I were going to buy a Business Use Pocket
    Calculator, I would consider buying this model at
    the price shown. (From strongly agree to strongly
    disagree)

15. At the price shown, I would consider buying the
    Business Use Pocket Calculator. (From strongly
    agree to strongly disagree)

16. The probability that I would consider buying the
    Business Use Pocket Calculator is: (from very high
    to very low)

17. My willingness to buy the Business Use Pocket
    Calculator is: (from very high to very low)

TABLE 42

FACTOR INTERCORRELATIONS AND LOADING MATRIX - BUSINESS CALCULATORS

	PERCEIVED QUALITY					PERCEIVED VALUE						HILLINGNESS TO BUY						CONSTRUCTS		
	1	2	3	4	5	7	8	9	11	12	14	6	10	13	15	16	17	PQ	PV	HB
1	83	82	80	86	73	33	8	45	13	-14	13	42	45	38	34	39	37	91	20	45
2	82	81	81	81	75	33	9	42	15	-13	15	38	44	36	33	38	38	90	21	43
3	80	81	81	84	73	37	8	45	16	-15	14	42	47	37	37	40	39	90	22	46
4	86	81	84	85	73	38	10	46	17	-13	19	44	49	38	38	41	41	92	24	48
5	73	75	73	73	66	28	4	37	8	-12	11	38	40	30	29	33	32	81	16	39
7	33	33	37	38	28	63	72	77	70	35	65	43	61	63	65	59	60	38	79	67
8	8	9	8	10	4	72	79	71	80	54	72	26	49	58	59	51	53	9	89	57
9	45	42	45	46	37	77	71	67	75	35	69	52	73	74	77	70	70	48	82	79
11	13	15	16	17	8	70	80	75	83	54	77	35	59	67	68	61	62	16	91	67
12	-14	-13	-15	-13	-12	35	54	35	54	30	56	12	21	27	33	26	24	-15	55	27
14	13	15	14	19	11	65	72	69	77	56	73	35	56	66	69	61	62	16	86	67
6	42	38	42	44	38	43	26	52	35	12	35	40	62	57	55	58	58	46	42	63
10	45	44	47	49	40	61	49	73	59	21	56	62	86	78	84	88	87	51	66	93
13	38	36	37	38	30	63	58	74	67	27	66	57	78	77	87	80	80	40	74	88
15	34	33	37	38	29	65	59	77	68	33	69	55	84	87	86	87	86	39	77	93
16	39	38	40	41	33	59	51	70	61	26	61	58	88	80	87	89	92	43	68	94
17	37	38	39	41	32	60	53	70	62	24	62	58	87	80	86	92	88	42	69	94
PQ	91	90	90	92	81	38	9	48	16	-15	16	46	51	40	39	43	42	100	23	50
PV	20	21	22	24	16	79	89	82	91	55	86	42	66	74	77	68	69	23	100	76
HB	45	43	46	48	39	67	57	79	67	27	67	63	93	88	93	94	94	50	76	100

Note:COMMUNALITY IN THE DIAGONAL

	PERCEIVED QUALITY					PERCEIVED VALUE						WILLINGNESS TO BUY						CONSTRUCTS		
	1	2	3	4	5	7	8	9	11	12	14	6	10	13	15	16	17	PQ	PV	HB
1	84	84	80	87	77	40	7	34	15	-26	13	39	40	30	34	37	39	92	18	43
2	84	83	84	83	75	35	1	27	8	-33	5	34	34	23	28	30	33	91	9	35
3	80	84	80	83	75	30	-1	23	6	-37	0	33	33	19	21	26	30	89	4	32
4	87	83	83	87	80	37	5	32	14	-30	10	37	40	28	32	36	38	94	14	41
5	77	75	75	80	71	40	10	34	17	-27	11	32	40	28	33	35	36	84	18	40
7	40	35	30	37	40	60	68	80	69	26	63	47	63	64	71	65	61	40	77	72
8	7	1	-1	5	10	68	80	74	74	55	73	29	54	61	63	58	56	5	89	62
9	34	27	23	32	34	80	74	74	75	32	72	49	75	75	81	75	72	33	86	83
11	15	8	6	14	17	69	74	75	75	47	70	37	65	72	74	68	67	13	86	75
12	-26	-33	-37	-30	-27	26	55	32	47	25	52	10	23	32	34	29	29	-34	50	31
14	13	5	0	10	11	63	73	72	70	52	72	36	59	71	73	65	65	9	85	72
6	39	34	33	37	32	47	29	49	37	10	36	34	57	46	53	53	55	39	44	58
10	40	34	33	40	40	63	54	75	65	23	59	57	83	73	84	86	85	42	72	91
13	30	23	19	28	28	64	61	75	72	32	71	46	73	68	84	78	75	28	79	83
15	34	28	21	32	33	71	63	81	74	34	73	53	84	84	91	91	87	33	84	95
16	37	30	26	36	35	65	58	75	68	29	65	53	86	78	91	89	89	36	76	95
17	39	33	30	38	36	61	56	72	67	29	65	55	85	75	87	89	86	39	74	93
PQ	92	91	89	94	84	40	5	33	13	-34	9	39	42	28	33	36	39	100	14	42
PV	18	9	4	14	18	77	89	86	86	50	85	44	72	79	84	76	74	14	100	83
HB	43	35	32	41	40	72	62	83	75	31	72	58	91	83	95	95	93	42	83	100

Note: COMMUNALITY IN THE DIAGONAL

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	PERCEIVED QUALITY					PERCEIVED VALUE					WILLINGNESS TO BUY					CONSTRUCTS		
	1	2	3	4	5	7	8	9	11	14	10	13	15	16	17	PQ	PV	WB
1	83	82	88	86	73	33	8	45	13	13	45	38	34	39	37	91	26	42
2	82	81	81	81	75	33	9	42	15	15	44	36	33	38	38	90	27	41
3	80	81	81	84	73	37	8	45	16	14	47	37	37	40	39	90	28	43
4	86	81	84	85	73	38	10	46	17	19	49	38	38	41	41	92	30	45
5	73	75	73	73	66	28	4	37	8	11	40	30	29	33	32	81	21	36
7	33	33	37	38	28	68	72	77	70	65	61	63	65	59	60	38	83	67
8	8	9	8	10	4	72	75	71	80	72	49	58	59	51	53	9	87	59
9	45	42	45	46	37	77	71	73	75	69	73	74	77	70	70	48	86	79
11	13	15	16	17	8	70	80	75	80	77	59	67	68	61	62	16	90	69
14	13	15	14	19	11	65	72	69	77	68	56	66	69	61	62	16	82	68
10	45	44	47	49	40	61	49	73	59	56	83	78	84	88	87	51	70	91
13	38	36	37	38	30	63	58	74	67	66	78	76	87	80	80	40	77	87
15	34	33	37	38	29	65	59	77	68	69	84	87	88	87	86	39	79	94
16	39	38	40	41	33	59	51	70	61	61	88	80	87	90	92	43	71	95
17	37	38	39	41	32	60	53	70	62	62	87	80	86	92	88	42	72	94
PQ	91	90	90	92	81	38	9	48	16	16	51	40	39	43	42	100	30	47
PV	26	27	28	30	21	83	87	86	90	82	70	77	79	71	72	30	100	80
WB	42	41	43	45	36	67	59	79	69	68	91	87	94	95	94	47	80	100

Note: COMMUNALITY IN THE DIAGONAL

	PERCEIVED QUALITY					PERCEIVED VALUE					WILLINGNESS TO BUY					CONSTRUCTS		
	1	2	3	4	5	7	8	9	11	14	10	13	15	16	17	PQ	PV	WB
1	84	84	80	87	77	40	7	34	15	13	40	30	34	37	39	92	26	39
2	84	83	84	83	75	35	1	27	8	5	34	23	28	30	33	91	18	32
3	80	84	80	83	75	30	-1	23	6	0	33	19	21	26	30	89	14	28
4	87	83	83	87	80	37	5	32	14	10	40	28	32	36	38	94	23	38
5	77	75	75	80	71	40	10	34	17	11	40	28	33	35	36	84	26	38
7	40	35	30	37	40	67	68	80	69	63	63	64	71	65	61	40	82	71
8	7	1	-1	5	10	68	73	74	74	73	54	61	63	58	56	5	85	64
9	34	27	23	32	34	80	74	81	75	72	75	75	81	75	72	33	90	83
11	15	8	6	14	17	69	74	75	72	70	65	72	74	68	67	13	85	76
14	13	5	0	10	11	63	73	72	70	66	59	71	73	65	65	9	81	73
10	40	34	33	40	40	63	54	75	65	59	80	73	84	86	85	42	75	89
13	30	23	19	28	28	64	61	75	72	71	73	69	84	78	75	28	81	83
15	34	28	21	32	33	71	63	81	74	73	84	84	92	91	87	33	85	96
16	37	30	26	36	35	65	58	75	68	65	86	78	91	91	89	36	78	95
17	39	33	30	38	36	61	56	72	67	65	85	75	87	89	85	39	76	92
PQ	92	91	89	94	84	40	5	33	13	9	42	28	33	36	39	100	24	39
PV	26	18	14	23	26	82	85	90	85	81	75	81	85	78	76	24	100	87
WB	39	32	28	38	38	71	64	83	76	73	89	83	96	95	92	39	87	100

Note: COMMUNALITY IN THE DIAGONAL

struct than do the other three measures of perceived value. A counter argument is presented by examining the verbal intent of these two measures. The face validity of these measures, from step one, gives strong support to leaving the indicators in the cluster of perceived value. While the concern for external consistency is certainly important, it does not appear strong enough to eliminate two measures that clearly tap the dimensions of perceived value.

By removing indicators 6 and 12 from the measurement model but leaving indicators 7 and 9 the measurement model is relatively clean. The values of coefficient alpha, as quantitative assessments of reliability are well within the range of acceptability and higher than reported in research by Petroshius(1983) and Dodds and Monroe (1985) that used approximately the same instruments. Table 46 reports the reliability for the measurement model. In summary the following variables will be used for each of the three constructs.

Construct	Variables
Perceived Quality	1,2,3,4,5
Perceived Value	7,8,9,11,14
Willingness to Buy	10,13,15,16,17

Since both products yielded similar results in magnitude and pattern consistency in the analysis, it seems apparent that the measures have good reliability and seem to be tapping constructs as they were defined in Chapter III.

Standardization of the Dependent Measures

The five measures of the constructs, perceived quality, perceived value, and willingness to buy were each standardized, a technique for removing location and scale attributes from the set of data, to a mean of 0 and and a standard deviation of 1. Using equal weights, the standardized measures for each construct were averaged into an index for perceived quality, perceived value and willingness to buy to get one dependent measure. ANOVA was used to test for significance of the experimental treatments, using the index as the dependent measure.

ANALYSIS OF THE EXPERIMENTAL DATA

Analysis of Variance

An analysis of variance was run on the full three way model shown in Figure 16 and 17. For each of the two product experiments, analysis of variance was done for each constuct: perceived quality, perceived value, and willingness to buy. Strong interactions between store name and brand

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TABLE 46

Coefficient Alpha for the Reliability of Indicators

	Perceived Quality	Perceived Value	Willingness To Buy
Assessments for the Calculator	.95	.93	.97
Assessments for the Stereo Headset Player	.95	.93	.96

name occurred in four of the six analyses, hindering the interpretation of the main effect for those variables. A significant interaction implies that the significance of main effects may be meaningless (Lubin 1961). The most important step in the analysis of interaction is to graph the cell means and make a non-statistical interpretation. It was possible to examine the price effect at this level since there was no masking effect of a strong interaction with the other two independent variables.

Interpretation of Store Name - Brand Name Interactions

Interactions between the independent variables in an experiment are extremely important. When interaction effects exist, varying differences exist between the means of populations representing different column treatments such as brand name, depending on the particular row treatment, such as store name, that is applied. Furthermore, the effect of this single variable cannot be meaningfully interpreted, but rather investigated at each factor level combination. In short, the best estimate one can make of a difference attributable to one variable depends on the particualr level of the other factor.

In this research, four of six three way ANOVAs yielded significant store name-brand name interactions. The plots

of the presence of these interactions shown in Figures 18 to 21 show similar patterns. The following explanations are given to explain the nature of the interaction.

The evaluation reflects the strength of brand name that can be shown where different levels of brand name are examined at each level of store name. It would be expected that the addition of high brand name to high store name information would increase the measures of perceived quality, perceived value, and willingness to buy. Instead, the plots show that this increase is not in the same manner as when a low brand name is added to different levels of store name. Thus, the interaction between the two factors is illustrated in the non-parallelism indicative of an interaction. While the overall strength of the high brand name may be contributing to the interaction such that the addition of a higher store name has no noticable effect in the measurement, another related reason may exist for this interaction.

Hayes (1973 p.498) argues, that to a very large extent, the presence or absence of interactions in an experiment is governed by the scale of measurement used for the dependent variable. The author states that in many circumstances, evidence for interaction reflects not so much a state of nature as our own inability to find the proper measurement scales for the phenomena we study. Three of the four inter-

actions involved the stereo headset player where the high brand name treatment was Sony. In the pretest, Sony was clearly the "best" brand based on several criteria. It is likely that the subjects in the high brand name - low store name treatment were sufficiently influenced by the brand name information (Sony) that their responses on a seven point scale were bunched close to the positive end of the scale. Subjects who were exposed to high brand and high store name information may have also tended to evaluate the measures at the positive end. Thus there was little latitude on the scale to account for the incremental value of higher store name information. This "ceiling effect" is an artifact of the measuring instrument is sufficently probable to exclude any meaningful discussion of the interaction in terms of the brand and store name information.

An alternative approach to gain further understanding of the interaction between brand name and store name was to run a two way analysis of variance where either brand name or store name was held constant at either a high level or a low level. This analysis, in a sense, pulls the interaction apart and examines the simple effects of brand name at each level of store name and the simple effects of store name at each level of brand name. The interpretation of this analysis will be discussed in the following section.
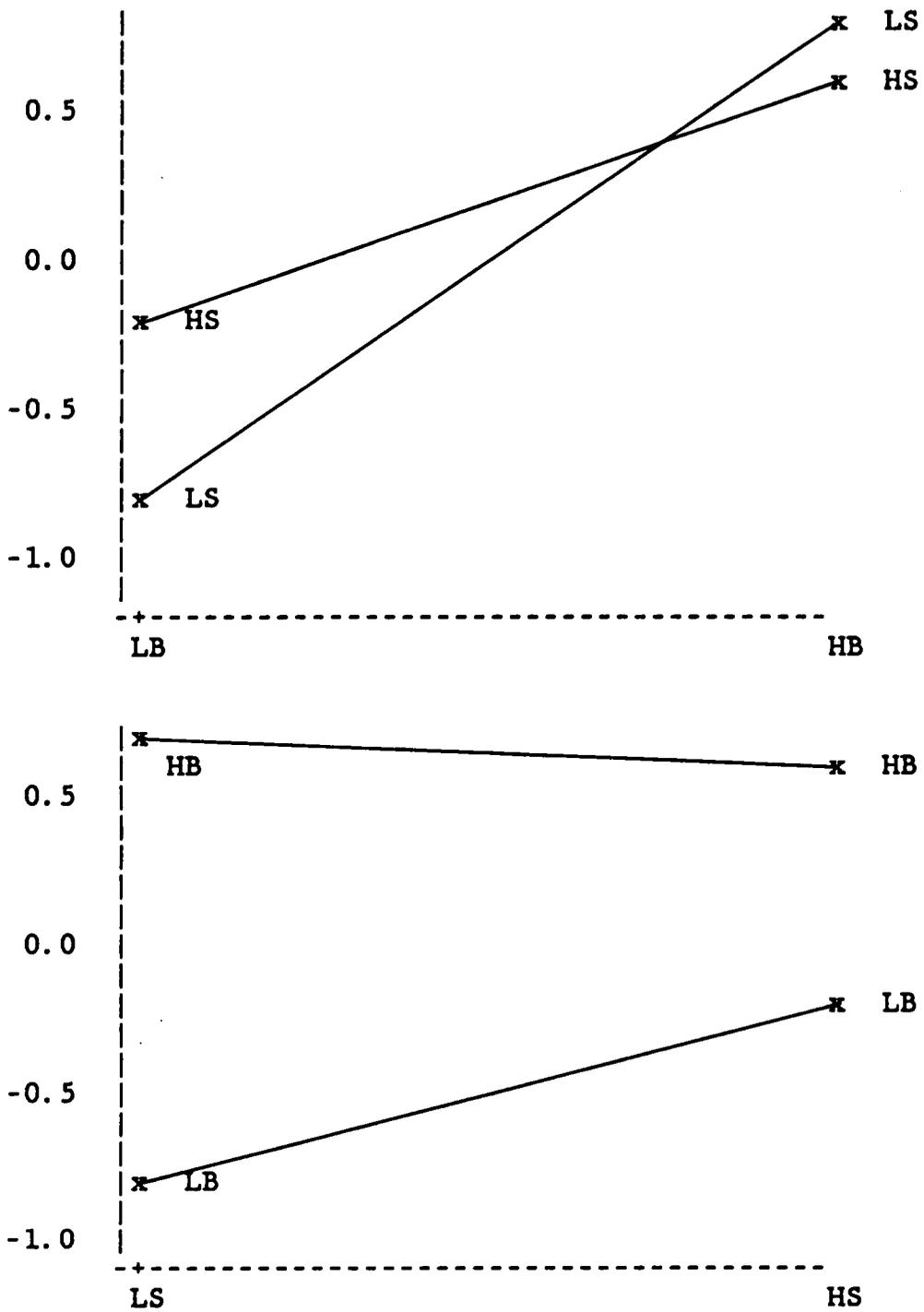
Figure 18: Interaction Between Store Name and Brand Name -
            Perceived Quality for Stereo Headset Player
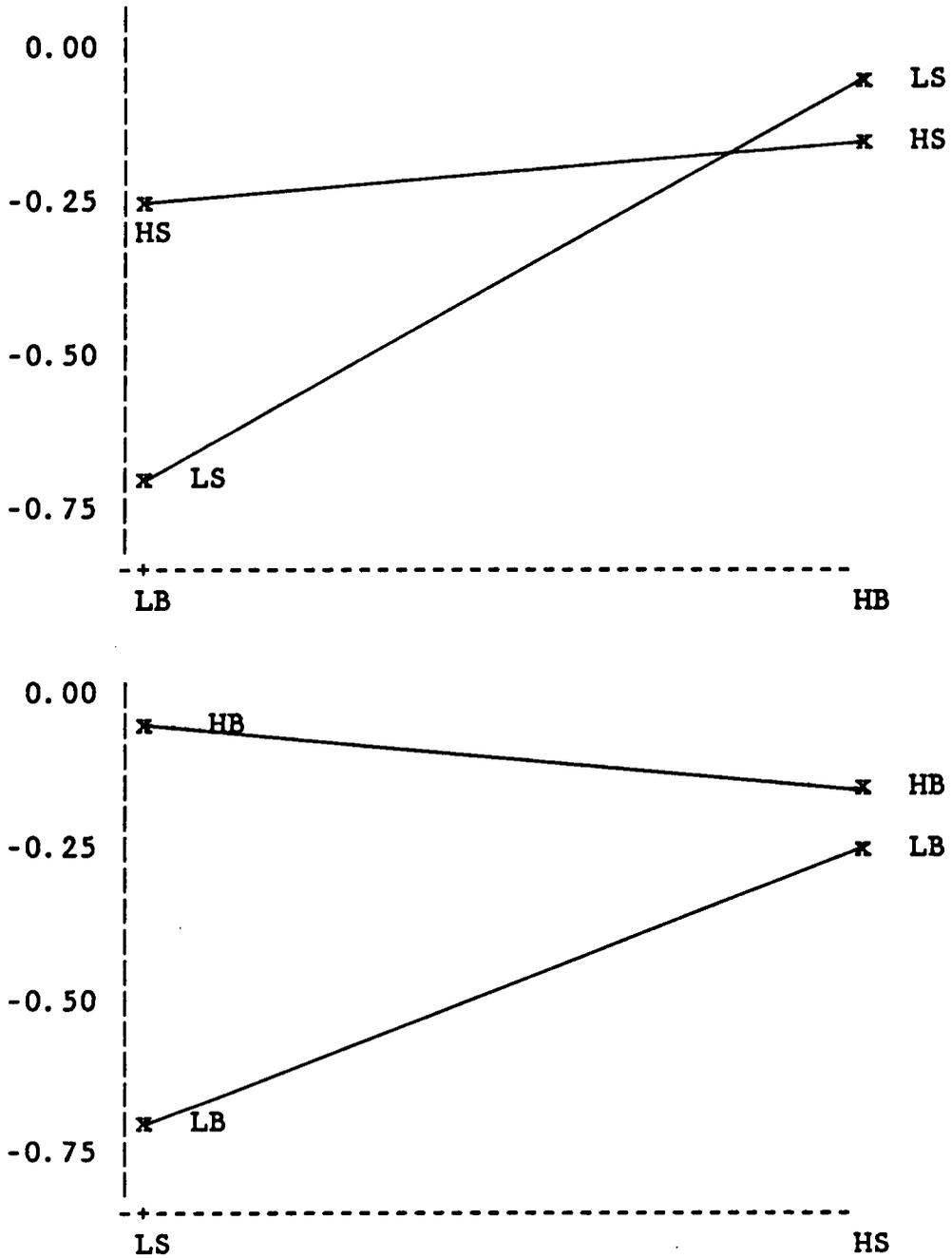
Figure 19:   Interaction Between Store Name and Brand Name -
Perception of Value for Stereo Headset Player
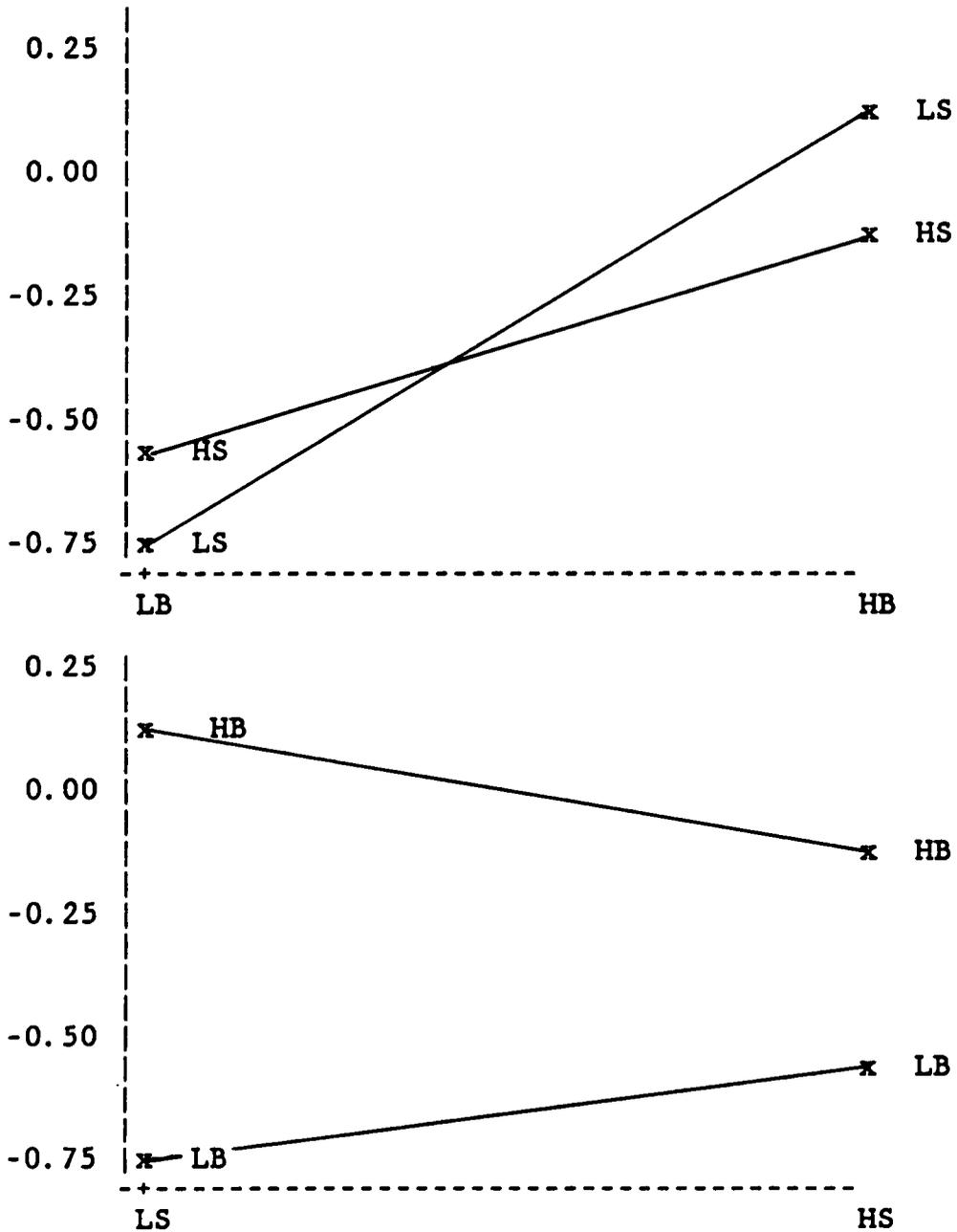
Figure 20:   Interaction Between Store Name and Brand Name -
Willingness to Buy for Calculator
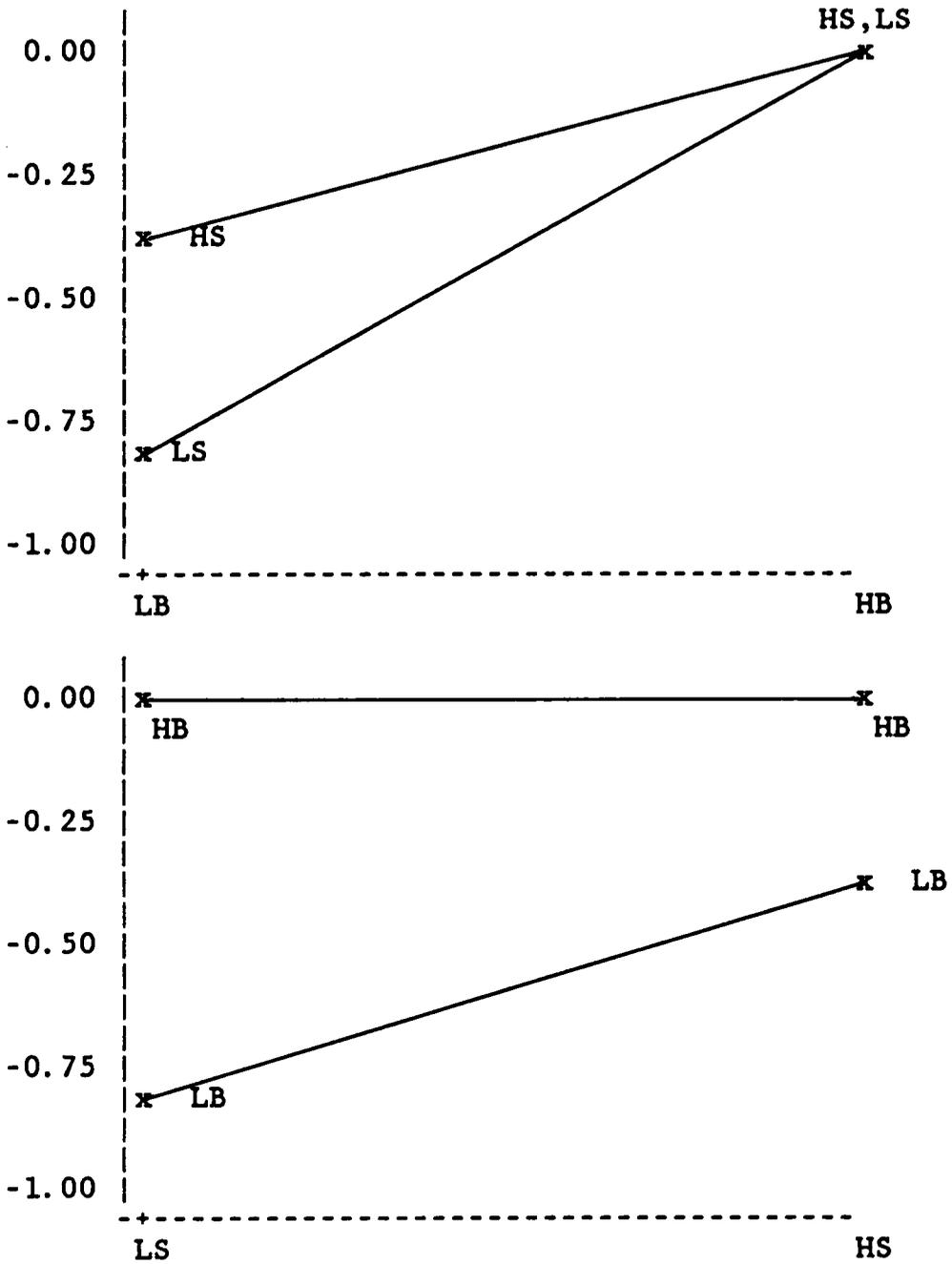
Figure 21: Interaction Between Store Name and Brand Name -
Willingness to Buy for Stereo Headset Player

The two way model shown in Figure 8 in Chapter III was analyzed when store information was not included, therefore facilitating the interpretation of brand name. In this analysis there were no statistically significant interactions in any of the six anovas. The influence of brand name can be interpreted at this level with no significant interaction to block the main effects.

The results for the two way model, shown in Figure 7, where the brand name is not in the model indicates no strong interactions to block interpretation of the main effcts. While no statistically significant interaction, the analysis of perceived value in the calculator experiment showed strength in the price x store interaction at $p = .1190$. But, in general the non-signicance of the interaction was strong enough to allow examination of the significance of the store effect on each of the dependent variables.

The final set of analyses of variance utilized the one way factorial for price information only. This information was used to examine linear trends in perceived quality and quadratic trends in perceived value and willingness to buy. For perceived quality and perceived value, the effects were significant, therefore suggesting a trend. The results of

the willingness to buy analysis was statistically non-significant although examination of the means suggest a trend. The complete analysis of trends is discussed later in this chapter where statistical techniques are utilized to ascertain the strength and shape of the trends. A discussion of the details of the analysis for each construct will follow.

Perceived Quality

The effect of price on perceived quality is examined in Tables 47 and 48. In the calculator experiment the price effect was unhindered by a significant interaction with other independent variables and was statistically significant at $p=.0048$. Duncan's multiple range test (MRT), showed that high and too high price treatments were statistically different than the low price treatments in influencing the perception of quality ($p=.05$). The mean response of perceived quality was generally higher for a higher price than when the price was lower. Figure 22 depicts a plotting of the perceived quality means versus the price treatments, and visually confirms this interpretation.

In the stereo Headset player experiment, the price effect, unhindered by any significant interaction, was highly non-significant at $p=.9870$. The small difference between means in Table 48 have to be interpreted in context to the

strength of the variance which, as Duncan's MRT suggest, places little credibility in price influencing the perception of quality.

The brand name and store name effects on perceived quality were analyzed with one of the interacting variables removed. Tables 49 and 50 examined the influence of brand name on quality perception. For both experiments, calculators and stereo headset players, the brand name main effect was statistically significant at p=.0001. An examination of the means in both cases show that the high brand name induced a high measure of perceived product quality while the low brand name had a low measure.

The price effect was examined at the two way level with store information eliminated. The price main effect in both the calculator experiment (p=0.2046), and in the stereo headset player experiment were non-significant (p=0.4181). Although Duncan's MRT does not give statistically significant support to the price- perceived quality relationship, an examination of the price means gives confirming evidence that high quality perceptions are influenced by high prices, and low perceptions of quality are influenced by low prices.

Tables 51 and 52, show the influence of store name and price with brand name information missing on the perception of quality. In both experiments, the store main effect was

TABLE 47

Analysis of Variance Procedure For Perceived Quality - Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	9.48064059	4.48	0.0048
BRAND	1	44.42367661	62.96	0.0001
STORE	1	1.74029766	2.47	0.1180
PRICE*BRAND	3	0.25169615	0.12	0.9446
PRICE*STORE	3	0.11205090	0.05	0.9784
BRAND*STORE	1	0.03136893	0.04	0.8332
PRICE*BRAND*STORE	3	1.28751135	0.61	0.6145

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
ALPHA=0.05   DF=192   MSE=0.705631
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN	GROUPING	MEAN	N	PRICE
	A	0.17598	52	High: $39
	A			
	A	0.14950	52	Too High: $50
	A			
B	A	-0.04121	52	Medium: $28
B				
B		-0.35873	52	Low: $17

```
 0.2
     |                                          A
     |                                                      A
     |
 0.1
     |
     |
     |
 0.0
     |
QUALITY |                        A
     |
-0.1
     |
     |
     |
-0.2
     |
     |
     |
-0.3
     |
     | A
     |
-0.4
     --+--------------+--------------+--------------+-
       Low: $17    Medium: $28      High: $39   Too High: $50
                            PRICE
```
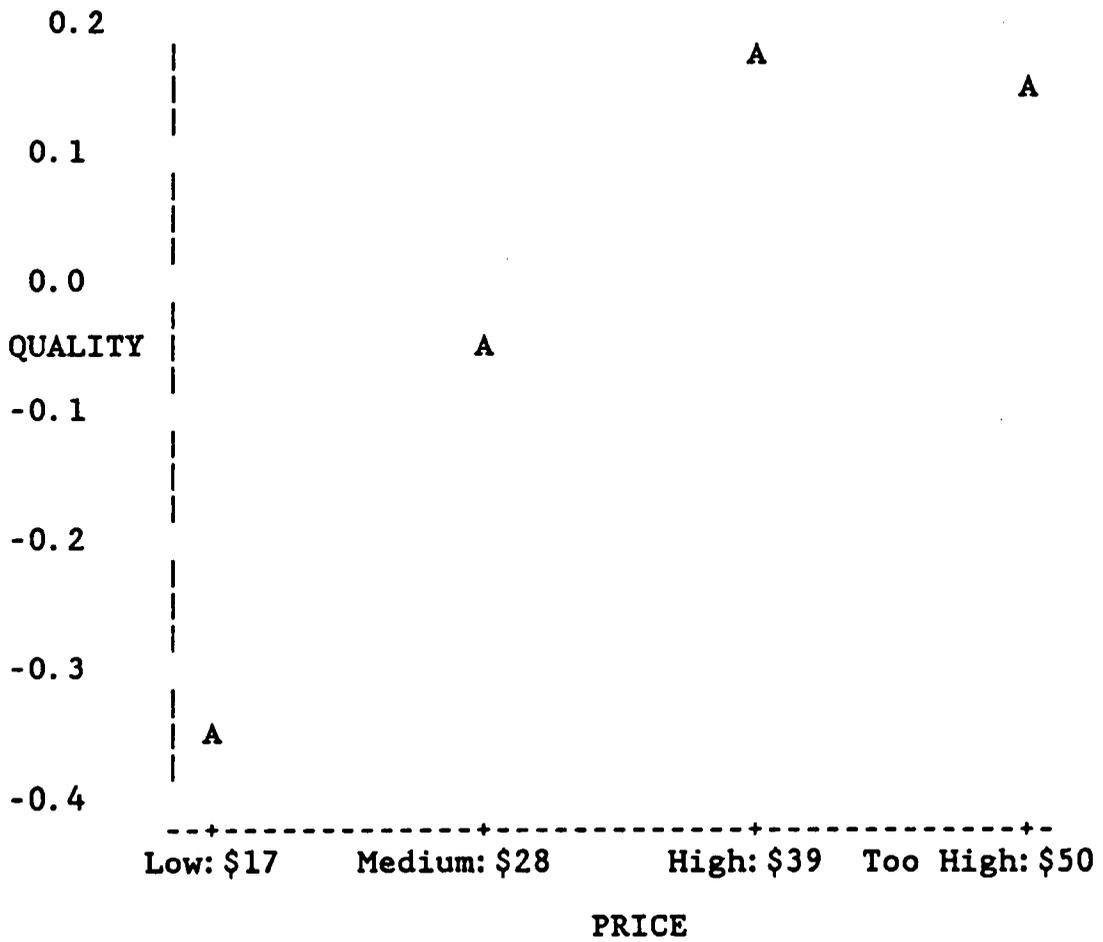
Figure 22:   Perceived Quality Means Versus Price -
             Calculator

TABLE 48

Analysis of Variance Procedure for Perceived Quality - Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	0.06446005	0.03	0.9870
BRAND	1	65.34403872	99.76	0.0001
STORE	1	3.29928352	5.04	0.0260
PRICE*BRAND	3	0.91242097	0.46	0.7114
PRICE*STORE	3	0.62430879	0.32	0.8145
BRAND*STORE	1	5.39672561	8.24	0.0046
PRICE*BRAND*STORE	3	2.02960853	1.03	0.3801

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
ALPHA=0.05   DF=192   MSE=0.654994
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN	GROUPING	MEAN	N	PRICE
	A	0.094685	52	Too High: $115
	A			
	A	0.063558	52	High: $88
	A			
	A	0.052960	52	Medium: $61
	A			
	A	0.050437	52	Low: $34

```
                        TABLE 49

  Two Way Analysis of Variance Procedure for Perceived
                 Quality - Calculator


  SOURCE                  DF       ANOVA SS  F VALUE  PR > F

  PRICE                   3     3.13437226    1.55   0.2046
  BRAND                   1    15.96306594   23.72   0.0001
  PRICE*BRAND             3     2.13976097    1.06   0.3707

  DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
  ALPHA=0.05  DF=96  MSE=0.673015
  MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
  DIFFERENT.

  DUNCAN    GROUPING          MEAN      N  PRICE

              A             0.31148    26  Too High: $50
              A
              A             0.27106    26  Medium: $28
              A
              A             0.20519    26  High: $39
              A
              A            -0.12865    26  Low: $17

  * DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
  ALPHA=0.05  DF=96  MSE=0.673015
  MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
  DIFFERENT.

  DUNCAN    GROUPING          MEAN      N  BRAND

              A             0.55655    52  High: HP

              B            -0.22701    52  Low: Royal

   * Test not necessary for a two mean comparison, test
     of significance is shown in the overall results.
     MRT was run to find the compared means.
```

TABLE 50

Two Way Analysis of Variance Procedure for Perceived
Quality - Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	1.64509341	0.96	0.4181
BRAND	1	17.78656118	31.03	0.0001
PRICE*BRAND	3	0.70939261	0.41	0.7477

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
ALPHA=0.05 DF=96 MSE=0.573174
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN GROUPING	MEAN	N	PRICE
A	0.17788	26	Medium: $61
A			
A	0.15980	26	High: $88
A			
A	0.08420	26	Too High: $115
A			
A	-0.13826	26	Low: $34

* DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
ALPHA=0.05 DF=96 MSE=0.573174
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN GROUPING	MEAN	N	BRAND
A	0.48446	52	High: Sony
B	-0.34265	52	Low: GP

* Test not necessary for a two mean comparison, test
  of significance is shown in the overall results.
  MRT was run to find the compared means.

not blocked by a higher order interaction, and were statistically significant at $p=.0001$ for the calculator and $p=.0091$ for the stereo headset player. While it was not necessary to run a multiple range test for the two treatments of store name, the comparison of means gives the information that the high store name has a high perception of quality and the low store name has a low perception of quality. These two tables also summarize the influence of the price effect in this situation. For the calculator experiment, the price effect was not statistically significant ($p=.2456$) but did show a positive relationship between price and perceived quality. The higher price treatments were able to elicit higher measures of quality perception than the lower price treatments. Duncan's multiple range test did not give statistical support to this observation.

The stereo headset player experiment in Table 52 showed different results. The price main effect was significant at $p=.0017$ and Duncans MRT lends some statistical support to the observation that higher prices will have higher perceptions of quality. In particular, the multiple range test indicates that the low price treatment is statistically different from the other prices in the measurement of quality perception.

TABLE 51

Two Way Analysis of Variance Procedure for Perceived
Quality - Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	2.53919827	1.40	0.2456
STORE	1	12.48591796	20.70	0.0001
PRICE*STORE	3	1.23151002	0.68	0.5698

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
ALPHA=0.05 DF=96 MSE=0.603291
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING	MEAN	N	PRICE
	A	-0.04345	26	Too High: $50
	A			
	A	-0.16361	26	High: $39
	A			
	A	-0.18923	26	Medium: $28
	A			
	A	-0.46983	26	Low: $17

* DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
ALPHA=0.05 DF=96 MSE=0.603291
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING	MEAN	N	STORE
	A	0.12996	52	High: VTBS
	B	-0.56302	52	Low: Roses

* Test not necessary for a two mean comparison, test
  of significance is shown in the overall results.
  MRT was run to find the compared means.

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```
TABLE 52

Two Way Analysis of Variance Procedure For Perceived
        Quality - Stereo Headset Player


SOURCE                    DF        ANOVA SS  F VALUE   PR > F

PRICE                     3     11.20799706    5.49    0.0017
STORE                     1      4.81987255    7.09    0.0091
PRICE* STORE              3      1.94548614    0.95    0.4195

  DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
 ALPHA=0.05  DF=96  MSE=0.679971
OMEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN    GROUPING           MEAN      N   PRICE

              A            0.21731     26  Too High: $115
              A
              A            0.01913     26  High: $88
              A
              A           -0.17741     26  Medium: $61

              B           -0.66654     26  Low: $34

 * DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
 ALPHA=0.05  DF=96  MSE=0.679971
 MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN    GROUPING           MEAN      N   STORE

              A            0.06340     52  High: Best

              B           -0.36716     52  Low: K Mart

  * Test not necessary for a two mean comparison, test
    of significance is shown in the overall results.
    MRT was run to find the compared means.
```

The results of perception of quality where only price information is available is summarized in Table 53 and 55 In both experiments, the significance of the price effect is confirmed with p=.0211 for calculator, and p=.0116 for the stereo headset player. Duncan's MRT for the calculator supported the statistical difference in the low price and the too high and high prices. Additionally the perceived quality means increased as the level of the price treatment increased. The plot of the means in Figure 23, gives visual evidence to this observation. In the other experiment, the same general results were obtained. Duncan's MRT indicated the perceived quality measures for a low price to be statistically different than the higher price treatments. Figure 24 shows the relationship between price and perceived quality where higher prices have higher perceptions of quality.

A two way analysis of variance was run with the third cue, either brand name or store name held constant, to measure the effects of the cues on the perception of quality. The summary, in Table 54, consistently supports the strength of the brand name effect for both products. Support for the price effect is mixed and weak. For the calcultor, price is statisitically significant only when store name was given at a low level and when brand name was given at a high level. For all four situations, the hypothesized direction of the

means was evident, although it was not always statistically significant. The price effect in the stereo headset player was consistently non-significant. Store name was statistically significant in only one of the four situations where it was allowed to vary while brand name was held at a fixed level.

Perceived Value

The analysis of the price-perceived value relationship is examined in Tables 56 and 57 For both products the measurement of perceived value was shown to be influenced by the price treatments ($p=.0001$ for price effects in both situations). For the calculator experiment, the mean response was highest at the low price and decreased for each of the higher prices. Duncans multiple range test shows the measurement of perceived value of the low price to be statistically different than the higher prices and the perceived value measure for a medium price to be significantly higher than the mean value in the too high treatment. The data for the stereo headset player lends support to the decrease in mean response of perceived value as price levels increase but does not support a positive relationship for prices at the low end. Statistically, the multiple range test supports the perceived value means for low and medium prices to

```
+---------------------------------------------------------------+
|                                                               |
|                          TABLE 53                             |
|                                                               |
|   One Way Analysis of Variance Procedure for Perceived        |
|                    Quality - Calculator                       |
|                                                               |
|                                                               |
|   SOURCE                      DF        ANOVA SS F VALUE  PR > F |
|                                                               |
|   PRICE                        3     8.56276928    3.55  0.0211 |
|                                                               |
|   DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY          |
|   ALPHA=0.05  DF=48  MSE=0.803845                             |
|   MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY            |
|   DIFFERENT.                                                   |
|                                                               |
|   DUNCAN    GROUPING               MEAN       N  PRICE        |
|                                                               |
|                      A          0.23906      13  Too High: $50 |
|                      A                                        |
|                      A         -0.02526      13  High: $39    |
|                      A                                        |
|            B         A         -0.40626      13  Medium: $28  |
|            B                                                  |
|            B                   -0.83719      13  Low: $17     |
|                                                               |
+---------------------------------------------------------------+
```

TABLE 54

Two Way Analysis of Variance with Third Cue Held Constant - Perceived Quality

Calculator

P-Value				Direction of Means as Hypothesized		
Price	Brand Name	Store Name	Interaction	Price	Brand Name	Store Name
0.160	0.001	High	0.815	*yes	yes	-
0.031	0.001	Low	0.733	*yes	yes	-
0.008	High	0.138	0.860	*yes	-	yes
0.298	Low	0.400	0.776	*yes	-	yes

df 4   1   1
df error=96

Stereo Headset Player

P-Value				Direction of Means as Hypothesized		
Price	Brand Name	Store Name	Interaction	Price	Brand Name	Store Name
0.889	0.001	High	0.443	No	Yes	-
0.923	0.001	Low	0.601	No	Yes	-
0.716	High	0.552	0.181	No	-	No
0.914	Low	0.003	0.822	No	-	Yes

df 4   1   1
df error=96

* Too high and high price level out of hypothesized order.

```
0.50
         |
         |
         |
0.25     +                                                    A
         |
         |
         |
0.00     +                                      A
         |
QUALITY  |
         |
-0.25
         |
         |
         |                        A
-0.50
         |
         |
         |
-0.75
         |  A
         |
         |
-1.00
         --+------------------+------------------+----------------+-
          Low: $17    Medium: $28        High: $39   Too High: $50

                              PRICE
```
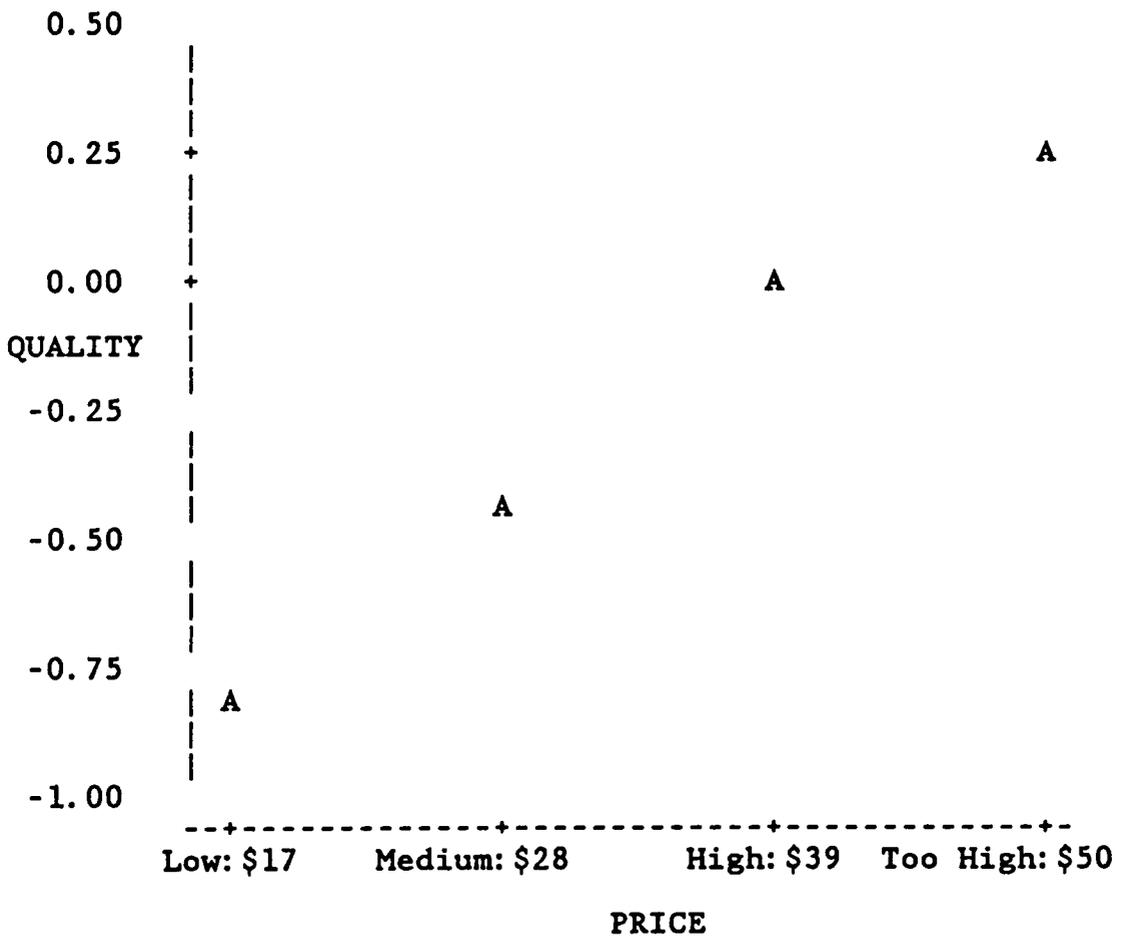
Figure 23:   Perceived Quality Means Versus Price -
             Calculator

TABLE 55

Analysis of Variance Procedure For Perceived Quality -
Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	8.46868422	4.09	0.0116

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: QUALITY
ALPHA=0.05   DF=48   MSE=0.690868
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING	MEAN	N	PRICE
	A	0.33698	13	Too High: $115
	A			
	A	0.00693	13	High: $88
	A			
	A	0.00636	13	Medium: $61
	B	-0.76164	13	Low: $34

```
QUALITY  |                                                      A
         |
  0.25   |
         |
         |
         |
  0.00   +              A                  A
         |
         |
         |
 -0.25   |
         |
         |
         |
 -0.50   |
         |
         |
         |
 -0.75   + A
         |
         |
         --+--------------+--------------+--------------+-
         Low: $34   Medium: $61      High: $88   Too High: $115
                              PRICE
```
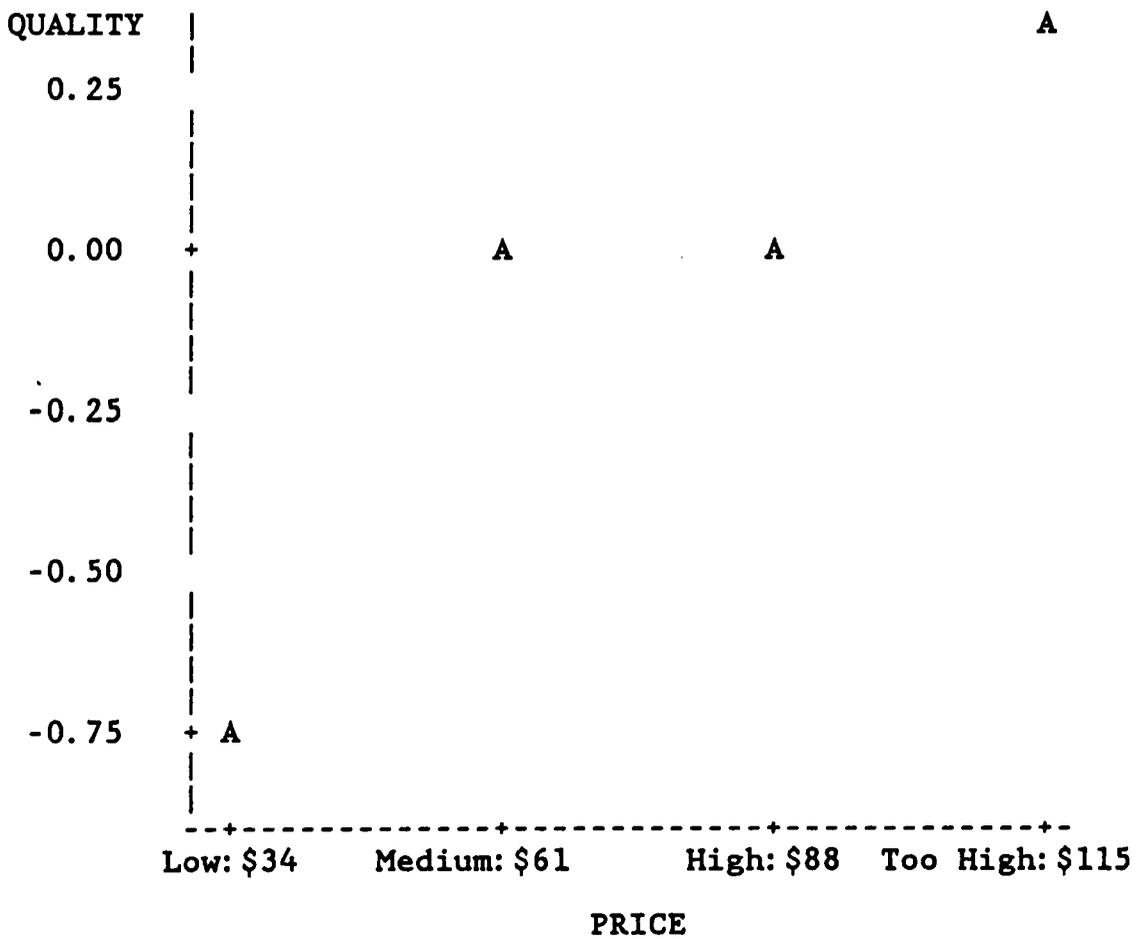
Figure 24: Perceived Quality Means Versus Price- Stereo
Headset Player

be different from each other and all other treatments while the high and too high treatment have perceptual value measures different from the lower price treatments. Plots in Figures 25 and 26 provide visual support to the statistical analysis.

The effect of brand name information on the perception of value in the absence of store information is examined in Tables 58 and 59. For both products the mean measures of perceived value are shown to be statistically different and higher for high brand names than low brand names. These two tables also examine the price effect in a situation where store name information is missing. The same relationship that was discussed above exists at the price and brand information level where the higher mean responses of perceived value were found when prices were low and decreased as the price level increased. The multiple range test showed the too high price treatment for calculators to have measures of perceived value to be statistically higher than the other price levels. For the stereo headset player, the low and medium price levels had means of perceived value different and higher than the high and too high price levels.

The effect of store name on the perception of value in the absence of brand information was shown to be statisti-

TABLE 56

Analysis Variance Procedure for Perceived Value - Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	28.35083050	13.98	0.0001
BRAND	1	15.94554176	23.59	0.0001
STORE	1	0.29791185	0.44	0.5076
PRICE*BRAND	3	1.22385671	0.60	0.6175
PRICE*STORE	3	0.23048340	0.11	0.9475
BRAND*STORE	1	0.97396995	1.44	0.2315
PRICE*BRAND*STORE	3	0.72937133	0.36	0.7849

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05   DF=192   MSE=0.67597
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

| DUNCAN	GROUPING	MEAN	N	PRICE
	A	0.29070	52	Low: $17
	B	-0.14824	52	Medium: $28
	B			
C	B	-0.42586	52	High: $39
C				
C		-0.70998	52	Too High: $50
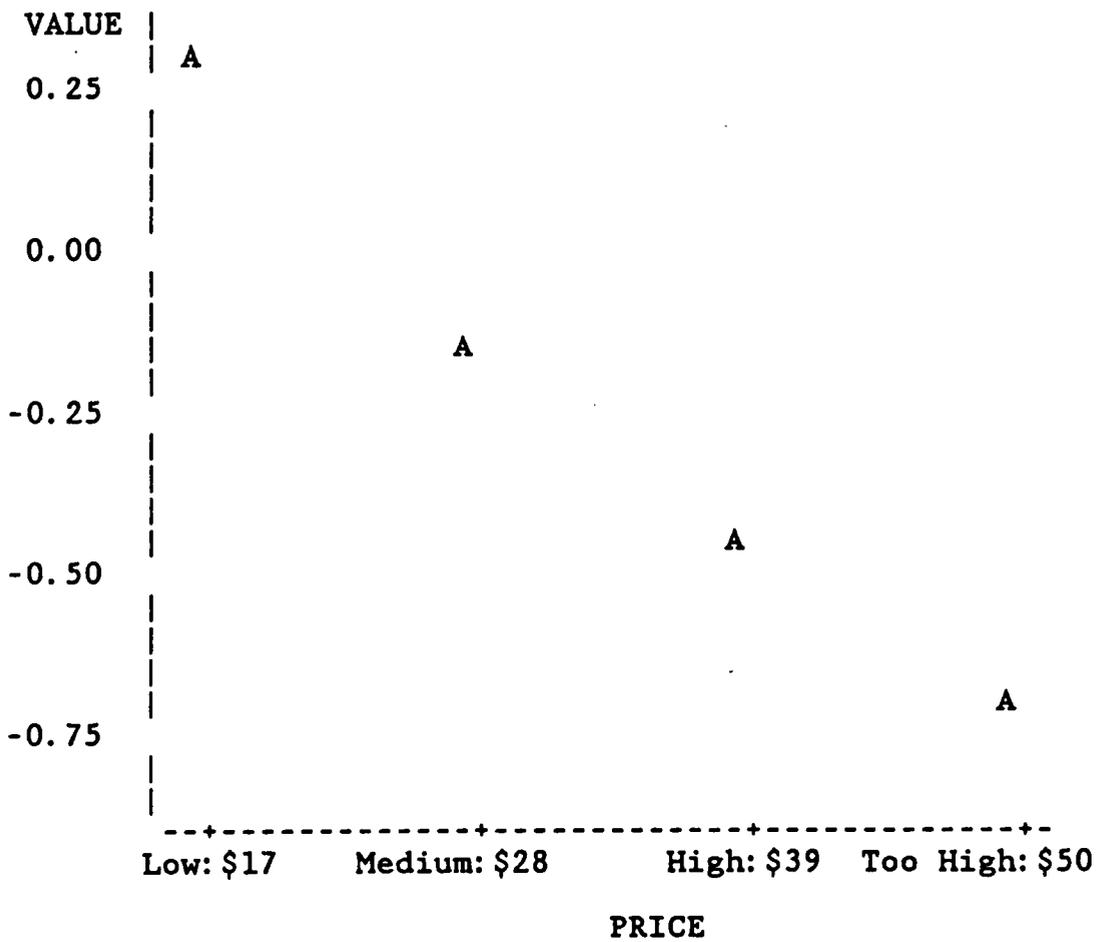
Figure 25:   Perceived Value Means Versus Price - Calculator

TABLE 57

Analysis of Variance Procedure for Perceived Value - Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	26.65362919	17.13	0.0001
BRAND	1	7.99809064	15.42	0.0001
STORE	1	1.72158858	3.32	0.0700
PRICE*BRAND	3	1.39581497	0.90	0.4458
PRICE*STORE	3	0.10994373	0.07	0.9701
BRAND*STORE	1	3.49565701	6.74	0.0102
PRICE*BRAND*STORE	3	1.78166642	1.15	0.3323

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05   DF=192   MSE=0.51867
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN	GROUPING	MEAN	N	PRICE
	A	0.21124	52	Low: $34
	B	-0.11736	52	Medium: $61
	C	-0.49695	52	High: $88
	C			
	C	-0.72469	52	Too High: $115

```
VALUE  |  A
       |
       |
       |
 0.00  |
       |
       |              A
       |
-0.25  |
       |
       |
       |
-0.50  +                           A
       |
       |
       |                                      A
-0.75  |
       |
       |
       |
-1.00  |
       --+---------------+---------------+--------------+-
         Low: $34    Medium: $61      High: $88   Too High: $115
                              PRICE
```
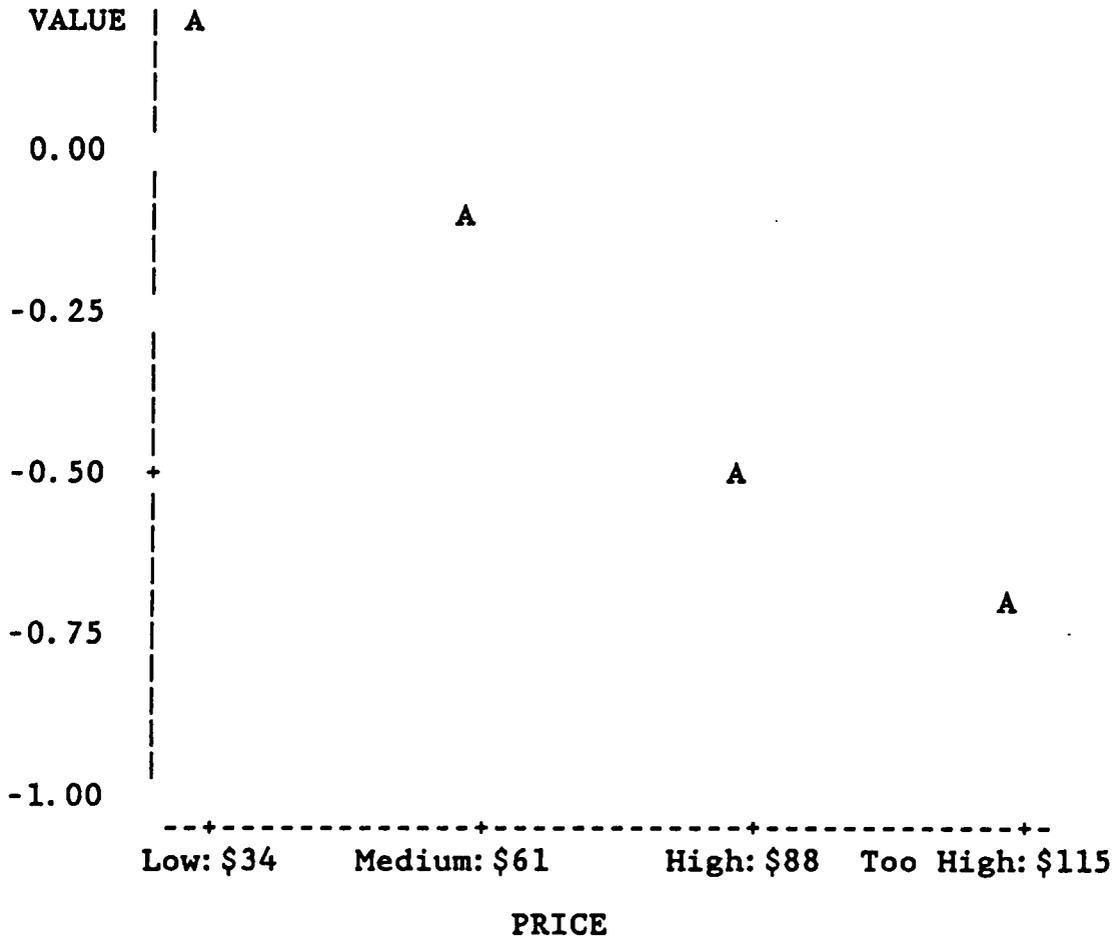
Figure 26: Perceived Value Means Versus Price - Stereo
            Headset Player

cally non-significant.   The mean reponses in the calculator experiment, in Table 60,   are not statistically different, although it can be observed that the high store name had a higher perception of value.   Stronger evidence in the non-significance of the store effect is presented in Table 61. The main effect for store name is nonsignificant at p=.3726, Duncan's MRT confirms this, since the difference between the measures of perceived value for different stores is weak. But, as in the calculator experiment, the high store name did have a higher measure of value than did the low store name.

The multiple range test for differences in perceived va-lue due to price levels lends support to previous analysis that low prices have higher measures of perceived value than do higher prices.   For the calculator, the low price per-ceived value measure was statistically different than the high and too high treatments.   This statistical difference was stronger for the stereo headset player where the measure of perceived value in the low price treatment was signifi-cantly different than the other three treatments.   These other three treatments were evaluated to be statistically the same.   In both product experiments, the rank order of the value measures supports the previous observations of an inverse relationship between price level and perceptual va-lue.

TABLE 58

Two Way Analysis of Variance Procedure for Perceived Value - Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	9.44333652	6.57	0.0005
BRAND	1	3.58919718	7.49	0.0074
PRICE*BRAND	3	1.11619032	0.78	0.5129

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05 DF=96 MSE=0.479166
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN	GROUPING	MEAN	N	PRICE
	A	0.24076	26	Low: $17
	A			
	A	0.20882	26	Medium: $28
	A			
	A	-0.09986	26	High: $39
	B	-0.50785	26	Too High: $50

* DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05 DF=96 MSE=0.479166
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN	GROUPING	MEAN	N	BRAND
	A	0.14624	52	High: HP
	B	-0.22531	52	Low: Royal

* Test not necessary for a two mean comparison, test of significance is shown in the overall results. MRT was run to find the compared means.

TABLE 59

Analysis of Variance Procedure for Perceived Value - Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	14.58357016	10.44	0.0001
BRAND	1	4.35236960	9.35	0.0029
PRICE*BRAND	3	0.32291974	0.23	0.8740

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05   DF=96   MSE=0.465602
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN	GROUPING	MEAN	N	PRICE
	A	0.15198	26	Low: $17
	A			
	A	0.01435	26	Medium: $28
	B	-0.53183	26	High: $39
	B			
	B	-0.75354	26	Too High: $50

* DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05   DF=96   MSE=0.465602
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY DIFFERENT.

DUNCAN	GROUPING	MEAN	N	BRAND
	A	-0.07519	52	High: Sony
	B	-0.48433	52	Low: GP

* Test not necessary for a two mean comparison, test of significance is shown in the overall results. MRT was run to find the compared means.

TABLE 60

Two Way Analysis of Variance Procedure for Perceived
Value - Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	5.73913121	3.75	0.0135
STORE	1	1.61572346	3.17	0.0783
PRICE*STORE	3	3.04598475	1.99	0.1190

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05   DF=96   MSE=0.510134
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN	N	PRICE
		A	-0.11921	26	Low: $17
		A			
	B	A	-0.39717	26	Medium: $28
	B				
	B		-0.67363	26	High: $39
	B				
	B		-0.69565	26	Too High: $50

* DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05   DF=96   MSE=0.510134
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING	MEAN	N	STORE
	A	-0.34677	52	High: VTBS
	A			
	A	-0.59606	52	Low: Roses

 * Test not necessary for a two mean comparison, test
   of significance is shown in the overall results.
   MRT was run to find the compared means.

```
                           TABLE 61

         Two Way Analysis of Variance Procedure for Perceived
                    Value- Stereo Headset Player


        SOURCE                  DF       ANOVA SS  F VALUE  PR > F

        PRICE                   3      5.94679086    3.90   0.0112
        STORE                   1      0.40762586    0.80   0.3726
        PRICE* STORE            3      1.64860894    1.08   0.3612

        DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
        ALPHA=0.05  DF=96  MSE=0.508013
        MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
        DIFFERENT.

        DUNCAN    GROUPING          MEAN      N  PRICE

                       A          0.10842    26  Low: $34

                       B         -0.33646    26  Medium: $61
                       B
                       B         -0.38645    26  Too High: $115
                       B
                       B         -0.53202    26  High: $88

        * DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
        ALPHA=0.05  DF=96  MSE=0.508013
        MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
        DIFFERENT.

        DUNCAN    GROUPING          MEAN      N  STORE

                       A         -0.22402    52  High: Best
                       A
                       A         -0.34923    52  Low: K Mart

         * Test not necessary for a two mean comparison, test
           of significance is shown in the overall results.
           MRT was run to find the compared means.
```

The analysis of perceived value, where only price influences the evaluation is summarized in Tables 63 and 64. In both product situations, the influence of price on perceived value is statistically different at .0001 for calculators and .0015 for stereo headset players. The same trend in the analysis is found where low price treatments have higher measures of perceived value than do succeeding higher price levels. Examination of the results of Duncan's multiple range test in both tables support this finding along with the result of statistical difference. In the calculator experiment, the too high price level's measure of perceived value is statistically different from the other three prices. These other three prices do not produce statistically significant differences, but their mean measures increase as price decreases. The plot of perceived value means in Figure 27 lends visual support to this analysis. The multiple range test for the stereo headset player indicates statistical difference for perceived value between the low and medium price levels and the too high level, and between the too high and high price levels and the low price level. Again as in past analysis the inverse price-perceived value relationship is observed. Figure 28 shows visually this relationship.

A two way analysis of variance was run with the third cue, either brand name or store name, held constant to measure the perception of value. The summary, in Table 62, consistently supports the strength of the price effect for both products. The relationship between price and perceived quality was negative for all price levels, which does not fully support the hypothesis. Brand name was statistically significant in three of four situations and the direction of the means were as hypothesized. The store name effect was non-significant in three of four situations and did not show the direction of the means as hypothesized.

Willingness to Buy

Tables 65 and 66 summarizes the analysis of the price - willingness to buy relationship. Since the brand name and store name variable interacted significantly in the three way design, the effect of these variables on the willingness to buy was examined in a two way design. The measurement of willingness to buy as influenced by price was statistically significant at $p=0.005$ for the calculator and $p=0.0001$ for the stereo headset player. A comparison of the mean responses indicate that the low prices had the highest response while progressively higher prices had lower measures of willingness to buy. For the calculator, the low and too

TABLE 62

Two Way Analysis of Variance with Third Cue Held Constant - Perceived Value

Calculator

P-Value					Direction of Means as Hypothesized		
Price	Brand Name	Store Name	Interaction		Price	Brand Name	Store Name
0.001	0.013	High	0.915		*some	Yes	-
0.001	.001	Low	0.484		*some	Yes	-
0.002	High	0.687	0.775		*some	-	No
0.001	Low	0.216	0.939		*some	-	No

df 4 1   1
df error=96

Stereo Headset Player

P-Value					Direction of Means as Hypothesized		
Price	Brand Name	Store Name	Interaction		Price	Brand Name	Store Name
0.001	0.321	High	0.183		*some	Yes	-
0.001	0.001	Low	0.670		*some	Yes	-
0.001	High	0.573	0.442		*some	-	No
0.001	Low	0.0031	0.798		*some	-	Yes

df 4 1   1
df error=96

* all means support negative hypothesized relationship only

TABLE 63

Analysis of Variance Procedure for Perceived Value -
Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	13.35406467	9.81	0.0001

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05 DF=48 MSE=0.453596
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING	MEAN	N	PRICE
	A	0.2155	13	Low: $17
	A			
	A	0.1439	13	Medium: $28
	A			
	A	-0.2291	13	High: $39
	B	-1.0601	13	Too High: $50
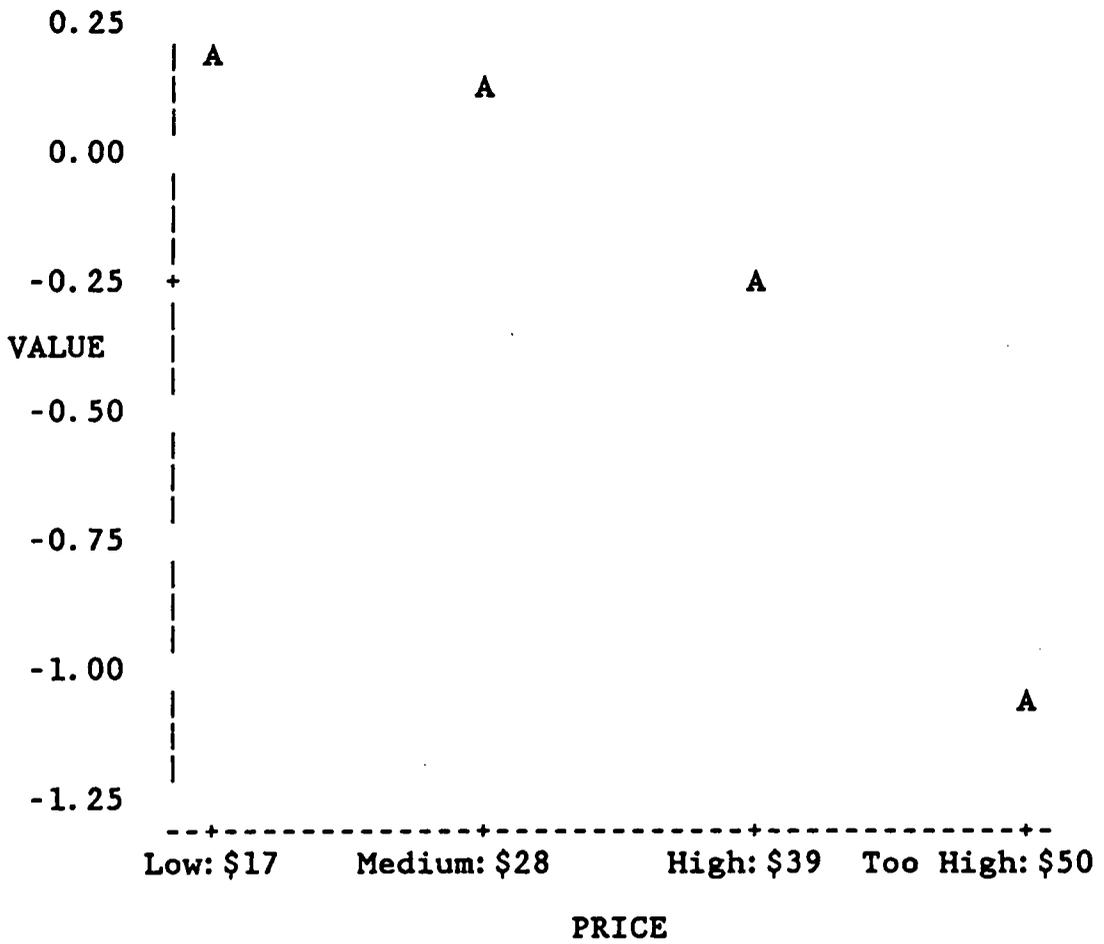
Figure 27:   Perceived Value Means Versus Price - Calculator

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TABLE 64

Analysis of Variance Procedure for Perceived Value -
Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	8.83359076	6.00	0.0015

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: VALUE
ALPHA=0.05 DF=48 MSE=0.490681
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN	N	PRICE
		A	0.24130	13	Low: $34
		A			
B		A	-0.28898	13	Medium: $61
B					
B		C	-0.56538	13	High: $88
		C			
		C	-0.88101	13	Too High: $115

```
  0.50
         |
         |
         |
  0.25   + A
         |
         |
         |
  0.00
         |
VALUE    |
         |
 -0.25   |
         |             A
         |
         |
 -0.50   |
         |                        A
         |
         |
 -0.75   |
         |
         |                                   A
         |
 -1.00
       --+-------------+-------------+-------------+-
        Low: $34    Medium: $61    High: $88   Too High: $115
                            PRICE
```
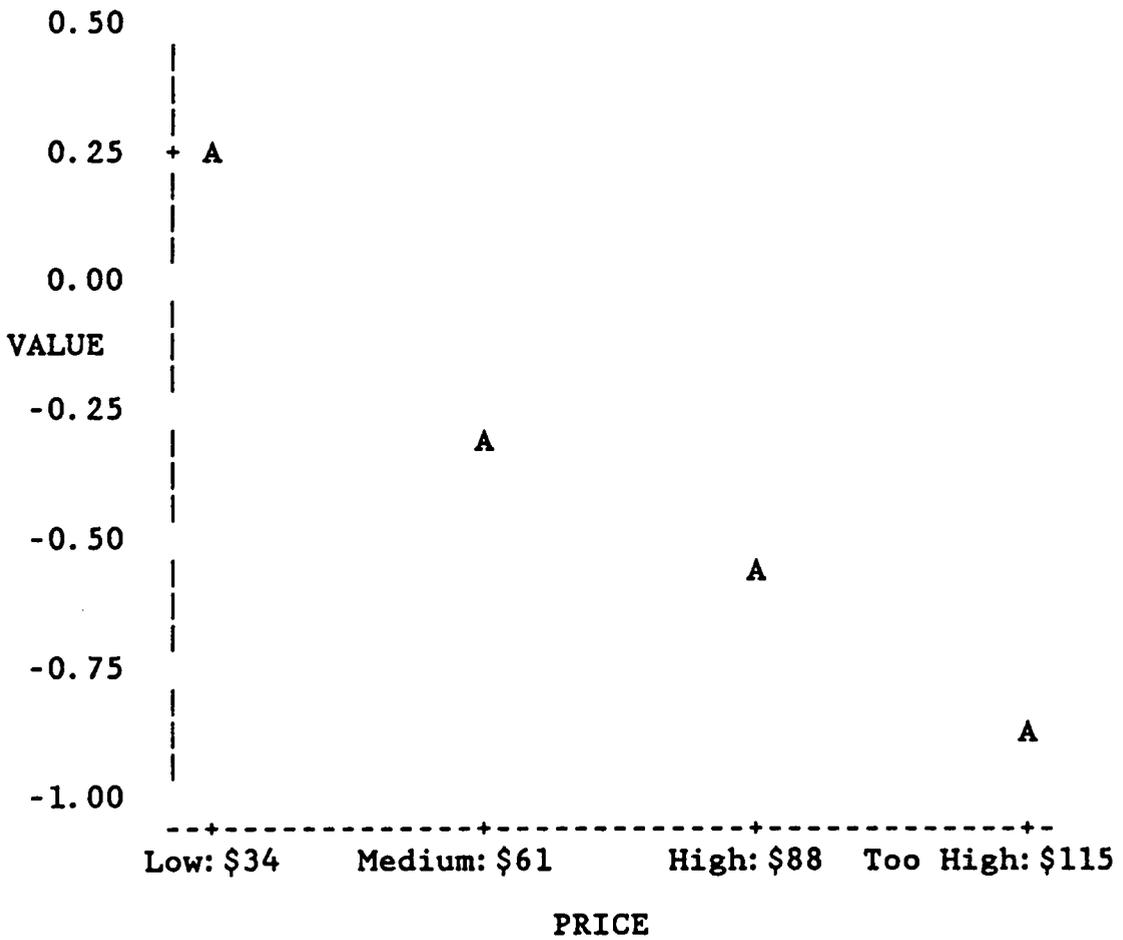
Figure 28:   Perceived Value Means Versus Price - Stereo
              Headset Player

high price had response means that were statistically different from the other price levels. For the stereo headset player, the too high price was perceived to be different than the low and medium prices. In summary the relationship of price to willingness to buy is a statistically significant inverse trend. This trend is shown in Figures 29 and 30 for the two products.

Both product's brand effect on willingness to buy was statistically significant. (calculator: $p=.0074$ and stereo headset player: $p=.0001$) (Tables 67 and 68). This information indicates that the high brand name elicited a higher mean response to willingness to buy than the lower brand name. The price effects are also summarized in these tables. The price effect in the calculator experiment showed the medium price to be significantly different from the too high price where the willingness to buy trend increased from the low to medium price levels but then decreased as price increased to high and then too high price levels. In the experiment for the stereo headset player, the trend, as discussed for previous constructs, was evidenced when the low price had the highest response mean of willingness to buy. As price levels increased, the response mean decreased. For this product, Duncan's MRT found the low and too high price level responses to be statistically different. The low and

TABLE 65

Analysis of Variance Procedure for Willingness to Buy
- Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	10.04321609	4.44	0.0050
BRAND	1	24.60896571	32.67	0.0001
STORE	1	0.07512474	0.10	0.7525
PRICE*BRAND	3	0.25057478	0.11	0.9491
PRICE*STORE	3	0.73464360	0.33	0.8093
BRAND*STORE	1	2.21915654	2.95	0.0877
PRICE*BRAND*STORE	3	1.40463233	0.62	0.6058

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05 DF=192 MSE=0.753167
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN	N	PRICE
		A	-0.00017	52	Low: $17
		A			
	B	A	-0.33638	52	Medium: $28
	B	A			
	B	A	-0.34843	52	High: $39
	B				
	B		-0.61987	52	Too High: $50
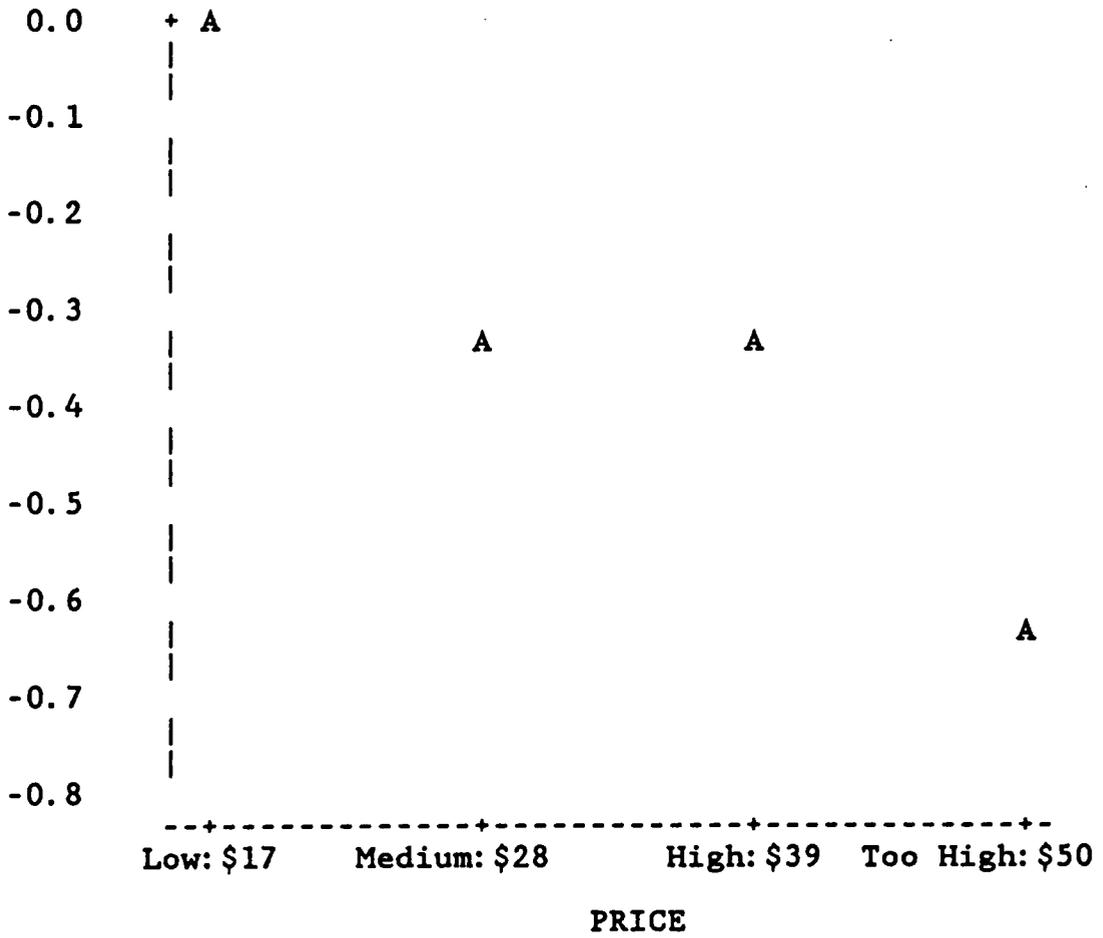
Figure 29: Willingness to Buy Means Versus Price - Calculator

TABLE 66

Analysis of Variance Procedure for Willingness to Buy
- Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	20.13776628	12.15	0.0001
BRAND	1	15.40035124	27.87	0.0001
STORE	1	3.35007298	6.06	0.0147
PRICE*BRAND	3	1.28680319	0.78	0.5116
PRICE*STORE	3	0.08272305	0.05	0.9798
BRAND*STORE	1	2.12408698	3.84	0.0514
PRICE*BRAND*STORE	3	1.85680542	1.12	0.3424

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05   DF=192   MSE=0.552573
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN	N	PRICE
		A	0.16504	52	Low: $34
		B	-0.24148	52	Medium: $61
		B			
	C	B	-0.46448	52	High: $88
	C				
	C		-0.67495	52	Too High: $115

```
BUY     | A
        |
        |
  0.0   |
        |
        |
        |
 -0.2   |
        |           A
        |
        |
 -0.4   |
        |
        |                        A
        |
 -0.6   |
        |
        |                                    A
        |
 -0.8   |
        --+--------------+--------------+--------------+-
        Low: $34   Medium: $61    High: $88   Too High: $115
                        PRICE
```
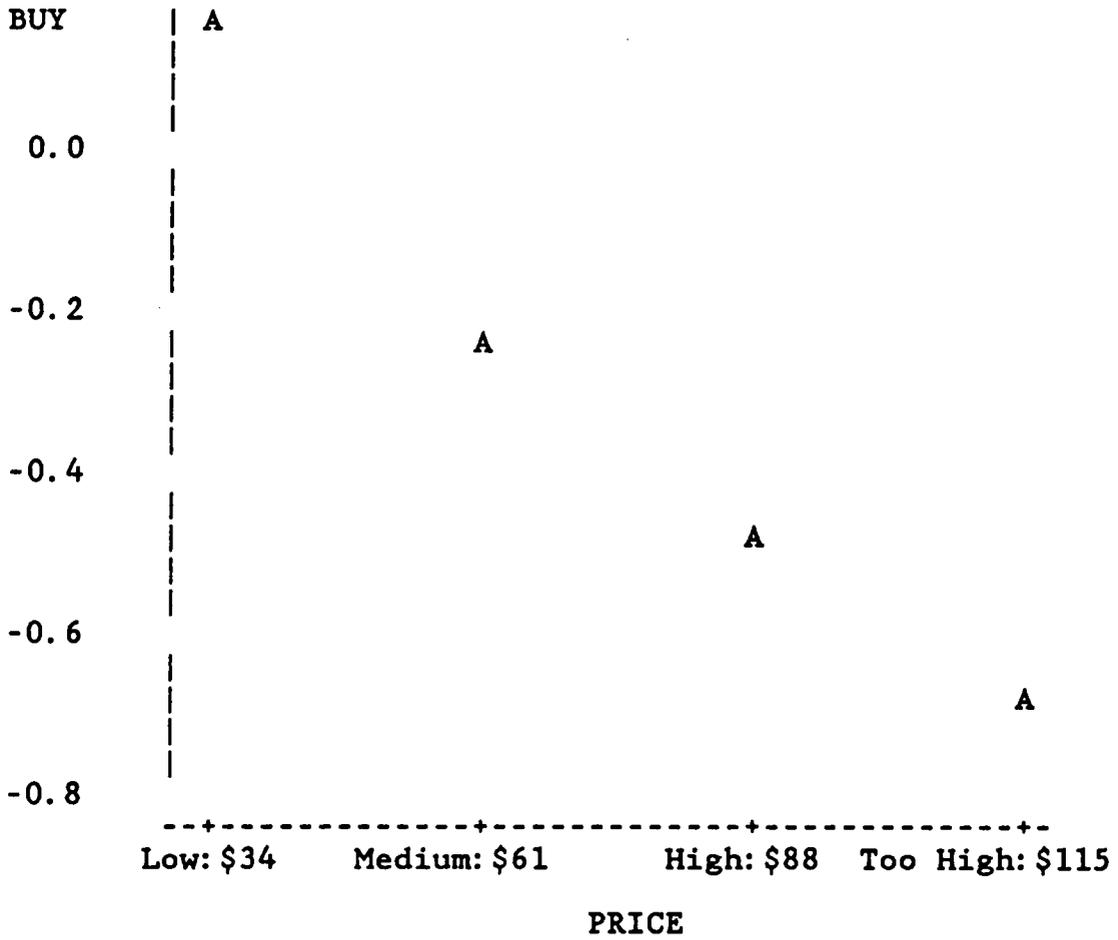
Figure 30:   Willingness to Buy Means Versus Price - Stereo
             Headset Player

medium price levels were different than the too high price,
while the high and too high price levels were different than
the low price level.

The effect of store name on the willingness to buy con-
struct as shown in Tables 69 and 70 is statistically signi-
ficant at 0.0241 for calculators and 0.0317 for the stereo
headset player. In both cases, the high store name elicited
higher mean responses than did the low store name.

The analysis of the price effect in these tables shows
contrasting situations. In the calculator experiment, where
the overall effect was significant at 0.0711, the low and
too high price levels were statistically different. The
trend was consistent with previous analysis where the low
price level has the highest response level and succeeding
higher price levels brought out decreasingly lower response
levels of willingness to buy. In the other experiment, the
price effect was non-significant with p=0.2644 (Table 70).
The trend of a negative price-willingness to buy relation-
ship is broken by a high response (-.27001) to willingness
to buy for the too high price level.

Table 71 and 73 summarize the analysis of willingness to
buy where only price influences this behavioral tendency.
The significance of the price effect is weak with p=0.1109
for the calculator experiment and p=.2110 for the stereo

TABLE 67

Two Way Analysis of Variance Procedure for Willingness
to Buy - Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	3.24578953	1.92	0.1291
BRAND	1	4.21352662	7.49	0.0074
PRICE*BRAND	3	2.78983235	1.65	0.1805

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05 DF=96 MSE=0.562188
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN	N	PRICE
		A	0.21614	26	Medium: $28
		A			
	B	A	0.05904	26	Low: $17
	B	A			
	B	A	0.01906	26	High: $39
	B				
	B		-0.27274	26	Too High: $50

* DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05 DF=96 MSE=0.562188
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING	MEAN	N	BRAND
	A	0.20666	52	High: HP
	B	-0.19590	52	Low: Royal

* Test not necessary for a two mean comparison, test
  of significance is shown in the overall results.
  MRT was run to find the compared means.

TABLE 68

Two Way Analysis of Variance Procedure For Willingness
to Buy - Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	8.36552201	4.59	0.0049
BRAND	1	9.67929961	15.95	0.0001
PRICE*BRAND	3	1.52714377	0.84	0.4784

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05 DF=96 MSE=0.606918
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN	N	PRICE
		A	0.01355	26	Low: $34
		A			
	B	A	-0.10413	26	Medium: $61
	B				
	B	C	-0.46141	26	High: $88
		C			
		C	-0.69961	26	Too High: $115

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05 DF=96 MSE=0.606918
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

* DUNCAN	GROUPING	MEAN	N	BRAND
	A	-0.00782	52	High: Sony
	B	-0.61797	52	Low: GP

  * Test not necessary for a two mean comparison, test
    of significance is shown in the overall results.
    MRT was run to find the compared means.

TABLE 69

Two Way Analysis of Variance Procedure For Willingness
to Buy - Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	3.74897630	2.40	0.0711
STORE	1	2.73159950	5.25	0.0241
PRICE*STORE	3	0.86793186	0.56	0.6491

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05   DF=96   MSE=0.519837
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN	N	PRICE
		A	-0.17655	26	Low: $17
		A			
	B	A	-0.51675	26	High: $39
	B	A			
	B	A	-0.54963	26	Medium: $28
	B				
	B		-0.69444	26	Too High: $50

* DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05   DF=96   MSE=0.519837
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING	MEAN	N	STORE
	A	-0.32228	52	High: VTBS
	B	-0.64641	52	Low: Roses

* Test not necessary for a two mean comparison, test
  of significance is shown in the overall results.
  MRT was run to find the compared means.

TABLE 70

Two Way Analysis of Variance Procedure for Willingness
to Buy - Stereo Headset Player

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	2.04622865	1.34	0.2644
STORE	1	2.41381110	4.75	0.0317
PRICE*STORE	3	1.55071036	1.02	0.3896

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05 DF=96 MSE=0.50805
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN GROUPING	MEAN	N	PRICE
A	-0.13217	26	Low: $34
A			
A	-0.27001	26	Too High: $115
A			
A	-0.28229	26	Medium: $61
A			
A	-0.52211	26	High: $88

* DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05 DF=96 MSE=0.50805
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN GROUPING	MEAN	N	STORE
A	-0.14930	52	High: Best
B	-0.45399	52	Low: K Mart

* Test not necessary for a two mean comparison, test
  of significance is shown in the overall results.
  MRT was run to find the compared means.

headset player. Generally the trend where lower prices have higher tendency to purchase and higher prices have lower willingness to buy tendencies was evident in the experiments. In the the calculator experiment, as summarized in Table 71, Duncans multiple range test shows statistical significance between the low price and too high price levels. Also the relationship between the high price and medium price level goes against previous observations in that the high price level elicited a higher willingness to buy than did the medium price level. A plot of the means shown in Figure 31 depicts the decrepency in this trend.

The summary of the stereo headset player experiments in Table 73 reveals the inverse trend between price level and the willingness to buy construct. While none of the means were shown to be statistically different, a plot of the means in Figure 32 illustrates the trend that is uncovered in this analysis and in many of the previous analyses.

A two way analysis of variance was run with the third cue, either brand name or store name, held constant to measure the subjects' willingness to buy. The summary, in Table 72, generally supported the strength of the price main effect for both products although the direction of the means supported only the negative relationship of the hypothesis. Brand name was statistically significant in all four situa-

TABLE 71

Analysis of Variance Procedure for Willingness to Buy
- Calculator

SOURCE	DF	ANOVA SS	F VALUE	PR > F
PRICE	3	4.01617394	2.11	0.1109

DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
ALPHA=0.05 DF=48 MSE=0.633682
MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
DIFFERENT.

DUNCAN	GROUPING		MEAN	N	PRICE
		A	-0.01929	13	Low: $17
		A			
	B	A	-0.06851	13	High: $39
	B	A			
	B	A	-0.17475	13	Medium: $28
	B				
	B		-0.71607	13	Too High: $50
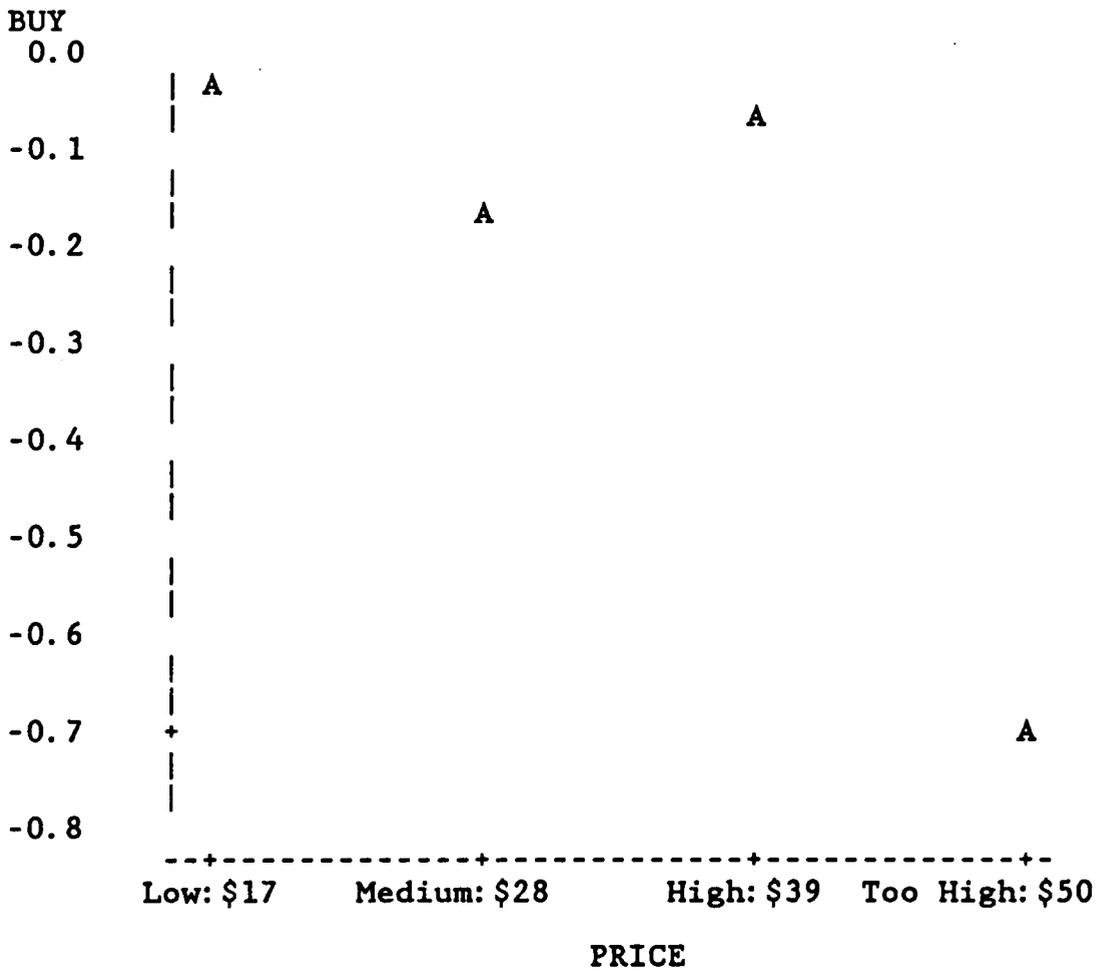
Figure 31:   Willingness to Buy Means Versus Price -
             Calculator

tions and the means were in the hypothesized directions. Store name was non-significant and did not always have the means in the hypothesized directions.

Analysis of Trend

Computation for trend analysis using orthogonal polynomials was conducted on each of the three constructs. In particular, an analysis was carried out to determine if linear and quadratic trends exist between price and each of the the three constructs: perceived quality, perceived value, and willingness to buy.

This procedure, as outlined in Hayes (1973, 691-693) uses the one way analysis of variance for price effect where brand name and store name information is not available (Tables 53 and 55 for perceived quality; Tables 63 and 64 for perceived value; Tables 71 and 73 for willingness to buy). The sum of square error (SSE) from the ANOVA is needed for testing the individual trend comparisons.

Tables 74 and 75 shows the test for linear trends for the price-perceived quality relationship for calculators and stereo headset player respectively. The plot of the means in Figures 23 and 24 suggests a linear trend and this trend is confirmed by the statistical analysis where for both products, the test for linear trends is significant at $p < .01$.

TABLE 72

Two Way Analysis of Variance with Third Cue Held Constant - Willingness to Buy

Calculator

P-Value				Direction of Means as Hypothesized		
Price	Brand Name	Store Name	Interaction	Price	Brand Name	Store Name
0.147	.010	High	0.763	*some	Yes	-
0.028	0.001	Low	0.804	*some	Yes	-
0.063	High	0.147	0.938	*some	-	No
0.106	Low	0.339	0.513	*some	-	Yes

```
df      4      1      1
df error=96
```

Stereo Headset Player

P-Value				Direction of Means as Hypothesized			
Price	Brand	Store Name	Interaction Name	Price	Brand	Store Name	Name
0.002	0.024	High	0.704	*some	Yes	-	
0.001	0.001	Low	0.229	*some	Yes	-	
0.001	High	0.724	0.574	*some	-	Yes	
0.001	Low	0.002	0.691	*some	-	yes	

```
df      4      1      1
df error=96
```

* all means support negative hypothesized relationship only

```
                          TABLE 73

Analysis of Variance Procedure For Willingness to Buy-
                 Stereo Headset Player


   SOURCE                DF      ANOVA SS  F VALUE   PR > F

 PRICE                   3    2.66136201    1.56   0.2110

 DUNCAN'S MULTIPLE RANGE TEST FOR VARIABLE: BUY
 ALPHA=0.05  DF=48  MSE=0.568253
 MEANS WITH THE SAME LETTER ARE NOT SIGNIFICANTLY
 DIFFERENT.

 DUNCAN    GROUPING              MEAN      N   PRICE

              A              -0.05034    13  Low: $34
              A
              A              -0.27487    13  Medium: $61
              A
              A              -0.31273    13  High: $88
              A
              A              -0.68096    13  Too High: $115
```

```
BUY   |
 0.0  |
      |
      |A
      |
-0.1  |
      |
      |
      |
-0.2  |
      |
      |
      |                        A
-0.3  |
      |                                              A
      |
      |
-0.4  |
      |
      |
-0.5  |
      |
      |
      |
-0.6  |
      |
      |                                                          A
      |
-0.7  |
     -+--------------+--------------+--------------+-
      Low: $34    Medium: $61      High: $88   Too High: $115
                          PRICE
```
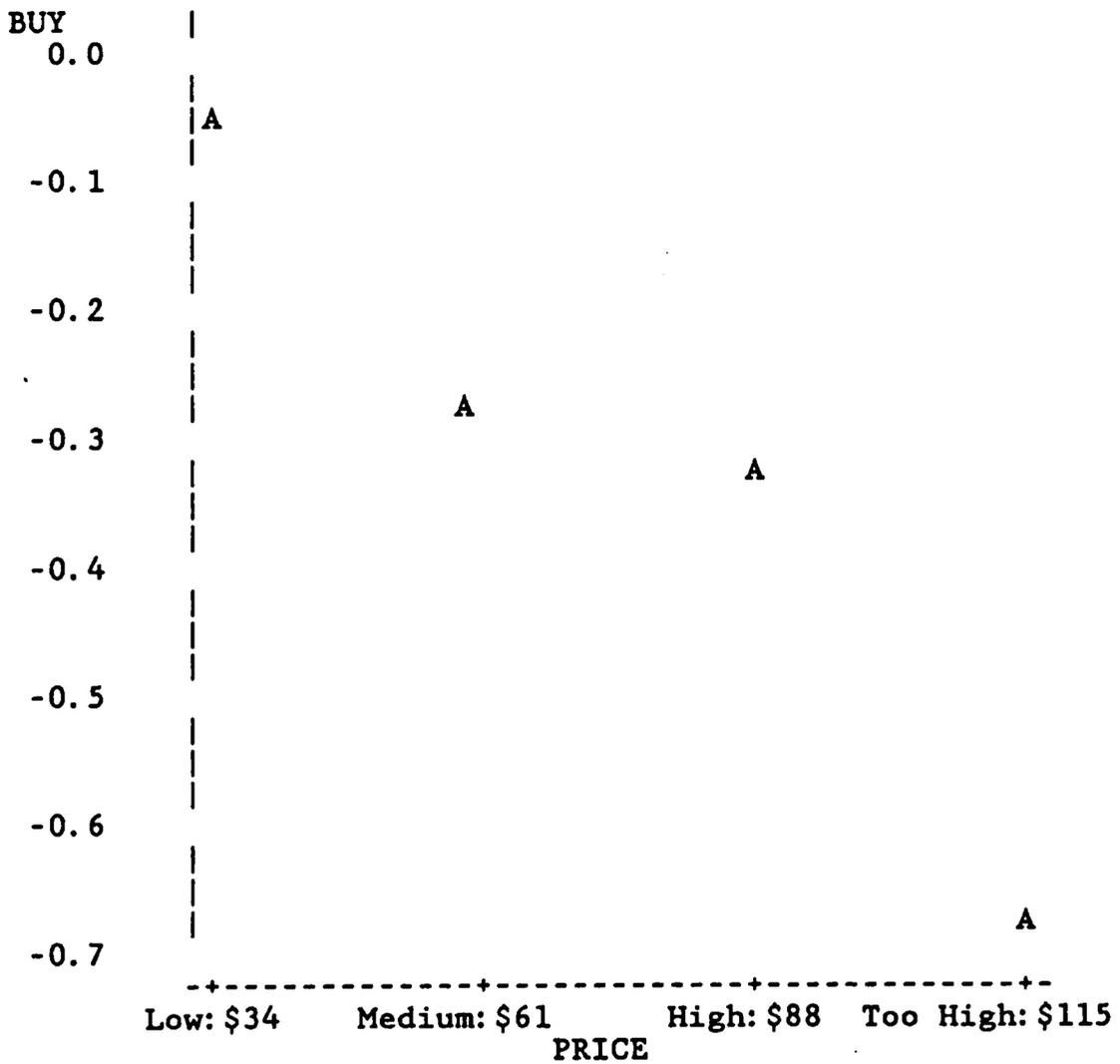
Figure 32:   Willingness to Buy Means Versus Price - Stereo
             Headset Player

There was no statistical evidence of a quadratic or higher order trend in the price-perceived quality relationship.

The analysis for quadratic trends in the price-perceived value relationship is shown in Tables 76 and 77. The plot of the perceived value means for calculators in Figure 27, indicates a downward sloping trend with quadratic features. The test for trends shows significance for a linear trend of $p=0.005$, but also supports the quadratic feature, with less strength at $p<.05$. The trend for the stereo headset player, in Figure 28, is confirmed to be linear with a $p<.01$ but non-significant for possessing properties of a quadratic trend.

Tables 78, and 79 summarizes the test for quadratic trends in the price - willingness to buy relationship. Both products showed statistical evidence of a linear trend with the significance $p<.05$. Both the calculator and the stereo headset player experiments failed to provide statistical evidence of a quadratic trend. The plotting of the means for the two experiments in Figure 31 and 32, fail to give any indication of this quadratic trend due to the unevenness of the plotted measures.

In summary, there is consistent statistical evidence of linear trends for all three price relationships for both products. The evidence of a quadratic trend for price-perceived value is weak and price - willingness to buy is nil.

TABLE 74

Test For Linear Trend in Price-Perceived Quality Relationship - Calculator

	Group			
	Too High	High	Medium	Low
	1	2	3	4
Means	+.239	-.025	-.406	-.837
Linear Weights	-3	-1	1	3
Quadratic Weights	1	-1	-1	1

SOURCE	SS	DF	MS	F	PR>F
Between	8.563	3			
Linear	8.469	1	8.469	10.536	p<.01
Quadratic	.091	1	.093	.116	non-sig.
other	.003	1	.003	.001	non-sig.
Error	38.147	48	.804		
Total	47.147	51			

TABLE 75

Test For Linear Trend in Price-Perceived Quality Relationship- Stereo Headset Player

	Group			
	Too High	High	Medium	Low
	1	2	3	4
Means	.337	.007	.007	-.762
Linear Weights	-3	-1	1	3
Quadratic Weights	1	-1	-1	1

SOURCE	SS	DF	MS	F	PR>F
Between	8.468	3			
Linear	7.068	1	7.068	10.229	p<.01
Quadratic	.628	1	.628	.909	non-sig.
other	.772	1	.772	1.117	non-sig.
Error	33.162	48	.691		
Total	41.630	51			

TABLE 76

Test For Quadratic Trend in Price-Perceived Value Relationship - Calcualtor

	Group		
Too High	High	Medium	Low
	1	2	3	4
Means	-1.060	-.229	+.144	+.216
Linear Weights	-3	-1	1	3
Quadratic Weights	1	-1	-1	1

SOURCE	SS	DF	MS	F	PR>F
Between	13.354	3			
Linear	11.475	1	11.475	25.275	p<.005
Quadratic	1.876	1	1.876	4.132	p<.05
other	.003	1	.003	.007	non-sig.
Error	21.773	48	.454		
Total	35.127	51			

TABLE 77

Test For Quadratic Trend in Price-Perceived Value Relationship - Stereo Headset Player

	Group			
Too High	High	Medium	Low	
	1	2	3	4
Means	-.881	-.565	-289	.241
Linear Weights	-3	-1	1	3
Quadratic Weights	1	-1	-1	1

SOURCE	SS	DF	MS	F	PR>F
Between	8.834	3			
Linear	8.624	1	8.624	17.560	p<.01
Quadratic	.149	1	.149	.303	non-sig.
other	.061	1	.061	.124	non-sig.
Error	23.553	48	.491		
Total	32.386	51			

TABLE 78

Test For Quadratic Trend in Price-Willingness to Buy Relationship - Calculator

	Group		
Too High	High	Medium	Low
	1	2	3	4
Means	-.716	-.175	-.069	-.019
Linear Weights	-3	-1	1	3
Quadratic Weights	1	-1	-1	1

SOURCE	SS	DF	MS	F	PR>F
Between	4.016	3			
Linear	3.138	1	3.138	4.950	p<.05
Quadratic	0.785	1	.785	1.238	non-sig.
other	0.093	1	.093	0.147	non-sig.
Error	30.417	48	.634		
Total	34.433	51			

TABLE 79

Test For Quadratic Trend in Price-Willingness to Buy Relationship - Stereo Headset Player

	Group			
Too High	High	Medium	Low	
	1	2	3	4
Means	-.681	-.313	-275	-.050
Linear Weights	-3	-1	1	3
Quadratic Weights	1	-1	1	1

SOURCE	SS	DF	MS	F	PR>F
Between	2.661	3			
Linear	2.424	1	2.424	4.268	p<.05
Quadratic	0.067	1	.067	0.118	non-sig.
other	0.017	1	.017	0.030	non-sig.
Error	27.276	48	.568		
Total	29.937	51			

Analysis of the Combined Effects

The relationships of price level to brand name and price level to store name were analyzed and are summarized in Tables 80 and 81. The combination of price, store name and brand name is examined in Table 82. Table 80 compares the influence of price on perceived quality in the presence and absence of brand information that was consistent with the price (i.e. high price and high brand name). Cell 42 which measures perception of quality based on high price information had a mean quality perception that was lower (-.025 for calculators; .007 for stereo headset players) than cell 12 which has both high price and high brand name information. A one tailed t-test does not give statistical support for differences between the two cells. With the calculator, there was a statistically significant result of p between 0.10 and 0.25, while the stereo headset experiment is statistically significant at p between 0.05 and 0.10. Part b of the analysis examines a situation where low brand name information is added to low price information. The analysis shows that the mean measure of perceived quality is lowest when only low price information is available, than when low price and brand name information are present. The t-test offers weak evidence to support this difference where p > 0.25 for both products.

```
TABLE 80

Analysis of the Combined Effects - Hypotheses 4.1


Part a:  Ho : U12 = U42
         H1:  U12 > U42

Calculator Data:
Cell Price Brand Store N  Mean   SD      t    DF Prob>t

12   High  High  -     13 .395  .641
42   High  -     -     13 -.025 .825
                                     1.275  24 p>.10
                                                p<.25

Stereo Headset Player Data:
Cell Price Brand Store N  Mean   SD      t    DF Prob>t

12   High  High  -     13 .507  .656
42   High  -     -     13 .007  .632
                                     1.619  24 .10>p>.05

Part b:  Ho : U29 = U44
         H1:  U29 < U44

Calculator Data:
Cell Price Brand Store N  Mean   SD      t    DF Prob>t

29   Low   Low   -     13 -.653 1.198
44   Low   -     -     13 -.837 1.187
                                      .558  24 *p>.25

Stereo Headset Player Data:
Cell Price Brand Store N  Mean   SD      t    DF Prob>t

29   Low   Low   -     13 -.640 .852
44   Low   -     -     13 -.762 1.216
                                      .318  24 *p>.25

Note: MSE from overall 3 way ANOVA was used as an
estimate of variance :MSE(Calculator)= .70563
                       MSE(Stereo)=.65499
* t value is in opposite direction hypothesized
```

Table 81 examines the combination of price and store name effects in situations when the store name is present or absent. When both store name and price level are perceived to be high, the treatments for both products have higher measures of perceived quality when both types of information are present. A t-test provides weak statistical support for the differences between means for both products.

In part b, the results were mixed and weak in statistical support. The calculator experiment indicated higher measures of product quality when both low price and low store name was present than when only low price information was available to the subjects. But for the stereo headset player experiment, the opposite situation existed where the higher measurement of quality was when only low price information was available. The t-test yielded p > 0.40 for both products. Since these p-values are considered to be strongly non-significant, little can be ascertained from the direction of the means.

The situation where all three pieces of informational cues were available to the subjects is summarized in Table 82. A linear contrast analyses was utilized to examine whether one cell mean was different from the average of the

TABLE 81

Analysis of the Combined Effects - Hypotheses 4.2

Part a: Ho : U32 = U42
          H1:   U32 > U42

Calculator Data:

Cell	Price	Brand	Store	N	Mean	SD	t	DF	Prob>t
32	High	-	High	13	.159	.586			
42	High	-	-	13	-.025	.825			
							.558	24	p>.25

Stereo Headset Player Data:

Cell	Price	Brand	Store	N	Mean	SD	t	DF	Prob>t
32	High	-	High	13	.166	.555			
42	High	-	-	13	.007	.632			
							.501	24	p>.10

Part b: Ho : U39 = U44
          H1:   U39 < U44

Calculator Data:

Cell	Price	Brand	Store	N	Mean	SD	t	DF	Prob>t
39	Low	-	Low	13	-.798	.991			
44	Low	-	-	13	-.837	1.187			
							.118	24	*p>.40

Stereo Headset Player Data:

Cell	Price	Brand	Store	N	Mean	SD	t	DF	Prob>t
39	Low	-	Low	13	-.827	1.164			
44	Low	-	-	13	-.762	1.216			
							-.205	24	p>.40

Note: MSE from overall 3 way ANOVA was used as an estimate of variance :MSE(Calculator)= .70563
MSE(Stereo)=.65499

* t value is in opposite direction hypothesized

other cell means containig fewer information cues. This approach analyzes whether one cell containing price, brand name, and store name information is differnt than the cells containing price, and consistent price and brand name, and consistent price and store name information.

Part A examines the influence of the independent variable where all the information is consistently high. For both products the average of the cell means containing less than three cues of information was statistically less than the cell with all the information.

In part B, where all the information is consistently low, the results were mixed and statistically weak in support of the observed mean differences. For the calculator experiment, the mean for the cell having low price, brand name, and store name was statistically less than the average of the cells containing less than the three cues of consistently low information ($p > 0.25$). But the opposite situation existed in the stereo headset player where the cell mean measure of perceived quality in the cell where all the information present was more than the average of the cells containing less than three cues of information. It must be pointed out that statistical support for differences in the two compared groups is at a significance level of $p > 0.25$.

```
TABLE 82

Analysis of the Combined Effects - Hypotheses 4.3


Part a:   Ho : U2 = 1/3 (U12+ U32 + U42)
          H1:  U2 > 1/3 (U12 + U32 + U42)

Calculator Data:
Cell Price Brand Store N  Mean  SD        t    DF   Prob>t

2    High  High  High  13  .765 .496
12   High  High  -     13  .395 .641
32   High  -     High  13  .159 .586
42   High  -     -     13 -.025 .825
                                       2.19   192 p<.025

Stereo Headset Player Data:
Cell Price Brand Store N  Mean  SD        t    DF   Prob>t

2    High  High  High  13 .851  .436
12   High  High  -     13 .507  .656
32   High  -     High  13 .166  .555
42   High  -     -     13 .007  .632
                                       2.408  192 p<.01

Note: MSE from overall 3 way ANOVA was used as an
estimate of variance :MSE(Calculator)= .70563
                      MSE(Stereo)=.65499
```

TABLE 82

Analysis of the Combined Effects - Hypotheses 4.3 -
continued

Part b: Ho : U24 = 1/3 (U29 + U39 + U44)
         H1: U24 > 1/3 (U29 + U39 + U44)

Calculator Data:

Cell	Price	Brand	Store	N	Mean	SD	t	DF	Prob>t
24	Low	Low	Low	13	-.930	.851			
29	Low	Low	-	13	-.653	1.198			
39	Low	-	Low	13	-.798	.991			
44	Low	-	-	13	-.837	1.187			
							-.621	192	p>.25

Stereo Headset Player Data:

Cell	Price	Brand	Store	N	Mean	SD	t	DF	Prob>t
24	Low	Low	Low	13	-.654	1.250			
29	Low	Low	-	13	-.640	.852			
39	Low	-	Low	13	-.827	1.164			
44	Low	-	-	13	-.762	1.216			
							.343	192	*p>.25

Note: MSE from overall 3 way ANOVA was used as an
estimate of variance :MSE(Calculator)= .70563
                      MSE(Stereo)=.65499

* t value is in opposite direction hypothesized

Analysis and Results of the Exploratory Research

The results from this exploratory research can provide valuable substantive evidence toward theory building in regards to the relationship of extrinsic product cues as they influence the perception of product quality. The purpose of this research was to explore the relationship of the price, brand name and store name as they combine to influence each of the three constructs: perceived quality, perceived value, and willingness to buy. It was conceptualized and empirically investigated how these cues interact in situations where the cues are viewed as being consistent with one another. But there is no a priori knowledge on how inconsistent cues would be perceived in the measurement of the three constructs. Also, it was not known what the marginal influence of price, brand name and store name would be when one of these cues is added to one or both of the other cues. A review of this analysis follows with a separate discussion for each of the three constructs.

The analysis was carried on by observing the pattern of means in consistent and inconsistent situations. Test of statistical significance were not carried out as the intent of this exploratory research was to explore the pattern of effects as the cues are combined rather than to rely on statistical techniques to give significant results. It would

be the role of future research, using statistical tests, to rigorously examine the following observed results.

The Effect of Combined Cues on Perceived Quality

For each product experiment, situations were analyzed where only one or two, or three extrinsic cues was given. Table 83 contains the cell means for each of the situations described above (cell means for all treatments and products can be found in Appendix I). The single cue situation, used as a basis of comparison, a high brand name had a larger influence on perceived quality than either the price or store name cues. A high store name had the next highest influence, followed by high price information. In examining low price treatments, the same order is apparent, where the low brand name has the highest influence of product quality, followed by store name and price. From these observations it is apparent that in single cue situations, there is a stronger relationship between brand name and product quality perception than there is for the other cues.

When two cues are used, the strength of the brand name is again evident as it combines with the store or price cues to produce higher product quality. For both products the higher measures of quality occur in the presence of high brand name. The combination of high brand name and high store

TABLE 83

Exploratory Analysis of Combined Cues on Perceived
Product Quality

Single Cue

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
.508	HBN	.605	HBN
.151	HSN	.159	LBN
.007	HP	.108	HSN
-.244	LBN	-.025	HP
-.460	LSN	-.273	LSN
-.762	LP	-.837	LP

Two Cues

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
.837	HBN-HSN	.842	HBN-HSN
.507	HBN-HP	.685	HBN-LSN
.363	HBN-LP	.396	HBN-LP
.233	HBN-LSN	.395	HBN-HP
.166	HSN-HP	.159	HSN-HP
-.127	LSN-HP	.067	HSN-LBN
-.187	LBN-HP	-.015	HP-LBN
-.414	LBN-HSN	-.141	HSN-LP
-.506	HSN-LP	-.403	LBN-LSN
-.640	LBN-LP	-.487	HP-LSN
-.692	LBN-LSN	-.653	LBN-LP
-.827	LSN-LP	-.798	LSN-LP

where: HBN is a high brand name cue, LBN is a low brand
name cue, HSN is a high store name cue, LSN is a low
store name cue, HP is a high price cue, and LP is a low
price cue.

TABLE 83

Exploratory Analysis of Combined Cues of Perceived
Product Qualiity - continued

Three Cues

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
.851	HBN-HSN-HP	.765	HBN-HSN-HP
.654	HBN-LSN-LP	.540	HBN-LSN-HP
.484	HBN-LSN-HP	.119	HBN-HSN-LP
.365	HBN-HSN-LP	-.024	HBN-LSN-LP
-.164	LBN-HSN-LP	-.207	LBN-HSN-HP
-.335	LBN-HSN-HP	-.394	LBN-LSN-HP
-.654	LBN-LSN-LP	-.601	LBN-HSN-LP
-.745	LBN-LSN-HP	-.930	LBN-LSN-LP

where: HBN is a high brand name cue, LBN is a low brand
name cue, HSN is a high store name cue, LSN is a low
store name cue, HP is a high price cue, and LP is a low
price cue.

name produced the strongest perception of quality while low store name and low price produced the lowest perception of quality.

By examining the marginal effect of adding more information in the form of price, brand name, and store name the following information is derived. The marginal influence of brand name appears to be strongest as evidenced below. When high brand name information is added to high store name information, the mean measurement of product quality increases from 0.151 to 0.837 (difference: .686) for the stereo headset player and from 0.108 to 0.842 (difference: .734) for the calculator. When high brand name information is added to high price information, the measures increase from 0.007 to 0.507 (difference: .500) and from -0.025 to 0.395 (difference: .420) for the two products. When high brand name is added to low price information, the marginal change is very strong, from -0.762 to +0.363 (difference: 1.125) for the stereo headset player and -0.837 to +0.396 (difference: 1.233) for the calculator.

The influence of the store name is also strong when added to one of the other two cues. The addition of high store information increases the high brand name mean from 0.508 to 0.837 (difference: .329) for the stereo headset player and from 0.605 to 0.842 (difference: .237) for the calculator.

When this information is added to price information the mean measure of product quality increases from 0.007 to 0.166 (difference:.159) and from -0.025 to 0.159 (difference: .184).

The marginal influence of price information on perceived quality is much weaker. When high price information is added to high brand name, the means decrease from 0.508 to 0.507 (difference: .001) for the stereo headset player experiment and from 0.605 to 0.395 (difference: .210) for the calculator.

The marginal influence of price when combined with high store name produced small increases in perceived quality (from 0.151 to 0.161 (difference: .010) for stereo headset players and from 0.108 to 0.159 (difference:.051) for calculators).

When all three cues of information are available, the situations where the cues are consistently high or low produce the extreme measures of perceived quality. The strength of the brand name continues to be the key determinant of high product quality. In both product experiments, the high brand name combines with various levels of the the other two cues to produce the higher measures of product quality. But, when a low brand name combines with different levels of the other cues, the results are low measures of product quality.

The examination of the marginal influences of adding an extrinsic cue of information to the other two cues, gives stronger support for the strength of the brand name. When the high brand name is added to consistent cues of price and store name, the quality perception increases from 0.166 to 0.851 (difference: .685) for the stereo headset player and from 0.159 to 0.765 (difference: .606) for the calculator. While this result might be expected, the strength of the brand name was evidenced when the high brand name was associated with low price and low store name situations. The quality perception of the stereo headset player increases from -0.827 to 0.654 (difference: 1.481) and from -0.798 to -0.024 (difference: .774) for the calculator.

Store name had a weaker marginal influence on the perception of product quality, in the presence of the other two cues. When high store name information is added to the presence of high price and high brand name the means increased from 0.507 to 0.851 (difference: .344) for the stereo headset player and from 0.395 to 0.765 (difference: .370) for the calculator. The ability of a high store name to moderate the quality perceptions due to low price and low brand name is inconclusive. For the stereo headset player, the increase in measures of quality is from -0.640 to 0.164 (difference: .804) but the quality perceptions of the calcu-

lator increased only slightly form -0.653 to -0.601 (difference: .052).

The strength of the price effect was weakest of the three constructs. Its ability to enhance quality perception when store and brand name information is high was inconsistent between the two products. The quality perception of the stereo headset player increased slightly, from .837 to .851 (difference: .014), while the calculator's quality perception decreased from .842 to .765 (difference: .077) when high price is added to high store and brand name information. A high price level had mixed results in its ability to enhance the quality perception of products with low brand names and low store names. For the stereo headset player, the addition of high price information actually decreases the measures of quality from -0.692 to -0.765 (difference: .073) while for the calculator the increase is minimal, from -0.403 to -0.394 (difference: .009).

A third point to make is that when more information is given (three cues), a wider range of quality perception is evidenced, 1.596 for the stereo headset player and 1.695 for the calculator, than in situations where only one extrinsic cues is given, 1.270 for the stereo headset player and 1.442 for the calculator.

The influence of adding high brand name information to the other high perceived cues appears to strengthen the quality perception. The addition of low price to other cues, perceived to be low in quality, tend to weaken further the perception of quality. The results of this observation, taken together, appear to be an increased range of quality perception when more cues are given than when less are given.

The Effects of the Combined Cues of Perceived Value

The measurement of indicators of value and willingness to buy either explicitly or implicitly assume the knowledge of price. Therefore, only those cells that included price information were evaluated. Table 84 shows the analysis of consistent and inconsistent cues of perceived value. For the single cue situation, where only price was representd, both products showed that the low price products were perceived to be higher in value than the high priced products.

The low price combines with the high brand name to produce clearly the highest measures of perceived value in the two-cue situation. High price, when combined with low store name gives very low perceptions of product value. The low perception of value was also evidenced when high prices combined with low brand name. The marginal effects of adding a

TABLE 84

Exploratory Analysis of Combined Cues on Perceived Value

Single Cue

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
.241	LP	.215	LP
-.565	HP	-.229	HP

Two Cues

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
.410	HBN-LP	.446	HBN-LP
.201	LSN-LP	.172	HSN-LP
.016	HSN-LP	.036	LBN-LP
-.106	LBN-LP	.015	HBN-HP
-.359	HBN-HP	-.215	LBN-HP
-.417	HSN-HP	-.411	LSN-LP
-.647	LSN-HP	-.416	HSN-HP
-.705	LBN-HP	-.931	LSN-HP

Three Cues

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
.395	HBN-LSN-LP	.529	HBN-HSN-LP
.294	LBN-HSN-LP	.359	HBN-LSN-LP
.270	HBN-HSN-LP	.186	LBN-HSN-LP
-.088	HBN-HSN-HP	.088	LBN-LSN-LP
-.113	LBN-LSN-LP	-.016	HBN-LSN-HP
-.238	HBN-LSN-HP	-.111	HBN-HSN-HP
-.679	LBN-HSN-HP	-.729	LBN-HSN-HP
-.983	LBN-LSN-HP	-.847	LBN-LSN-HP

where: HBN is a high brand name cue, LBN is a low brand name cue, HSN is a high store name cue, LSN is a low store name cue, HP is a high price cue, and LP is a low price cue.

high brand name to the low price is strong for both products. In addition, it appears in the two cue situation that the low price cue is strong in influencing the other cues, whether they are high or low.

When three cues were present, the level of the price plays a strong role in determining overall perceived product value. For both products, the low price combines with brand name and store name to give the three highest levels of product value. While the brand name has strength when combined with the price cues, it does not appear to be the dominant cue in influencing perception of value.

The general observation of the three cue situation is that the highest perception of value is where brand name and store name is high, and price is low. The lowest perception of value occurs when brand name and store name is low but price is high. The marginal effect of changing price from high to low when the level of the other cues are held constant is greater than the marginal effects of brand name and store name. For example, in the calculator data, changing from a low price level to a high price level, when the other two cues are high, perception of value changes from 0.529 to -0.111 (difference: .640). This change is greater than a change in a brand name level, which goes from 0.529 to 0.186

(difference: .343). At the low end of value perception, the strength of the price effect is also evidenced. By lowering the price level, when the other two cues are at a low level, the perception of value increases from -0.847 to 0.088 (difference: .935). By comparisonn, the changing of brand name to a high level, increases the perception of value to -0.016. While price is not dominant, it clearly has equal, if not greater, strength in influencing the perception of value. Also, it is apparent that value in the view of the subjects in this experiment was when the brand name and store name were both at the same level (high or low) and the price cues were at the opposite level.

The Effects of the Combined Cues of Willingness to Buy

The results presented in Table 85 evaluating willingness to buy as influenced by the price, brand name, and store name cues are similar to the perception of value results just discussed. For the single cue situation, where only price was present, the low priced products were higher in measures of willingness to buy than the high priced products. The low price combines with the high brand name to give higher measures of willingness to buy. But, high price is not consistent between the two products in combining with one of the other two cues to give a low measure of willing-

ness to buy. The marginal effect of adding a high brand name to low price has a strong effect for both products (-0.050 to +0.522 (difference: .572) for the stereo headset player, and -0.019 to +0.403 (difference: .422) for the calculator), while the addition of a high store name does not change the measures of willingness to buy substantively.

In the three cue situation an interesting finding showed that the highest observations of willingness to buy had low store name levels in combination with high brand name, and low price. But, the lowest observation of willingness to buy had low store name in combination with low brand name and high price.

RESULTS OF THE PHASE II EXPERIMENT

The analyses in the previous sections of this chapter has considered the effect of the independent variables, price, brand name, and store name on the perceptions of quality and value, and willingness to buy. This section will discuss the results in terms of the fifteen hypotheses proposed in Chapter III.

TABLE 85

Exploratory Analysis of Combined Cues of Willingness to Buy

Single Cue

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
-.050	LP	-.019	LP
-.313	HP	-.069	HP

Two Cues

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
.522	HBN-LP	.403	HBN-LP
-.099	LSN-LP	.022	HSN-LP
-.165	HSN-LP	-.101	LBN-HP
-.174	HBN-HP	-.139	HBN-HP
-.298	HSN-HP	-.285	LBN-LP
-.494	LBN-LP	-.334	HSN-HP
-.746	LSN-HP	-.375	LSN-LP
-.749	LBN-HP	-.700	LSN-HP

Three Cues

Stereo Headset Player Data		Calculator Data	
Mean	Cue	Mean	Cue
.363	HBN-LSN-LP	.428	HBN-LSN-LP
.347	HBN-HSN-LP	.304	HBN-HSN-LP
.225	LBN-HSN-LP	.204	HBN-LSN-HP
-.067	HBN-HSN-HP	-.169	HBN-HSN-HP
-.174	HBN-LSN-HP	-.250	LBN-LSN-LP
-.274	LBN-LSN-LP	-.482	LBN-HSN-LP
-.655	LBN-HSN-HP	-.516	LBN-HSN-HP
-.962	LBN-LSN-HP	-.914	LBN-LSN-HP

where: HBN is a high brand name cue, LBN is a low brand name cue, HSN is a high store name cue, LSN is a low store name cue, HP is a high price cue, and LP is a low price cue.

Price Effect

The first three hypotheses described the anticipated ef-
fect of price on the perception of quality, perception of
value, and willingness to buy.

Perceived Quality and Price

The first hypothesis suggested that as price increases
from a low priced model to a higher priced model, subjects'
perception of product quality will increase. The summary in
Table 86 lends strong support for the hypothesis. With the
calculator experiment, the plotting of the means showed a
positive relationship between price and perceived quality.
For the three way and one way designs, there was statistical
significance in perceived quality between some of the price
levels. The two way designs lend the weakest support where
the overall ANOVA was non-significant, but still showed a
positive trend in the plotting of the perceived quality me-
ans.

The results of the stereo headset player had different
findings. It appears that the presence of brand name had an
influence on the price effect in affecting perceived quali-
ty. The price effect is statistically significant only in a

TABLE 86				
Summary of Price-Perceived Quality Effects				
CONSTRUCT	PRICExBRAND xSTORE	PRICExBRAND	PRICExSTORE	PRICE
Perceived Quality				
Calculator				
Table	47	49	51	53
Summary Values	F=4.48 p=.0048 df=(3,192)	F=1.55 p=.2046 df=(3,96)	F=1.40 p=.2456 df=(3,96)	F=3.55 p=.0211 df=(3,48)
Statistical Significance between price levels	some	none	none	some
Subtantive trend between quality and price	positive	positive	positive	positive
Stereo Headset Player				
Table	48	50	52	54
Summary Values	F=0.03 p=.9870 df=(3,192)	F=0.96 p=.4181 df=(3,96)	F=5.49 p=.0017 df=(3,96)	F=4.09 p=.0116 df=(3,48)
Statistical Significance between price levels	none	none	some	some
Subtantive trend between quality and price	positive	no	positive	positive

single cue situation and when price is given with store information. This observation was further supported by analysis summarized in Table 54, where brand name and store name was present but where store name as not manipulated. In cases where brand name was included as extrinsic information, the overall ANOVA was highly non-significant, although a postive trend over a very small range of quality was found in the three way ANOVA. When price was analyzed by itself and in conjunction with store name information, the price effect had a strong positive relationship with perceived quality. As discussed in the exploratory research section, the influence of brand name is strong on the perception of quality and does tend to be stronger than the price effect. This result is evident in the stereo headset player situation, but not so in the calculator experiment. The analysis of trends gives strong support to the notion that this positive relationship is linear in nature for both product experiments.

Perceived Value and Price

It was hypothesized that as price increases within the subjects' acceptable price range from the low priced model to the higher priced model, perception of value will increase and then decrease. Additionally, as price increases

to a model perceived to be too high in price, subjects' perception of value will continue to decrease. The results of the data analysis to support this hypothesis is summarized in Table 87. In all situations for both products, the arguments that perceived value will at first increase are not supported.

The part of the hypothesis where perceived value decreases as the higher price levels increase is strongly supported. In all situations, the overall ANOVA was statistically significant, difference between value means were statistically significant for some price levels, and the plotting of the means showed a negative relationship between value and price for all price levels.

The test for a quadratic trend did show evidence of a curvilinear line for the calculator data, but the upward sloping portion of the hypothesized curve for lower prices was not evidenced. There was no statistical support for a quadratic trend in examining the data from the stereo headset player experiment.

Willingness to Buy and Price

The third hypothesis on the price effect posits that the relationship between willingness to buy and price is the same as the relationship of price to perceived value as dis-

CONSTRUCT	PRICExBRAND xSTORE	PRICExBRAND	PRICExSTORE	PRICE
TABLE 87				
Summary of Price-Perceived Value Effects				
Perceived Value				
Calculator				
Table	55	57	59	61
Summary Values	F=13.98 p=.0001 df=(3,192)	F=6.57 p=.0005 df=(3,96)	F=3.75 p=.0135 df=(3,96)	F=9.81 p=.0001 df=(3,48)
Statistical Significance between price levels	some	some	some	some
Subtantive trend between value and price	negative	negative	negative	negative
Stereo Headset Player				
Table	56	58	60	62
Summary Values	F=17.13 p=.0001 df=(3,192)	F=10.44 p=.0001 df=(3,96)	F=3.90 p=.0112 df=(3,96)	F=6.00 p=.0015 df=(3,48)
Statistical Significance between price levels	some	some	some	some
Subtantive trend between value and price	negative	negative	negative	negative

cussed above. The evidence from the data analysis in Table 88 supports the same conclusions as found with perceived value. The positive relationship between the lower price levels and measures of willingness to buy was non existent.

To a lesser degree, the negative relationship between willingness to buy and price for all price levels did exist. In all situations evidence of a negative trend was evidenced, although the level of significance was weaker than for perceived value. In six of eight situations, there was statistical support for differences in willingness to buy given different price levels. In both product situations, there was no support for a quadratic relationship between price and willingness to buy but there was strong statistical support for a linear trend.

Brand Name Effect

The next three hypotheses argue that perception of quality, perception of value and willingness to buy, respectively, will be greater in situations where the perception of brand name is more favorable than in situations where it is less favorable. The arguments for supporting each of the hypothesis is discussed in the following sections.

CONSTRUCT	PRICExBRAND xSTORE	PRICExBRAND	PRICExSTORE	PRICE
Willingness to Buy				
Calculator				
Table	63	65	67	69
Summary Values	F=4.44 p=.0050 df=(3,192)	F=1.92 p=.1291 df=(3,96)	F=2.40 p=.0711 df=(3,96)	F=2.11 p=.1109 df=(3,48)
Statistical Significance between price levels	some	some	some	some
Subtantive trend between value and price	negative	negative	negative	negative
Stereo Headset Player				
Table	64	66	68	70
Summary Values	F=12.15 p=.0001 df=(3,192)	F=0.0049 p=.0001 df=(3,96)	F=1.34 p=.2644 df=(3,96)	F=1.56 p=.2110 df=(3,48)
Statistical Significance between price levels	some	some	none	none
Subtantive trend between willingness to buy and price	negative	negative exceptions	negative With	negative

TABLE 88

Summary of Price-Willingness to Buy Effects

Perception of Quality and Brand Name

The support for the hypothesis is strong, as shown in Table 89. The positive relationship between brand name and perception of quality is strongly significant as evidenced by the p values for the three situations that could be analyzed.

Perception of Value and Brand Name

This hypothesis is supported, as summarized in Table 90, where perception of value is greater when the perception of brand name is more favorable than in situations where it is less favorable. All four situations support the positive relationship between level of brand name and measures of perceived value.

Willingness to Buy and Brand Name

Due to the strong statistical support shown in Table 91, the third hypothesis for brand name is accepted that a positive relationship exists between level of brand name and measure of willingness to buy.

TABLE 89

Summary of Brand Name - Perceived Quality Effect

CONSTRUCT	PRICExBRAND xSTORE	PRICExBRAND
Perceived Quality		
Calculator		
Table	47	49
Summary Values	F=62.96 p=.0001 df=(1,192)	F=23.72 p=.0001 df=(1,96)
Statistical Significance between high brand name and low brand name	yes	yes
Direction of difference	*positive	positive
Stereo Headset Player		
Table	48	50
Summary Values	F=99.76 **p=.0001 df=(1,192)	F=31.03 p=.0001 df=(1,96)
Statistical Significance between high brand name and low brand name	n/a	yes
Direction of difference	n/a	positive

Notes: * not shown in reference table but calculated from the cell means.
    ** Interpretation blocked by statistically significant interaction between store name and brand name.

Store Name Effect

The three store name hypotheses posit that perception of quality, perception of value, and willingness to buy, respectively, will be greater in situations where the perception of store name is more favorable than in situations where it is less favorable. The conclusions as discussed below, closely follow the results for the three hypotheses for brand name.

Perception of Quality and Store Name

In the three situations where this relationship is analyzed, there is strong support in Table 92 for the positive relationship that exists between perception of store name and perception of quality.

Perception of Value and Store Name

The support for this hypothesis is weakened by the fact that the difference in perceived value means is not statistically different in the two situations analyzed. Any support, as shown in Table 93, is derived from the fact that the direction of difference in the means was postive, as hypothesized.

TABLE 90

Summary of Brand Name - Perceived Value Effects

CONSTRUCT	PRICExBRAND xSTORE	PRICExBRAND
Perceived Value		
Calculator		
Table	56	58
Summary Values	F=23.59 p=.0001 df=(1,192)	F=7.49 p=.0074 df=(1,96)
Statistical Significance between high brand name and low brand name	yes	yes
Direction of difference	*positive	positive
Stereo Headset Player		
Table	57	59
Summary Values	F=17.13 **p=.0001 df=(1,192)	F=9.35 p=.0029 df=(1,96)
Statistical Significance between high brand name and low brand name	n/a	yes
Direction of difference	n/a	positive

Notes: * not shown in reference table but calculated
from the cell means.
** Interpretation blocked by statistically
significant interaction between store name
and brand name.

Willingness to Buy and Store Name

As summarized in Table 94, the three situations that can be plausibly interpreted give strong support for the hypothesized relationship between perception of store name and willingness to buy.

Combined Effects and Consistency Cues

These hypotheses examine situations where brand name and/or store name are added to price information, that is perceived to be consistent in information level, e.g. the price information, brand name, and store name are all perceived to be high or all perceived to be low. The conclusion are discussed below for each of the three hypotheses.

Brand Name and Price

As shown in Table 80, the addition of a high brand name to high price information acts to increase the overall perception of quality. For both product experiments the hypothesized direction was observed as hypothesized, but with stronger statistical support for the stereo headset player.

When low brand name information was added to low price information, the hypothesized direction in perceived quality

TABLE 91

Summary of Brand Name -Willingness to Buy Effect

CONSTRUCT	PRICExBRAND xSTORE	PRICExBRAND
Willingness to Buy		
Calculator		
Table	65	67
Summary Values	F=32.67 **p=.0001 df=(1,192)	F=7.49 p=.0074 df=(1,96)
Statistical Significance between high brand name and low brand	n/a	yes
Direction of difference	n/a	positive
Stereo Headset Player		
Table	66	68
Summary Values	F=27.87 **p=.0001 df=(1,192)	F=15.95 p=.0001 df=(1,96)
Statistical Significance between high brand name and low brand	n/a	yes
Direction of difference	n/a	positive

Notes: * not shown in reference table but calculated from the cell means.
     ** Interpretation blocked by statistically significant interaction between store name and store name.

was not found. While not statistically significant, it was found for both products that the addition of low brand information increased, rather than decreased, the perception of quality.

Store Name and Price

The addition of a high store name to a high price level does not increase the quality perception of both products although as shown in Table 81, the non-significant hypothesized direction of the means is evidenced in the data. There is support, although not backed statisitically, for this hypothesis.

When low store name information was added to low price, the results, mixed and therefore inconclusive, produced non-significant results for the stereo headset player in the hypothesized direction and the calculator in the opposite direction that additional store name information will further reduce the perception of quality when both the store name and price are perceived to be low.

Brand Name, Store Name, and Price

TABLE 92

Summary of Store Name - Perceived Quality Effects

CONSTRUCT	PRICExBRAND xSTORE	PRICExSTORE
Perceived Quality		
Calculator		
Table	47	51
Summary Values	F=2.47 p=.1180 df=(1,192)	F=20.70 p=.0001 df=(1,96)
Statistical Significance between high store name and low store	yes	yes
Direction of difference	*positive	positive
Stereo Headset Player		
Table	48	52
Summary Values	F= 5.04 **p=.0260 df=(1,192)	F= 7.09 p=.0091 df=(1,96)
Statistical Significance between high store name and low store	n/a	yes
Direction of difference	n/a	positive

Notes: * not shown in reference table but calculated from the cell means.
** Interpretation blocked by statistically significant interaction between store name and store name.

These two hypotheses argue that the presence of brand name and store name will enhance product quality perception when added to price information when all three cues are perceived to be high and will diminish the perception of quality when all three cues are perceived to be low.

For part A, as shown in Table 82, the high consistency cue hypothesis is supported in terms of the direction of the quality means and the statistical arguments of significance. Part B, where all the cues are consistently low in perception, the results are mixed. The data from the calculator experiment supports the hypothesized argument that all three cues together, when perceived to be low, will produce lower perceptions of quality than in situations where only some of the cues are present. The direction of the quality means in the stereo headset player experiment is in the opposite direction to that hypothesized.

Summary for the Combined Effects

The pattern of support for these hypotheses tend to give strong support for the hypotheses when the information cues are all perceived to be high. When the price, brand name, and store name cues are all perceived to be low, the support

TABLE 93

Summary of Store Name - Perceived Value Effects

CONSTRUCT	PRICExBRAND xSTORE	PRICExSTORE
Perceived Value		
Calculator		
Table	56	60
Summary Values	F=.44 p=.5076 df=(1,192)	F=3.17 p=.0783 df=(1,96)
Statistical Significance between high store name and low store	no	no
Direction of difference	positive	positive
Stereo Headset Player		
Table	57	61
Summary Values	F=3.32 **p=.07 df=(1,192)	F=1.08 p=.3612 df=(1,96)
Statistical Significance between high store name and low store	n/a	no
Direction of difference	n/a	positive

Notes: * not shown in reference table but calculated
from the cell means.
** Interpretation blocked by statistically
significant interaction between store name
and store name.

for the hypotheses is not evident. Therefore, the trend does not seem to support these hypotheses.

CHAPTER SUMMARY

This chapter presented the analysis and results regarding the testing of the fifteen hypotheses regarding the influence of price, brand name, and store name on the perception of quality, perception of value, and willingness to buy.

The chapter began with a description of the research instrument, conduct of the experiment, and preliminary procedures conducted prior to the data analysis. This preliminary analysis included a check on the reliability of the multiple indicators for each of the three constructs. The analysis of the data followed with a statistical exploration using ANOVA, Duncan's multiple range tests, t-tests, and analysis of trend for each of the dependent measures of perceived quality, perceived value, and willingness to buy.

The results of the experiment are discussed in terms of support for the fifteen hypotheses. In general the analysis gave good support for the hypothesized effects. The principal exception to full acceptance was the failure to find a quadratic trend in the measures of perceived value and will-

TABLE 94

Summary of Store Name - Willingness to Buy Effect

CONSTRUCT	PRICExBRAND xSTORE	PRICExBRAND
Willingness to Buy		
Calculator		
Table	65	69
Summary Values	F=.10 **p=.7525 df=(1,192)	F=5.25 p=.0241 df=(1,96)
Statistical Significance between high store name and low store name	n/a	yes
Direction of difference	n/a	positive
Stereo Headst Player		
Table	66	70
Summary Values	F=27.87 p=.0001 df=(1,192)	F=15.95 p=.0001 df=(1,96)
Statistical Significance between high store name and low store name	yes	yes
Direction of difference	*positive	positive

Notes: * not shown in reference table but calculated from the cell means.
** Interpretation blocked by statistically significant interaction between brand name and store name.

ingness to buy as affected by price information. Only the downward sloping relationship was found in the data. Also, when examining the combination and consistency cue hypotheses, there was little support for acceptance when all the extrinsic information was perceived to be low.

The final chapter of the dissertation draws the conclusions from this research effort and discusses them in light of major findings, significance and limitations of the research and future research directions.

Chapter VI

CONCLUSIONS

The final chapter of the dissertation summarizes the significance of the research findings. The chapter begins with an overview of the study, followed by a discussion of the major findings. The significance of these findings are discussed in terms of theoretical, methodological and managerial contribution. An assessment of the limitations of this empirical study are presented, followed by a discussion of future research directions realized as a result of this research and conceptual and methodological issues not fully realized in this dissertation.

STUDY OVERVIEW

The research objective of this study was to investigate empirically the effects of price, brand name, and store name information on buyers' perceptions of quality. Additionally it investigates buyers' perception of value and willingness to buy within a conceptual model proposed in this research that is expanded from an earlier model derived by Monroe and Krishnan (1984). These models are based on the logic of a behavioral approach that relaxes the unrealistic assumptions

traditionally held in an economic model to explain price-demand behavior. From the conceptual model, theoretical propositions for product perception are posited for the three major constructs of perceived quality, perceived value, and willingness to buy as influenced by price, brand name, and store name.

The propositions were empirically tested in the form of operational hypotheses about the effects of (1) price, (2) brand name, and (3) store name on the multiple dependent measures of perceived quality, perceived value, and willingness to buy. A summary of the results for the hypotheses is shown in Table 95. Additionally, the effect, when all three of these extrinsic cues of product quality are consistently high or consistently low is examined.

A 5x3x3 factorial design was implemented where for each independent variable there was a no information condition. The presence of a no information condition allowed the research design to be "pulled apart" to show how the effects change in the absence of some information.

TABLE 95

Summary of Hypothesized Results

	Relationship	Results
1.1	Price-Perceived Quality	Strong Support
1.2	Price-Perceived Value	Partial Support Only the Negative Relationship Found
1.3	Price-Willingness to Buy	Partial Support Only the Negative Relationship Found
2.1	Brand-Perceived Quality	Strong Support
2.2	Brand-Perceived Value	Strong Support
2.3	Brand-Willingness to Buy	Strong Support
3.1	Store-Perceived Quality	Strong Support
3.2	Store-Perceived Value	Substantive Support
3.3	Store-Willingness to Buy	Strong Support

TABLE 95

Summary of Hypothesized Results - continued

Relationship	Results
4.1a High Brand Name High Price -Perceived Quality vs. High Price-Perceived Quality	Mild Support
4.1b Low Brand Name Low Price -Perceived Quality vs. Low Price-Perceived Quality	Weak Support
4.2a High Store Name High Price -Perceived Quality vs. High Price-Perceived Quality	Mild Support
4.2b Low Store Name Low Price -Perceived Quality vs. Low Price-Perceived Quality	Weak Support Opposite direction for one product
4.3a High Store,Brand,and Price -Perceived Quality vs. High Store and Price-Perceived Quality, High Brand and Price-Perceived Quality and/or High store,Brand, and Price-Perceived Quality	Strong Support
4.3b High Store,Brand,and Price -Perceived Quality vs. High Store and Price-Perceived Quality, High Brand and Price-Perceived Quality and/or High store,Brand, and Price-Perceived Quality	Weak Support Opposite direction for one product

DISCUSSION OF THE MAJOR FINDINGS

The purpose of this research was to test empirically a conceptual relationship of price and willingness to buy as moderated by perceived product quality, sacrifice, and perceived product value. This model, as proposed by Monroe and Krishnan (1984), was shown in Figure 1 of Chapter II. The study lends support to the model and to previous research that posits that as price increases, perceived quality increases. At the same time, the higher price represents a measure of sacrifice to purchase the goods.

Price and Perceived Value

Perceived value, conceptualized as a tradeoff between the two variables, perceived quality and sacrifice, decreased when price increased, suggesting that the sacrifice component is dominant in the cognitive tradeoff to determine value. The conceptual argument made in Chapter II suggested that buyer perceptions of value would be positively related to their perceived price for prices below the buyers' lower price limit to a price within their acceptable price range. But as price increased beyond this acceptable price, there would be a negative relationship between buyers' perceived price and their perceptions of product value. The research data did not support this argument as conceptualized in Fig-

ure 3 of Chapter II, but rather suggested an inverse relationship between price and perceived value. Explicit in this observation is the lack of support for the concept of an acceptable price range since there is no indication of a lower price limit to define this range. The evidence was strong for a linear relationship, although the analysis for the calculator data suggested quadratic characteristics in the inverse relationship. The manipulations of this experiment were not set low enough to conclusively argue whether there is a positive relationship between perception of value and prices perceived to be relatively low. Within the context of the conceptual model, it is suggested that for the price levels tested, the sacrifice component was dominant in the tradeoff with perceived quality and thus provided a negative relationship between price and perceived value. Since sacrifice was not measured as a construct, it is not possible to explicitly state this as a cause. But if sacrifice was measured, it would be difficult to scale the magnitude of perceived quality and of sacrifice to be able to predict the behavior of perceived value from the measurements of the other two constructs.

Price and Perceived Quality

This model does support the conceptualization that per-ception of quality is an evaluative process and is indirect-ly related to willingness to buy, which is seen as a beha-vioral tendency. The face validity of the measures for these two constructs were intended to tap two distinct con-structs, and the confirmatory factor analysis showed the distinctiveness of the two constructs in the weak correla-tion between the two factors.

In summary, when price was the only extrinsic cue availa-ble, the subjects' overall responses, generally, tended to conform with the model in Figure 1. The principal exception was that perception of quality as a function of price, was not sufficiently strong at the lower price levels, to coun-teract sacrifice as a function of price in a cognitive tradeoff, to produce a positive price-perceived value rela-tionship.

Influence of Brand Name and Store Name

The influence of brand name and store name, along with price, was examined in an extension of Monroe and Krishnan's model. As depicted in Figure 2, the perceptions of brand name and store name were shown to have a positive relation-ship with the three major constructs of perceived quality,

perceived value, and willingness to buy. The results of the analysis of the data gave support for these hypotheses.

Relative Strength of the Cues

A second finding in the research that was not formally hypothesized was the relative strength of the three extrinsic cues on the key dependent variables. Monroe and Krishnan (1984) observed that previous perceived product quality conclusions indicated that brand name information dominated price. The analysis of this experiment tends to support this argument. The authors' discovery that price had a more positive effect on product quality perception when brand information was present than when brand information was absent had inconclusive results. There was not a strong interaction between price and brand name information, and for one of the products in this experiment, the price effect was non-significant in the presence of brand information.

In general, it appeared that brand name was the strongest cue in influencing subjects' perception of quality to the point of dominating the influence of price. It was not conclusive for price being stronger than store name as a perceptual cue, since the results were mixed for the different products and the different combinations of cues. Also, the relatively high strength of brand name and its interaction with store name clouds the outcome of this relationship.

The behavior of price in a multiple cue situation was the same as in a single cue setting. This similarily is tempered by the suggestion that brand name dominates price in the perception of quality since the price effect was not strong in influencing the perception of quality.

For the perception of value there was not a dominance of brand name over price, but rather a situation where price, as the stronger cue, and brand name were both effective as factors in determining perceived value. While store name was strong in some situations, it did not match the strength of price and brand name.

When the behavioral intention, willingness to buy, was measured as influenced by the three extrinsic cues, brand name and store name appeared to be the strongest pair, but they did not dominate the price cue. Since brand name and store name had a strong interaction in the three way factorial model, it was not possible to determine the relative strength between these two cues. Although not as influential, in affecting the willingness to buy, the price effect was seen as being relatively strong,

The findings from the analysis of the combined effects have to be examined within the constraint that the brand names, store names, and prices were categorized as high or low in a pretest. The pretest, made no attempt to calibrate

the relative strength of the three cues, nor does it appear possible, so the three cues are actually seen as being high or low but not necessarily in equal strength.

While the additive strength of "high" cues was expected, the influence of low brand name information being added to low price was strong enough to move the quality perception in a direction opposite from the hypothesized direction. The propositions in Chapter II argued that brand name and store name do not dominate price by their strong main effects, but rather, enhance the price effect. The data from this research supports this statement when all the cues are consistently high, but does not support it when the cues are all perceived to be low. Therefore, the major finding appears to be that price and brand name, price and store name, and price, brand name, and store name will, if consistent at a high level, individually and interactively influence the quality perception of products.

Patterns of Influence

The exploratory research examined the relationship of price, brand name, and store name as they combined in consistent and inconsistent patterns to influence the perception of quality, value, and willingness to buy. Brand name, as discussed earlier, had the strongest effect when added to

various combinations of the other two cues: price and store name.   Store name was strong in this analysis but price did not have a strong marginal effect when added to combinations of brand name and store name.   Also, it was found that a greater number of information cues available, led to a wider range of quality perceptions than is evidenced when fewer cues are provided.

Price had a strong influence on brand name and store name cues in affecting perception of value.   It is apparent from this examination that consistency from the consumers perspective is where price is low and brand name and store name are high.

The findings for consistent and inconsistent cues of willingness to buy, closely paralleled those for perceived value.   Again, the inverse price-willingness to buy relationship forced the measures of willingness to buy to the extreme when the level of price was opposite the level of the other two extrinsic variables.

SIGNIFICANCE OF THE RESEARCH

The research makes a conceptual and methodologal contribution to the the product perception paradigm.   Additionally, there is a practical application for marketers seeking to manage better the informational cues of price,   brand

name, and store name to foster more effective and efficient behavior in the market place. The following sections discuss the significance of the research from the theoretical knowledge and practical application viewpoints.

Theoretical Contribution

This research partially tests a model that goes beyond the price perceived quality paradigm. Rather than limiting the study to how price affects the evaluation of a product's quality, this model goes further by exploring the relationship of three constructs, perceived quality, perceived value, and willingness to buy with three external information cues. By breaking away from studying the price-perceived quality relationship as a phenomenon in and of itself, this research has investigated how the external information cues of price, brand name, and store name influence buyers' perceptions and intentions. The discussion of the major findings in the previous section documents the major contributions that this model makes to knowledge. Given the overall strong empirical support for the conceptual relationships identified in the model, there are important implications for theory construction. However, since this was the first empirical testing of the extended model, some of the theoretical propositions have received strong empirical support,

while other propositions have to be rethought and studied through additional research.

The positive price-perceived quality and the negative price-perceived value relationship present interesting issues as to which one is more critical in consumer purchase decision behavior. It has been argued in the literature that consumers will have higher preference for products that are priced higher. This study supported the positive relationship between price and quality perception, but there was also a low correlation between the constructs perceived quality and willingness to buy. As proposed in the model, perceived value had direct influence on the subjects' willingness to buy. This relationship was confirmed, although the price-perceived value relationship did not hold empirically as proposed. While the weight of the evidence in this study and the results from Dodds and Monroe (1985) tend to support the economic theory discussed in Chapter II, additional research as discussed later in this chapter should be undertaken to further clarify the theoretical propositons.

Methodological Contribution

In addition to the contribution to theory development, the methodological contributions in this research are important. The factorial design with no cue conditions allowed

partial replication of the past perceived quality studies, where fewer than the three cues of external information were used. It also extended the past approaches of using various combinations of price, brand name, and store name to examine the cognitive process leading up to product choice. Additionally, the design could be "pulled apart" in the event of statistically significant interactions to achieve statistical interpretation of the simple effects. This ability to interpret significant interactions allowed the research to be carried on at a level that examines the effect of three cues prominently discussed in the literature. A third contribution from the methodology was the abiltiy to carry on the exploratory research by examining cell means with varying amount of extrinsic information.

The use of scales that have been used in previous research also makes a methodological contribution to the research. A plausible explanation for the variation in results of past price-perceived quality studies have been the use of many different rating scales. By using the same set of scales in programmatic research, this source of variation is reduced. Also, the scales used multiple indicators. Since most past studies treated perceived quality unidimensionally, essentially, the assessment of reliability of the measures was not possible within one study. With measures

of reliabilty, a basis for future refinement of the scales
has been established.

Contribution to Management

The importance of positioning a product in the market
place with respect to price, brand name, and store name in-
formation is a critical factor for the marketer in reaching
the intended target market. Today's competitive business
environment places a premium on a firm's ability to make
good, fast, and frequent market positioning decisions. The
competitive nature of the market place does not allow time
for a firm to shift slowly into an optimal market position.

Using high perceived brand names and store names as shown
in this research, would exert a strong influence on consum-
ers' willingness to buy a product. It is critical for a
marketer to develop a positive brand image and place pro-
ducts in stores that are also perceived to be high quality.
The correlation of willingness to buy with perceived value,
as shown in this research is highly dependent on the price
level. The ideal point was where a high perceived store
name, high perceived brand name, and low perceived price led
to the highest perceptions of value, that, in turn, posi-
tively influenced willingness to buy.

In practice, the maximization of perceived value and willingness to buy may not be desired from a profit perspective. Marketer's may wish to trade off the costs of obtaining high brand and store name images in return for higher short run profit. They may also wish to increase price to increase the profit margin. Although theoretically, this strategy may change the perception of quality, perception of value, and willingness to buy to lower positions, it may mean a higher short run profit. The long run profit situation may very well follow the results of this study where brand name and store name are built up to the higher levels of quality perception and value but prices are eventually lowered in the face of competition to enhance the perception of value. The importance of high brand name and store name, as conceptually shown and empirically argued, can be seen as a valuable asset over the long run. The marketing manager has to make the correct cost/benefit tradeoffs to achieve these objectives.

Indeed, in practice, many firms who have obtained above average quality perceptions that are associated with a brand name, and through placement of the product in stores perceived to be high in quality, are often justified in charging an above market price. This observation of pract ice seems to be consistent with the results of this research

where maximization of perceived quality is achieved where price, brand name, and store name are all intended to be perceived as high.

In building the long run quality images of brand and store name, it appears that the pricing decision is critical in this process. Pricing the product too low in the face of increasing developmental costs and shortening life cycle may diminish the necessary profits to cover the overall investment in the product. It would also lead to a low perception of quality that by association can negatively influence the emerging brand name. Pricing a new product too high may seriously undercut the demand for the product and can diminish the perception of value of the product, a value that will ultimately be associated with the emerging brand name and store name. The overall perceptual value of the product associated closely with the product will be adversely affected. Pricing a new product too high can also jeopordize the ability to create sufficient demand for the product to compete successfully in a competitive market.

When brand name and store name have reached a mature position where quality and value perceptions are unlikely to shift due to strong brand and store name loyalty, price may be the tool of the marketing manager to influence consumer purchase behavior.

The strength of the inverse price-willingness to buy relationship, as shown in the data, but contrary to the conceptualiztion gives strong support to the economic theory of price without the stringent assumption of perfect information and perfect information processing. While this study should not be taken as definitive, there does seem to be justification in the business world to ask questions such as "How much will unit volume increase if we cut the price?" and "If we raise the price, will the additional revenue per unit more than compensate for the loss in unit volume?"

LIMITATIONS OF THE RESEARCH

The limitations of this research are discussed within the realm of laboratory experimental research. It is important to reiterate the objectives of this research before the limitations of the research are discussed. Since the price-perceived quality research paradigm had been fragmented and inconclusive, it was the goal of this research to focus on control and measurement of the variables in an experimental setting to gain internal validity. With this approach it was intended to gain a better understanding of the conceptual relationship hypothesized in this research. The decision to pursue this goal was made at the expense of generality with respect to populations, and realism of the context

within which these behaviors are observed. As stated by
McGrath (1982), "to maximize one (objective)...is to have
relatively unfavorable levels of the other two..."

Some Philosophical Issues

Internal validity of a study allows one to make accurate
inferences about the determinants of behavior in the experi-
mental situation. Laboratory experiments claiming this type
of validity are characterized typically by a closed system.
This movement toward full closure creates two problems.
One, how can one infer from the isolation of the labortory
experiments to real world situations. Two, the problem of
artificiality becomes a double edged sword. Since closure
is necessary to infer causality, one would have to question
whether complete closure has been approached. On the other
hand, closure of an experimental design may significantly
alter the identity of the isolated social science phenomena
excluded through closure.

The first problem deals with the question of whether
there is a need to claim external validity. Mook (1983)
feels that a misplaced preoccupation with external validity
leads to dismissing good research for which generalization
to real life was not intended or meaningful. The concept of
external validity asks the questions of generalizability.

If the sample, the setting, and the manipulations are so artificial that the class of "target" real life situations to which the results can be generalized are likely to be trivally small, then it is conceded that this experiment lacks external validity. The aim of this research was not to generalize the findings of the research to real life situations but to take an understanding of how the constructs interact in such experiments to the real world. Therefore, it is not the empirical findings but the theoretical understanding that can be applied to real life problems.

The problem of artificiality of an experimental research setting are serious. The dilemma of closure can also threaten the internal validity of the study. The goal of laboratory based research in social science is to isolate the potential explanatory mechanisms through closure. The adequacy of closure is obtained through consensus that certain relationships, such as price-perceived quality, are well understood within the paradigm of research. But, closure brings the problems of artificiality, and its three elements as discussed by Greenwood (1982).

1. Isolation - Experiments are unreal in the sense that they attempt to investigate phenomena, such as price-perceived quality, in isolation from their usual and various situations. It is argued that the way

we behave in such "unnatural" or "limited" settings
is quite different from the way we behave in natural
settings.

2. Contamination - The activity of the experimenter and
   the interaction between the experimenter and the sub-
   jects often appears to influence the outcome of the
   experiment. The very fact that subjects perceive the
   experimental situation as an experiment makes the si-
   tuation different from the real life situation in re-
   spects that may be relevant to behavior.

3. Alteration- Phenomena are relational in nature in
   that their identity is determined by their relation
   to other phenomena. Thus, they do not retain their
   identity when isolated from other phenomena because
   their identity is determined by their relation to
   such phenomena. The activity of creating what is
   supposed to be an isolated aspect of a real life si-
   tuation, not merely influences the outcome of the ex-
   periment, but influences it via the alteration of the
   phenomena (Greenwood 1982). Therefore, variables can
   loose their identity when lab effects are generalized
   to the outside world.

The goal of this research was to better understand the
conceptual relationship between constructs of perceived

quality, perceived value, and willingness to buy and to understand how external variables such as price, brand name, and store name can influence the conceptual relationship. This goal appears to satisfy the arguments of what is meant by internal and external validity. The conduct and interpretation of this study follows the advice of Manicas and Secord (1983) that behavior is a complex of causations, and that research should attempt to understand the underlying structure rather than predict and explain individual events. With this conclusion, the following will move from the philosophical debate to the substantive limitations germane to this research effort.

Substantive Issues

Chapter II discussed the strengths and weaknesses of the design prior to carrying out the research. Many tradeoffs were made and in this process there are limitations that must be noted. The following discussion will focus on the independent variables, dependent variables and cost as potential limitations in the research.

Independent Variables

Two potential limitations in the research need to be discussed within this section. First, with the decision to use

three independent variables, there was a limit as to the number of manipulations that could be set for each of the variables given the limited number of available subjects. Early in the planning process, it was decided to use a no information cue for each of the independent variables. In the case of price, the prior plan was to use a treatment that was considered too low to be acceptable. At the time, it was determined that the number of cells was at a maximum (45) and therefore the too low price treatment was replaced by the no price information treatment. After analyzing the data, it appears that it would have been very informative to have had the too-low price treatment. Since the price-per-ceived value hypothesis did not behave as conceptualized at the low price levels, an additional low price point would have been helpful for clarifying the situation.

For brand name and store name, only the highest and lowest names in terms of knowledge and quality were utilized. Intuitively, it appears that the relationship of brand name and store name is linear with the measures of the three constructs. But, two data points can only, at best, infer a linear relationship and can not rule out a quadratic relationship.

Second, the use of actual brand name and store name represents additional differential information available to

the subjects. The magnitude of the effect of this differential information in individual subjects may vary because of previous experience. While manipulation checks were made, it must be considered that confounds were allowed into the research. Subjects answering the manipulation check in the same way, given the same treatments, may still attach different meaning to what a high price is, and therefore introduce additional variance into the design that cannot be accounted for e.g. error variance.

Dependent Variable Measurement

The measurement of the indicators of the perceived quality, perceived value, and willingness to buy constructs was achieved through the use of "paper and pencil" seven point scales. As suggested by Manicas and Secord (1983), behavior is a complex of causation and therefore, the use of such instruments may not fully tap the true meaning of consumer behavior in the price-perceived quality paradigm. It should be suggested that until other types of research methods for this paradigm are more fully developed there can be little call for construct validity. The results of this research need confirmation from "maximally" different methods, to achieve the full depth of understanding in this paradigm.

A different method that could potentially give stronger support of validity to the research findings is the use of magnitude estimation. This technique would allow the subject to be free to match the continuous response measure under his or her control to the perceived intensity of the stimuli. While category scaling has been long used by social and behavioral scientist to determine the direction and strength of peoples' beliefs and preferences, this technique has a number of serious weaknesses as pointed out by Lodge (1982):

1. Information is lost because of the limited resolution of the categories since the greater the discrepency between the true range of the stimuli and the fixed range of the category scale, the poorer the resolution of the categories.

2. Category scales represent only an ordinal level of measurement, thereby denying researchers legitimate access to many of the powerful statisitical methods based on interval assumptions which are available today.

3. By offering a fixed number of categories, however few or numerous, the researcher is inadvertently affecting the response.

Lodge (1982) argues that it is possible and feasible to apply this methodology originally developed for the magnitude scaling and validation of physical stimuli in sensory continua to the ratio scaling and validation of social stimuli in social-psychological dimensions.

Cost of the Research

The objectives of research are often guided by the economics of available funding. Since this research was carried out with minimal funding, many interesting and potentially informative designs were not considered. Qualitative research, such as personal interviews and focus groups, would have added to the understanding of how consumers use extrinsic information in quality and value perception. Due to the limitations of money and time, a tightly constructed experimental design was implemented to gain as much understanding of the paradigm as was feasible.

Summary of Limitations

In summary, the research design based on the conceptualization appeared to be carried out without serious limitations beyond the philosophical debates about experimental designs. Some of the actual tradeoffs that had to be made were done with full knowledge of what was being given up.

Perhaps most important, this research was carried out with the belief that no research design is perfect, but if carefully planned, research can achieve objectives with a minimum of limitations if these liabilities are recognized early in the research.

FUTURE RESEARCH

The future direction of research in the product perception paradigm is discussed in both a general and specific sense. It was observed in the discussion of the literature, that many of the price-perceived quality studies have floundered at the research stage where a set of empirical findings was the outcome and have not tested the robustness and boundaries of the findings. For example there has been little attempt by the researchers to programatically determine, through partial replication, if the findings will be reproduced if all but one of the independent variables are held constant. The future objective of this research paradigm should be to better understand the conceptual model through a series of replications where price, brand name, store name, and other sources of product information, not tested in this research, such as consumer based reports, are manipulated. The purpose of these studies would be to conduct a robustness analysis to determine for what products,

populations, and settings the general findings hold. Additionally this objective would achieve a boundary search to determine under what situations, the general findings do hold. If external validity, in the sense of generalizability of findings is to to be argued, it will only come after a series of studies that fully explore the robustness and boundaries of the research domain.

Specifically, rather than to replicate the large design used in this research, it would be more efficient to execute a series of smaller research studies where some of the external sources of information are manipulated, while the others are held constant but given as information. This type of systematic approach could be utilized to explore the following areas that need research attention.

1. Since the research data failed to detect the price-perceived value relationship as hypothesized, it is imperative to reexamine this relationship. By adding more price points at the low end of the price continuum, the existence of the predicted quadratic price-perceived value relationship might be determined. If there is a failure to find evidence of its existence, then the conceptual relationship as to how price through perceived quality and sacrifice influences perceived value will have to be rethought. Evidence

supporting the existence of the quadratic relation-
ship would give support to the conceptual argument
presented at the beginning of this research. In
either situation, a series of studies should be con-
ducted to examine the robustness and boundaries of
the findings for different products, populations,
and/or settings.

2. The high and low manipulations of brand name and
store name were accomplished in the pretest through
the use of multiple indicators of quality. Future
reseach should explore more fully the construct of
image as it pertains to these two extrinsic cues.
While quality perception may be one component, it was
not implied by this research that this was the only
one. The concept of brand and store familiarity
seems to be a factor in the question of image. Brand
name, as suggested by Olsen (1976) is seen as a chunk
of information. The dimensions of this information
cue must be further examined. To understand these
dimensions will lead to a stronger understanding of
how consumers perceive one brand to be "better" than
another brand. Also, the dimensions of store name,
as they influence quality, should be examined with
the purpose of determining the significant factors in
quality perceptions due to store name perceptions.

3. The range of products tested within the conceptual model should be increased to include products that are relatively inexpensive and relatively expensive. While the calculator and stereo headset player seem to hold some type of middle ground for price levels, a boundary search for price levels and involvement appears to be justified. Second, the extended conceptual model appears capable of leading to an understanding of the perception of purchase decisions other than tangible products such as services and the newly emerging area of consumer lease/buy decisions. Both areas appear to be interesting issues since little attention has been devoted to the service sector within the price-perceived quality research paradigm. It would be necessary to develop a new set of indicators that would tap the dimensions of service that differ from product attributes.

4. The issue of generic, store, and national brands in the "battle of the brands" is a relevant area of research within the conceptual model of the research. With increasing evidence, as reported in the media, that there is often little actual quality difference between the three types of brand labels, the issue of price difference and quality perception seems to be appropriate for study.

5. The issue of product positioning that takes into account the dimension of quality and price can be studied within the conceptual model. For instance, the claim of an advertisement, "you would expect to pay more for our premium quality" is open to study as to how the price difference between the premium product and the alternative product affects the perception of quality and value, and willingness to buy. The same issues of perception could be studied in situations that claim more quality for the same price and same quality for less money.

6. Research interest in the area of sales promotion has been evidenced in the literature. The use of sale prices, coupons, and rebates all should be studied as to how they influence perceived quality, perceived value, and willingness to buy.

7. While the research design was chosen for precision in control and measurement of perceptual behavior, a stronger argument can be made for generality when the research is conducted in different settings. By replicating research designs for several products over different settings, the research results can be analyzed separately to compare results. If these results are homogeneous, then they can be combined in a

meta analysis to estimate the overall effects of the independent variables. The combined results allow the research to be generalized over the settings and the products used in the separate studies, thereby enhancing generalizability.

8. Several past studies evaluated perceived quality on one sensory cue (e.g. taste), but failed to control for the other senses (such as touch and smell). This type of study could be seen as a case of under controlled sensory variance. In this dissertation research, subjects were given a product description but were not exposed to any of the sensory cues that could normally be used in evaluating quality in a product choice situation. This situation is typlified as over control of sensory variance. In regard to the concern of realism, it would be important to assess the effects of over and under control. Research should be conducted where the experimental cells would have different combinations of sensory cues in evaluating products. This effort would be aimed toward isolating variations due to sensory discriminations. By dealing with these methodological issues prior to the actual research, the strength of the arguments for internal validity can be enhanced.

The following methods of stimulus presentation should be evaluated.

a) Written information only, where the subjects has internal references for making judgements.

b) Written information, but the product is present to allow subjects to have visual sensations.

c) Written information, product is present and both touch and visual examination is possible allowing the subjects to have visual and tactile sensations.

d) Written information, product is present, touch and examination is possible along with taste and hearing allowing the subjects to have visual, tactile, smell or hearing sensations.

e) No written information, but sensory variation as above.

9. This study examined the conceptual model through the use of two products, that in pretesting were the most familiar products to the subject pools. Future research should explore the situations where the subject is making a product evaluation under conditions of little familiarity. Such research might show product familiarity to be a boundary variable in the conceptual model. This issue could be setup as a gift

giving situation where subject's perception of quality, perception of value, and willingness to buy are measured for two products, one high and the other low in familiarity.

10. Research should be extended to a within design where the concept of choice is introduced. Two approaches might be studied: one, to examine price and brand name manipulations where store name is held constant and, two, to examine price and store name manipulations where brand name is fixed. These two research scenarios would take into account situations where a consumer is in a particular store comparing brands and prices, and a situation where a consumer has chosen a brand but is considering store and price. While maintaining the control in an experimental design, two very realistic consumer shopping behaviors could be evaluated within the context of the conceptual model.

In general, the extended conceptual model in this research needs further study to better understand the relationships that exist. At the same time, there are many opportunities to extend the scope of the parameters to study very interesting questions.

The specific goal of the programmatic research proposed should coincide with the philosopical objectives of studying a paradigm in marketing for the benefit of society, rather than for the purpose of formulating marketing tactics for influencing the behavior of customer groups. Anderson (1983) writes that marketers have tradionally viewed their discipline as an applied area concerned largely with the improvement of managerial practice. However the author states, the broadening concept makes it clear that marketing is a generic human activity, which may be studied simply because it is an intrinsically interesting social phenomenon. Following the advice of Anderson, this research should develop into a programmatic approach that will solve cognitively and socially significant problems.

SUMMARY

The final chapter of the dissertation draws conclusions from this research effort and discusses them in light of major findings, significance of the research, limitations of the research, and future research directions.

The empirical testing of the original and extended conceptual models discussed in Chapter II generally supported the hypothesized relationships. The notable exception was the inverse relationship between price and perceived value

that did not fully conform to the conceptual propositions. The analysis of the combined effects when the cues of price, brand name, and store name were consistent gave support to the hypotheses when all the cues were high, but support was weak and inconsistent when the cues were low. An exploratory analysis of the marginal effects of the cues showed interesting results that could be developed into conceptual propositions for future research.

A discussion of the significance of the research focuses on the theoretical and practical impact of the research. The empirical testing of a conceptual relationship of the three constructs discussed extensively in the price-perceived quality paradigm goes further than past research by explaining the model as influenced by price, brand name, and store name. In addition to conceptual contributions, several methodological contributions are made. The relative importance of the price, brand name, and store name in positioning a product in the market was also discussed.

The limitations of experimental research was acknowledged on a philosophical and operational level. The chapter ends with a discussion of directions of research that draws upon the results of this study, conceptual and methodological issues discussed in Chapter II, as well as potential research questions capable of being tested within the conceptualized models of this research.

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Quality of New Products," Journal of Applied Psychology
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Appendix A

PRODUCT DESCRIPTIONS USED IN PHASE I

Business Use Pocket Calculator:

Preprogrammed to solve problems in business school such as financial, statistical, and profit-margin calculations. Case and guidebook included.

Features and Functions:

Financial - can solve most problems involving interest including installment loans, amortization schedules and discounted cash flow for net present value.

Mathematical - include arithmetic, square and square root, reciprocal, and percent and percent change.

Profit margin - involve cost, selling price, and profit margin calculations

Memory - totally accessable memory with store, sum, recall and exchange capabilities.

Statistical Analysis - Linerar regression and trendline analysis

Electonic on and off - provides a special power saving feature. After 50 seconds of non use, the display shuts off but previously displayed value can be easily retrieved. After 10 minutes of nonuse the unit turns itself off completely.

Display advantages - provides a standard 8-digit display with scientific notation available for very large or small numbers.

FM Stereo Cassette Headset Player:

Sound system combines cassette player and FM tuner in one compact unit. High/low switch, stereo/mono, tape/radio controls.

Features:

Portability: Option of using a shoulder strap or a belt clip. The clip is attached directly to the unit and is removable.

Controls: Balance and tuning controls will let you make adjustments for poor tapes. Locking fast/forward and rewind controls mean that you needn't keep your fingers on a button. A cue/rewind feature lets you go from playback to fast forward or rewind and back without having to press the stop control, handy if you are searching for a particular passage.

Automatic reverse. Once you've played the first side of a tape, this model shifts into reverse to play the rest of the tape.

Power options: A jack for an AC adapter lets the machine run on household current.

Headphones: Light, small and unobtrusive.

Other: Uses 4 "AA" cell batteries. Gray with silver tone trim. Cabinet measures 3 9/16" by 1 5/16" by 4 3/8".

12" Black and White Portable TV:

A compact lightweight receiver with a screen that measures 12 inches diagonally. It has a 100% solid state chasis which should be trouble free. It has the basic controls needed to change channels and adjust the picture. Model has one built-in antenna for the VHF band and another antenna for the UHF. antenna. Wood grain-look plastic cabinet.

358

Ultra-compact 35mm Camera:

The ultra compact 35's are designed for people who don't want to fuss with technical details. The shutter speed and the lens openings are set automatically. All you do is focus and shoot. But unlike the larger 35mm single-lens-reflex (SLR) cameras, the ultracompacts can't accept interchangeable lenses. Built in flash signals when needed.

AM-FM Digital Clock Radio:

Features:

Choice of alarm sound: Option of waking to the sound of the radio or a beeper.

Alarm indicator: A light goes on to indicate when the alarm is set to operate and the alarm setting is displayed when you press a button.

Alarm reset: A touch plate performs two functions: it turns the alarm off and resets it for the next day.

Snooze switch: If you want to sleep a little longer after the alarm comes on, you can hit the snooze control and the radio will be silient for a period of time and then come back on. You can repeat this cycle several times.

Automatic shutoff switch: If you want to go to sleep with the radio on, you can set it to turn off automatically. The shut off period can run from 1 to 60 minutes.

Battery backup: A digital clock has amnesia whenever the household current goes off for even a few seconds; the time and alarm settings disappear. To prevent this, a small nine volt battery will keep the correct time and hold the alarm setting when the power is off.

Appendix B

SURVEY BOOKLET USED IN PRETEST #1 OF PHASE I

SURVEY RESPONSE BOOKLET(1)

READ THIS PAGE NOW

DO NOT WRITE YOUR NAME OR ID NUMBER ANYWHERE

Please do not open this booklet until you are told. When you are told to begin, read all directions and questions carefully before responding. All responses must be recorded in the booklet. When you have completed the study, close the booklet and look up so that the researcher will know when every one has completed the study. Please be quiet at all times.

You are being asked to participate in a study in which your honest cooperation will be appreciated. Answer as you honestly feel. Your name will not appear on the response booklet and your complete privacy and anonoymity in regard to your responses are assured.

On the following page you will find a product description for a 12" black and white portable TV. Assume you are interested in buying that product. Read the description carefully and feel free to come back to this description at any time. After reading the description, go to the next page and follow the directions on that page.

12" Black and White Portable TV:

A compact lightweight receiver with a screen that measures 12 inches diagonally. It has a 100% solid state chasis which should be trouble free. It has the basic controls needed to change channels and adjust the picture. Model has one built-in antenna for the VHF band and another antenna for the UHF. antenna. Wood grain-look plastic cabinet.

The following questions are asking you to evaluate the 12"
black and white portable TV. If desired you may turn back
to refer to the description at any time while answering
these questions.

Suppose you are shopping for a 12" black and white portable
TV, as described, for your own use.

1. Please indicate the prices that that are acceptable to
you (those that you would consider paying) by placing an X
above all prices that are acceptable.

```
   :     :     :     :     :     :     :     :     :     :
_____
  $59   $69   $79   $89   $99  $109  $119  $129 $139  $149
```

2. What price above would you most likely consider to be a
low price , but acceptable, for a 12" black and white porta-
ble TV. Price:_____

3. What price above would you most likely consider to be a
high price, but acceptable, for a 12" black and white porta-
ble TV. Price:_____

4. What price would you most likely consider to be a medium
price, i.e. neither too high nor too low, for a 12" black
and white portable TV. Price:_____

5. At what point do the prices begin to be too high to con-
dider purchasing the product. Price:_____

STORE NAMES

1. If you were interested in buying a 12" black and white portable TV, list up to eight stores in the Blacksburg/Roanoke area that would be appropriate for buying this 12" black and white portable TV.

Store	Very High Quality				Very Low Quality
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each store above by circling the most appropriate number where: 1 is a very high quality store, 2 is a high quality store, 3 is a moderate quality store, 4 is a low quality store, and 5 is a very low quality store.

CONTINUE

BRAND NAMES

1. If you were interested in buying a 12" black and white portable TV, list up to eight brands that are identified with this 12" black and white portable TV.

Brand	Very High Quality				Very Low Quality
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each brand above by circling the most appropriate number where: 1 is a very high quality brand, 2 is a high quality brand, 3 is a moderate quality brand, 4 is a low quality brand, and 5 is a very low quality brand.

3. For the question below, circle the appropriate number:

For this product, I consider myself to be:

1 :	2 :	3 :	4 :	5 :
Extremely Knowledge-able	Very Knowledge-able	Moderately Knowledge-able	Slightly Knowledge-able	Not Knowledge-able at all

On the next page, you will find a product description for an AM-FM Digital Clock Radio. Assume you are interested in buying this product. Read the description carefully and feel free to come back to this description at any time. After reading the description, go to the next page and follow the directions on that page.

AM-FM Digital Clock Radio:

Features:

Choice of alarm sound: Option of waking to the sound of the radio or a beeper.

Alarm indicator: A light goes on to indicate when the alarm is set to operate and the alarm setting is displayed when you press a button.

Alarm reset: A touch plate performs two functions: it turns the alarm off and resets it for the next day.

Snooze switch: If you want to sleep a little longer after the alarm comes on, you can hit the snooze control and the radio will be silent for a period of time and then come back on.   You can repeat this cycle several times.

Automatic shutoff switch: If you want to go to sleep with the radio on, you can set it to turn off automatically.   The shut off period can run from 1 to 60 minutes.

Battery backup: A digital clock has amnesia whenever the household current goes off for even a few seconds; the time and alarm settings disappear.   To prevent this, a small nine volt battery will keep the correct time and hold the alarm setting when the power is off.

The following questions are asking you to evaluate the AM-FM Digital Clock Radio. If desired you may turn back to refer to the description at any time while answering these questions.

Suppose you are shopping for a AM-FM Digital Clock Radio, as described, for your own use.

1. Please indicate the prices that that are acceptable to you (those that you would consider paying) by placing an X above all prices that are acceptable.

:	:	:	:	:	:	:	:	:	:	:
$9	$15	$21	$27	$33	$39	$45	$51	$57	$63	

2. What price above would you most likely consider to be a low price , but acceptable, for an AM-FM Digital Clock Radio. Price:_____

3. What price above would you most likely consider to be a high price, but acceptable, for an AM-FM Digital Clock Radio. Price:_____

4. What price would you most likely consider to be a medium price, i.e. neither too high nor too low, for an AM-FM Digital Clock Radio. Price:_____

5. At what point do the prices begin to be too high to condider purchasing the product. Price:_____

CONTINUE

STORE NAMES

1. If you were interested in buying an AM-FM Digital Clock Radio, list up to eight stores in the Blacksburg/Roanoke area that would be appropriate for buying this AM-FM Digital Clock Radio.

Store	Very High Quality				Very Low Quality
	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each store above by circling the most appropriate number where: 1 is a very high quality store, 2 is a high quality store, 3 is a moderate quality store, 4 is a low quality store, and 5 is a very low quality store.

CONTINUE

BRAND NAMES

1. If you were interested in buying an AM-FM Digital Clock Radio, list up to eight brands that are identified with this AM-FM Digital Clock Radio.

Brand	Very High Quality				Very Low Quality
	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each brand above by circling the most appropriate number where: 1 is a very high quality brand, 2 is a high quality brand, 3 is a moderate quality brand, 4 is a low quality brand, and 5 is a very low quality brand.

3. For the question below, circle the appropriate number:

For this product, I consider myself to be:

1	:	2	:	3	:	4	:	5	:
Extremely Knowledge-able		Very Knowledge-able		Moderately Knowledge-able		Slightly Knowledge-able		Not Knowledge-able at all	

On the next page, you will find a product description for an Ultra-compact 35mm Camera. Assume you are interested in buying that product. Read the description carefully and feel free to come back to this description at any time.

After reading the description, go to the next page and follow the directions on that page.

Ultra-compact 35mm Camera:

The ultra compact 35's are designed for people who don't want to fuss with technical details. The shutter speed and the lens openings are set automatically. All you do is focus and shoot. But unlike the larger 35mm single-lens-reflex (SLR) cameras, the ultracompacts can't accept interchangeable lenses. Built in flash signals when needed.

The following questions are asking you to evaluate the Ul-tra-compact 35 mm Camera. If desired you may turn back to refer to the description at any time while answering these questions.

Suppose you are shopping for an Ultra-compact 35 mm Camera, as described, for your own use.

1. Please indicate the prices that that are acceptable to you (those that you would consider paying) by placing an X above all prices that are acceptable.

```
  :     :     :     :     :     :     :     :     :     :     :
 _____
  $40   $59   $78   $97  $115  $133  $151  $169 $187  $205
```

2. What price above would you most likely consider to be a low price , but acceptable, for an Ultra-compact 35 mm Camera. Price:_____

3. What price above would you most likely consider to be a high price, but acceptable, for an Ultra-compact 35 mm Camera. Price:_____

4. What price would you most likely consider to be a medium price, i.e. neither too high nor too low, for an Ultra-compact 35 mm Camera. Price:_____

5. At what point do the prices begin to be too high to condider purchasing the product. Price:_____

CONTINUE

STORE NAMES

1. If you were interested in buying an Ultra-compact 35 mm Camera, list up to eight stores in the Blacksburg/Roanoke area that would be appropriate for buying this Ultra-compact 35 mm Camera.

Store	Very High Quality				Very Low Quality
	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each store above by circling the most appropriate number where: 1 is a very high quality store, 2 is a high quality store, 3 is a moderate quality store, 4 is a low quality store, and 5 is a very low quality store.

CONTINUE

BRAND NAMES

1. If you were interested in buying an Ultra-compact 35 mm
Camera, list up to eight brands that are identified with
this Ultra-compact 35 mm Camera.

Brand	Very High Quality				Very Low Quality
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each brand above by circling
the most appropriate number where: 1 is a very high quality
brand, 2 is a high quality brand, 3 is a moderate quality
brand, 4 is a low quality brand, and 5 is a very low quality
brand.

3. For the question below, circle the appropriate number:

For this product, I consider myself to be:

1	:	2	:	3	:	4	:	5	:
Extremely Knowledge-able		Very Knowledge-able		Moderately Knowledge-able		Slightly Knowledge-able		Not Knowledge-able at all	

On the next page, you will find a product description for an
FM Stereo Cassette Headset Player Assume you are interested
in buying this product. Read the description carefully and
feel free to come back to this description at any time.

After reading the description, go to the next page and follow the directions on that page.

FM Stereo Cassette Headset Player:

Sound system combines cassette player and FM tuner in one compact unit. High/low switch, stereo/mono, tape/radio controls.

Features:

Portability: Option of using a shoulder strap or a belt clip. The clip is attached directly to the unit and is removable.

Controls: Balance and tuning controls will let you make adjustments for poor tapes. Locking fast/forward and rewind controls mean that you needn't keep your fingers on a button. A cue/rewind feature lets you go from playback to fast forward or rewind and back without having to press the stop control, handy if you are searching for a particular passage.

Automatic reverse. Once you've played the first side of a tape, this model shifts into reverse to play the rest of the tape.

Power options: A jack for an AC adapter lets the machine run on household current.

Headphones: Light, small and unobtrusive.

Other: Uses 4 "AA" cell batteries. Gray with silver tone trim. Cabinet measures 3 9/16" by 1 5/16" by 4 3/8".

The following questions are asking you to evaluate the FM Stereo Cassette Headset Player. If desired you may turn back to refer to the description at any time while answering these questions.

Suppose you are shopping for an FM Stereo Cassette Headset Player, as described, for your own use.

1. Please indicate the prices that that are acceptable to you (those that you would consider paying) by placing an X above all prices that are acceptable.

:	:	:	:	:	:	:	:	:	:	:
$19	$28	$37	$46	$55	$64	$73	$82	$91	$100	

2. What price above would you most likely consider to be a low price , but acceptable, for an FM Stereo Cassette Headset Player. Price:_____

3. What price above would you most likely consider to be a high price, but acceptable, for an FM Stereo Cassette Headset Player. Price:_____

4. What price would you most likely consider to be a medium price, i.e. neither too high nor too low, for an FM Stereo Cassette Headset Player. Price:_____

5. At what point do the prices begin to be too high to condider purchasing the product. Price:_____

STORE NAMES

1. If you were interested in buying an FM Stereo Cassette Headset Player, list up to eight stores in the Blacksburg/ Roanoke area that would be appropriate for buying this FM Stereo Cassette Headset Player.

Store	Very High Quality				Very Low Quality
	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each store above by circling the most appropriate number where: 1 is a very high quality store, 2 is a high quality store, 3 is a moderate quality store, 4 is a low quality store, and 5 is a very low quality store.

BRAND NAMES

1. If you were interested in buying an FM Stereo Cassette Headset Player, list up to eight brands that are identified with this FM Stereo Cassette Headset Player.

Brand	Very High Quality				Very Low Quality
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each brand above by circling the most appropriate number where: 1 is a very high quality brand, 2 is a high quality brand, 3 is a moderate quality brand, 4 is a low quality brand, and 5 is a very low quality brand.

3. For the question below, circle the appropriate number:

For this product, I consider myself to be:

1	:	2	:	3	:	4	:	5	:
Extremely Knowledge- able		Very Knowledge- able		Moderately Knowledge- able		Slightly Knowledge- able		Not Knowledge- able at all	

On the next page, you will find a product description for a Business Use Calculator Assume you are interested in buying this product. Read the description carefully and feel free to come back to this description at any time. After reading

the description, go to the next page and follow the directions on that page.

Business Use Calculator:

Preprogrammed to solve problems in business school such as financial, statistical, and profit-margin calculations. Case and guidebook included.

Features and Functions:

Financial - can solve most problems involving interest including installment loans, amortization schedules and discounted cash flow for net present value.

Mathematical - include arithmetic, square and square root, reciprocal, and percent and percent change.

Profit margin - involve cost, selling price, and profit margin calculations

Memory - totally accessable memory with store, sum, recall and exchange capabilities.

Statistical Analysis - Linerar regression and trendline analysis

Electonic on and off - provides a special power saving feature. After 50 seconds of non use, the display shuts off but previously displayed value can be easily retrieved. After 10 minutes of nonuse the unit turns itself off completely.

Display advantages - provides a standard 8-digit display with scientific notation available for very large or small numbers.

The following questions are asking you to evaluate the Business Use Calculator. If desired you may turn back to refer to the description at any time while answering these questions.

Suppose you are shopping for a Business Use Calculator, as described, for your own use.

1. Please indicate the prices that that are acceptable to you (those that you would consider paying) by placing an X above all prices that are acceptable.

:	:	:	:	:	:	:	:	:	:	:
$19	$28	$37	$46	$55	$64	$73	$82	$91	$100	

2. What price above would you most likely consider to be a low price , but acceptable, for a Business Use Calculator. Price:_____

3. What price above would you most likely consider to be a high price, but acceptable, for a Business Use Calculator. Price:_____

4. What price would you most likely consider to be a medium price, i.e. neither too high nor too low, for a Business Use Calculator. Price:_____

5. At what point do the prices begin to be too high to condider purchasing the product. Price:_____

CONTINUE

STORE NAMES

1. If you were interested in buying a Business Use Calculator, list up to eight stores in the Blacksburg/Roanoke area that would be appropriate for buying this Business Use Calculator.

Store	Very High Quality				Very Low Quality
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each store above by circling the most appropriate number where: 1 is a very high quality store, 2 is a high quality store, 3 is a moderate quality store, 4 is a low quality store, and 5 is a very low quality store.

CONTINUE

BRAND NAMES

1. If you were interested in buying an Business Use Calcula-
tor, list up to eight brands that are identified with this
Business Use Calculator.

Brand	Very High Quality				Very Low Quality
	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5
_____	1	2	3	4	5

2. Rate the overall quality of each brand above by circling
the most appropriate number where: 1 is a very high quality
brand, 2 is a high quality brand, 3 is a moderate quality
brand, 4 is a low quality brand, and 5 is a very low quality
brand.

3. For the question below, circle the appropriate number:

For this product, I consider myself to be:

1 :	2 :	3 :	4 :	5 :
Extremely Knowledge- able	Very Knowledge- able	Moderately Knowledge- able	Slightly Knowledge- able	Not Knowledge- able at all

STOP

Appendix C

SURVEY BOOKLET USED IN PRETEST #2 OF PHASE I

SURVEY RESPONSE BOOKLET (3)

READ THIS PAGE NOW

DO NOT WRITE YOUR NAME OR ID NUMBER ANYWHERE

Please do not open this booklet until you are told. When you are told to begin, read all directions and questions carefully before responding. All responses must be recorded in the booklet FIRST. Do not record your responses on the orange OP-SCAN sheet until you are directed to do so. When you have completed the study, close the booklet and look up so that the researcher will know when every one has completed the study. Please be quiet at all times.

You are being asked to participate in a study in which your honest cooperation will be appreciated. Answer as you honestly feel. Your name will not appear on the response booklet and your complete privacy and anonoymity in regard to your responses are assured. On the following page you will find a product description for a Business Use Pocket Calculator. Assume you are interested in buying this product.

Business Use Pocket Calculator:

Preprogrammed to solve problems in business school such as financial, statistical, and profit-margin calculations. Case and guidebook included.

Features and Functions:

Financial - can solve most problems involving interest including installment loans, amortization schedules and discounted cash flow for net present value.

Mathematical - include arithmetic, square and square root, reciprocal, and percent and percent change.

Profit margin - involve cost, selling price, and profit margin calculations

Memory - totally accessible memory with store, sum, recall and exchange capabilities.

Statistical Analysis - Linerar regression and trendline analysis

Electonic on and off - provides a special power saving feature. After 50 seconds of non use, the display shuts off but previously displayed value can be easily retrieved. After 10 minutes of nonuse the unit turns itself off completely.

Display advantages - provides a standard 8-digit display with scientific notation available for very large or small numbers.

For each brand name, please circle the number of each of the scales that best reflects your reaction to the brand. Using the scale below, answer the following:

For the following brands, I consider myself to be:

1	:	2	:	3	:	4	:	5	:
Extremely Knowledge-able		Very Knowledge-able		Moderately Knowledge-able		Slightly Knowledge-able		Not Knowledge-able at all	

Circle the number that would indicate your knowledge for the brand.

Brand

1. Royal   1 2 3 4 5

2. Sanyo   1 2 3 4 5

3. Texas Instruments 1 2 3 4 5

4. Casio   1 2 3 4 5

5. Hewlett-Packard   1 2 3 4 5

6. Albinar   1 2 3 4 5

7. Canon   1 2 3 4 5

8. Sharp   1 2 3 4 5

Using the scale below, answer the following:

For the following brands, I consider the quality to be:

1	2	3	4	5	6	7
very good quality	moderately good quality	slightly good quality	neither good nor poor quality	slightly poor quality	moderately poor quality	very poor quality

Circle the number that would indicate your assessment of quality for the brand.

Brand

9. Royal — 1 2 3 4 5 6 7

10. Sanyo — 1 2 3 4 5 6 7

11. Texas Instruments — 1 2 3 4 5 6 7

12. Casio — 1 2 3 4 5 6 7

13. Hewlett-Packard — 1 2 3 4 5 6 7

14. Albinar — 1 2 3 4 5 6 7

15. Canon — 1 2 3 4 5 6 7

16. Sharp — 1 2 3 4 5 6 7

CONTINUE

For the Business Use Pocket Calculator described earlier (go back and read it if you wish) the retail price is $ 50. Assume you are interested in buying this product.   You will be asked to evaluate the product.

REMEMBER THE PRICE IS $ 50

The following questions are asking you to evaluate the Busi-
ness Use Pocket Calculator described earlier. If desired you
may turn back to refer to the description at any time while
answering these questions. Please circle the number on each
of the scales below at that place which best reflects your
reaction to a Business Use Pocket Calculator priced at $ 50.

**17. The likelihood that the Business Use Pocket Calculator
will be reliable is:**

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

**18. The workmanship of the Business Use Pocket Calculator
appears
to be:**

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

19. This Business Use Pocket Calculator appears to be of:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

**20. The likelihood that this Business Use Pocket Calculator is
dependable is:**

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

21. This Business Use Pocket Calculator would seem to be durable.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strong- ly dis- agree

CONTINUE

On the following page you will find a product description for a FM Stereo Cassette Headset Player. Assume you are interested in buying this product.

FM Stereo Cassette Headset Player:

Sound system combines cassette player and FM tuner in one compact unit. High/low switch, stereo/mono, tape/radio controls.

Features:

Portability: Option of using a shoulder strap or a belt clip. The clip is attached directly to the unit and is removable.

Controls: Balance and tuning controls will let you make adjustments for poor tapes. Locking fast/forward and rewind controls mean that you needn't keep your fingers on a button. A cue/rewind feature lets you go from playback to fast forward or rewind and back without having to press the stop control, handy if you are searching for a particular passage.

Automatic reverse. Once you've played the first side of a tape, this model shifts into reverse to play the rest of the tape.

Power options: A jack for an AC adapter lets the machine run on household current.

Headphones: Light, small and unobtrusive.

Other: Uses 4 "AA" cell batteries. Gray with silver tone trim. Cabinet measures 3 9/16" by 1 5/16" by 4 3/8".

For each store name, please circle the number of each of the scales that best reflects your reaction to the store. Using the scale below, answer the following:

For the following stores, I consider myself to be:

1	:	2	:	3	:	4	:	5	:
Extremely Knowledge-able		Very Knowledge-able		Moderately Knowledge-able		Slightly Knowledge-able		Not Knowledge-able at all	

Circle the number that would indicate your knowledge of the store.

Store

22. Hills   1 2 3 4 5

23. K-Mart   1 2 3 4 5

24. J C Pennys   1 2 3 4 5

25. Circuit City   1 2 3 4 5

26. Roses   1 2 3 4 5

27. Books,Strings and Things 1 2 3 4 5

28. Best   1 2 3 4 5

29. Brendles   1 2 3 4 5

30. System Center   1 2 3 4 5

31. Hecks   1 2 3 4 5

32. Sears   1 2 3 4 5

Using the scale below, answer the following:

For the following stores, I consider the quality to be:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

Circle the number that would indicate your assessment of quality for the brand.

Store

33. Hills   1 2 3 4 5 6 7

34. K-Mart   1 2 3 4 5 6 7

35. J C Pennys   1 2 3 4 5 6 7

36. Circuit City   1 2 3 4 5 6 7

37. Roses   1 2 3 4 5 6 7

38. Books,Strings and Things 1 2 3 4 5 6 7

39. Best   1 2 3 4 5 6 7

40. Brendles   1 2 3 4 5 6 7

41. System Center   1 2 3 4 5 6 7

42. Hecks   1 2 3 4 5 6 7

43. Sears   1 2 3 4 5 6 7

CONTINUE

For the FM Stereo Cassette Headset Player described earlier
(go back and read it if you wish) the retail price is $ 70.
Assume you are interested in buying this product.   You will
be asked to evaluate the product.

REMEMBER THE PRICE IS $ 70

The following questions are asking you to evaluate the FM Stereo Cassette Headset Player described earlier. If desired you may turn back to refer to the description at any time while answering these questions. Please circle the number on each of the scales below at that place which best reflects your reaction to a FM Stereo Cassette Headset Player priced at $ 70.

44. The likelihood that the FM Stereo Cassette Headset Player will be reliable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

45. The workmanship of the FM Stereo Cassette Headset Player appears to be:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

46. This FM Stereo Cassette Headset Player appears to be of:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

47. The likelihood that this FM Stereo Cassette Headset Player is dependable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

48. This FM Stereo Cassette Headset Player would seem
to be durable.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strong-ly dis-agree

          DO NOT DO THE FOLLOWING UNTIL INSTRUCTED
  RECORD RESPONSES 1 TO 48 ON THE ATTACHED OP-SCAN SHEET.
  THANK YOU VERY MUCH FOR YOU PARTICIPATION.   PLEASE REMAIN
SEATED AND QUIET UNTIL ALL STUDENTS HAVE COMPLETED THE
SURVEY.

Appendix D

SURVEY BOOKLET USED IN PRETEST #3 OF PHASE I - ONE OF FOUR

SURVEY RESPONSE BOOKLET

READ THIS PAGE NOW

DO NOT WRITE YOUR NAME OR ID NUMBER ANYWHERE

Please do not open this booklet until you are told. When you are told to begin, read all directions and questions carefully before responding. All responses must be recorded in the booklet FIRST. Do not record your responses on the orange OP-SCAN sheet until you are directed to do so. When you have completed the study, close the booklet and look up so that the researcher will know when every one has completed the study. Please be quiet at all times.

You are being asked to participate in a study in which your honest cooperation will be appreciated. Answer as you honestly feel. Your name will not appear on the response booklet and your complete privacy and anonoymity in regard to your responses are assured. On the following page you will find a product description for a FM Stereo Cassette Headset Player. Assume you are interested in buying this product.

PLEASE READ CAREFULLY

FM Stereo Cassette Headset Player:

Sound system combines cassette player and FM tuner in one
compact unit. High/low switch, stereo/mono, tape/radio con-
trols.

Features:

Portability: Option of using a shoulder strap or a belt
clip. The clip is attached directly to the unit and is re-
movable.

Controls: Balance and tuning controls will let you make ad-
justments for poor tapes. Locking fast/forward and rewind
controls mean that you needn't keep your fingers on a but-
ton. A cue/rewind feature lets you go from playback to fast
forward or rewind and back without having to press the stop
control, handy if you are searching for a particular pas-
sage.

Automatic reverse: Once you've played the first side of a
tape, this model shifts into reverse to play the rest of the
tape.

Power options: A jack for an AC adapter lets the machine run
on household current.

Headphones: Light, small and unobtrusive.

Other: Uses 4 "AA" cell batteries. Gray with silver tone
trim. Cabinet measures 3 9/16" by 1 5/16" by 4 3/8".

For the FM Stereo Cassette Headset Player described, the re-
tail price is $ 34. Assume you are interested in buying
this product. You will be asked to evaluate the product.

REMEMBER THE PRICE IS $ 34

The following questions are asking you to evaluate the FM Stereo Cassette Headset Player described earlier. If desired you may turn back to refer to the description at any time while answering these questions. Please circle the number on each of the scales below at that place which best reflects your reaction to an FM Stereo Cassette Headset Player priced at $ 34.

1. The likelihood that the FM Stereo Cassette Headset Player
will be reliable is:

1	2	3	4	5	6	7
very high	moderately high	slightly high	neither high nor low	slightly low	moderately low	very low

2. The workmanship of the FM Stereo Cassette Headset Player
appears
to be:

1	2	3	4	5	6	7
very high	moderately high	slightly high	neither high nor low	slightly low	moderately low	very low

3. This FM Stereo Cassette Headset Player appears to be of:

1	2	3	4	5	6	7
very good quality	moderately good quality	slightly good quality	neither good nor poor quality	slightly poor quality	moderately poor quality	very poor quality

4. The likelihood that this FM Stereo Cassette Headset Player is
dependable is:

1	2	3	4	5	6	7
very high	moderately high	slightly high	neither high nor low	slightly low	moderately low	very low

5. This FM Stereo Cassette Headset Player would seem
to be durable.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strong-ly dis-agree

RECORD THE NINE DIGIT CODE FROM THE FIRST PAGE ONTO THE
ORANGE OP-SCAN WHERE YOU WOULD USUALLY ENTER YOUR STUDENT
NUMBER. RECORD YOUR FIVE RESPONSES ON THE ORANGE OP-SCAN.

THANK YOU VERY MUCH FOR YOUR PARTICIPATION.

Appendix E

SURVEY BOOKLET USED IN PRETEST #4 OF PHASE I - ONE OF FOUR

SURVEY RESPONSE BOOKLET (5)

READ THIS PAGE NOW

DO NOT WRITE YOUR NAME OR ID NUMBER ANYWHERE

Please do not open this booklet until you are told. When you are told to begin, read all directions and questions carefully before responding. All responses must be recorded in the booklet FIRST. Do not record your responses on the orange OP-SCAN sheet until you are directed to do so. When you have completed the study, close the booklet and look up so that the researcher will know when every one has completed the study. Please be quiet at all times.

You are being asked to participate in a study in which your honest cooperation will be appreciated. Answer as you honestly feel. Your name will not appear on the response booklet and your complete privacy and anonoymity in regard to your responses are assured.

Listed below are a series of characteristics that might pertain to the VIRGINIA TECH BOOKSTORE. Please evaluate the relative importance of each characteristic to you in terms of what you think a store should be like. Circle the number that most correctly describes your feelings of the relative importance of each characteristic.

1. Easy to drive to:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

2. Near to home:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

3. Near to other stores where I shop:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

4. Extensive selection of brands:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

5. Many different models for each brand:

```
    1       :       2       :       3       :       4       :       5       :       6       :       7
  very    moderately  slightly      neither      slightly  moderately    very
important  important  important    important       un-        un-         un-
                                      nor       important   important   important
                                      un-
                                   important
```

6. Quality of store's own brand:

```
    1       :       2       :       3       :       4       :       5       :       6       :       7
  very    moderately  slightly      neither      slightly  moderately    very
important  important  important    important       un-        un-         un-
                                      nor       important   important   important
                                      un-
                                   important
```

7. Well known brands available:

```
    1       :       2       :       3       :       4       :       5       :       6       :       7
  very    moderately  slightly      neither      slightly  moderately    very
important  important  important    important       un-        un-         un-
                                      nor       important   important   important
                                      un-
                                   important
```

8. Well stocked store:

```
    1       :       2       :       3       :       4       :       5       :       6       :       7
  very    moderately  slightly      neither      slightly  moderately    very
important  important  important    important       un-        un-         un-
                                      nor       important   important   important
                                      un-
                                   important
```

9. Relatively low prices:

```
    1       :       2       :       3       :       4       :       5       :       6       :       7
  very    moderately  slightly      neither      slightly  moderately    very
important  important  important    important       un-        un-         un-
                                      nor       important   important   important
                                      un-
                                   important
```

10. Many price specials:

1 :	2 :	3 :	4 :	5 :	6 :	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

11. Advertising is informative:

1 :	2 :	3 :	4 :	5 :	6 :	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

12. Advertising is truthful:

1 :	2 :	3 :	4 :	5 :	6 :	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

13. Advertising is helpful:

1 :	2 :	3 :	4 :	5 :	6 :	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

14. Helpful personnel:

1 :	2 :	3 :	4 :	5 :	6 :	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

15. Knowledgeable personnel:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

16. Friendly personnel:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

17. Ease of merchandise return.

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

18. Convenient parking:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

19. Fast checkout:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

20. Easy to find the items you want:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

21. Easy to move through the store:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

22. Comfortable heating and air conditioning:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

23. Convenient and visible washrooms.

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

24. Carpeting:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un-important		slightly un-important		moderately un-important		very un-important

25. Pleasing architecture:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

26. Clean:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

27. Many friends shop there:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

28. Pleasing atmoshere:

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

29. Tasteful display of merchandise:

1	2	3	4	5	6	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

30. Postsale service:

1	2	3	4	5	6	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

31. Return of merchandise:

1	2	3	4	5	6	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

32. Replacement of defective merchandise:

1	2	3	4	5	6	7
very important	moderately important	slightly important	neither important nor un-important	slightly un-important	moderately un-important	very un-important

CONTINUE

The following questions ask you to evaluate, in general, products that might be found in the VIRGINIA TECH BOOKSTORE. Please circle the number of each of the scales below at that place which best reflects your reaction to the statement.

33. The liklihood that products sold at the VIRGINIA TECH BOOKSTORE would be reliable is:

1	2	3	4	5	6	7
very high	moderately high	slightly high	neither high nor low	slightly low	moderately low	very low

34. The workmanship of products sold at the VIRGINIA TECH BOOKSTORE would be:

1	2	3	4	5	6	7
very high	moderately high	slightly high	neither high nor low	slightly low	moderately low	very low

35. Products sold at the VIRGINIA TECH BOOKSTORE would be of:

1	2	3	4	5	6	7
very good quality	moderately good quality	slightly good quality	neither good nor poor quality	slightly poor quality	moderately poor quality	very poor quality

36. The dependability of products sold at the VIRGINIA TECH BOOKSTORE is:

1	2	3	4	5	6	7
very high	moderately high	slightly high	neither high nor low	slightly low	moderately low	very low

37. The durability of products sold at the VIRGINIA TECH BOOKSTORE would be high:

1	2	3	4	5	6	7
strongly agree	moderately agree	slightly agree	neither agree nor disagree	slightly disagree	moderately disagree	strong-ly dis-agree

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38. In general, I find the overall quality of the VIRGINIA TECH
BOOKSTORE to be high:

1 :	2 :	3 :	4 :	5 :	6 :	7
strongly agree	moderately agree	slightly agree	neither agree nor disagree	slightly disagree	moderately disagree	strong- ly dis- agree

39. In general, I would be very satisfied shopping at the
VIRGINIA TECH BOOKSTORE.

1 :	2 :	3 :	4 :	5 :	6 :	7
strongly agree	moderately agree	slightly agree	neither agree nor disagree	slightly disagree	moderately disagree	strong- ly dis- agree

40. Regarding the VIRGINIA TECH BOOKSTORE, I consider myself to be:

1 :	2 :	3 :	4 :	5 :
Extremely Knowledge- able	Very Knowledge- able	Moderately Knowledge- able	Slightly Knowledge- able	Not Knowledge- able at all

RECORD RESPONSES 1 TO 40 ON THE ATTACHED OP-SCAN SHEET.   DO
NOT ENTER YOUR NAME OF ID NUMBER.

THANK YOU VERY MUCH FOR YOUR PARTICIPATION.   PLEASE REMAIN
SEATED AND QUIET UNTIL ALL STUDENTS HAVE COMPLETED THE
STUDY.

Appendix F

SURVEY BOOKLET USED IN PRETEST #4 OF PHASE I -
ONE OF FOUR

SURVEY RESPONSE BOOKLET (4)

READ THIS PAGE NOW

DO NOT WRITE YOUR NAME OR ID NUMBER ANYWHERE

Please do not open this booklet until you are told. When you are told to begin, read all directions and questions carefully before responding. All responses must be recorded in the booklet FIRST. Do not record your responses on the orange OP-SCAN sheet until you are directed to do so. When you have completed the study, close the booklet and look up so that the researcher will know when every one has completed the study. Please be quiet at all times.

You are being asked to participate in a study in which your honest cooperation will be appreciated. Answer as you honestly feel. Your name will not appear on the response booklet and your complete privacy and anonoymity in regard to your responses are assured.

On the following page you will find a product description for a Business Use Pocket Calculator. Assume you are interested in buying that product. You will be asked to evaluate the product.

DO NOT TURN THE PAGE UNTIL YOU ARE INSTRUCTED TO START

PRODUCT DESCRIPTION

Business Use Pocket Calculator

Brand Name: Texas Instruments

Preprogrammed to solve problems in business school such as financial, statistical, and profit-margin calculations. Case and guidebook included.

Features and Functions:

Financial - can solve most problems involving interest including installment loans, amortization schedules and discounted cash flow for net present value.

Mathematical - include arithmetic, square and square root, reciprocal, and percent and percent change.

Profit margin - involve cost, selling price, and profit margin calculations

Memory - totally accessable memory with store, sum, recall and exchange capabilities.

Statistical Analysis - Linerar regression and trendline analysis

Electonic on and off - provides a special power saving feature. After 50 seconds of non use, the display shuts off but previously displayed value can be easily retrieved. After 10 minutes of nonuse the unit turns itself off completely.

Display advantages - provides a standard 8-digit display with scientific notation available for very large or small numbers.

The following questions are asking you to evaluate the TEXAS
INSTRUMENTS CALCULATOR on the previous page. If desired you
may turn back to refer to the descriptions at any time while
answering these questions. Circle the number on each of the
scales below at that place which best reflects your reaction
to the TEXAS INSTRUMENTS CALCULATOR.

1. The likelihood that the TEXAS INSTRUMENTS CALCULATOR
will be reliable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

2. The workmanship of the TEXAS INSTRUMENTS CALCULATOR
appears to be:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

3. This TEXAS INSTRUMENTS CALCULATOR appears to be of:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

4. The likelihood that this TEXAS INSTRUMENTS CALCULATOR is
dependable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

5. This TEXAS INSTRUMENTS CALCULATOR would seem
to be durable.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

6. I am very familiar with a TEXAS INSTRUMENTS CALCULATOR:

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strong- ly dis- agree

7. Regarding the TEXAS INSTRUMENTS CALCULATOR, I consider my self to be:

1	:	2	:	3	:	4	:	5	:
Extremely Knowledge- able		Very Knowledge- able		Moderately Knowledge- able		Slightly Knowledge- able		Not Knowledge- able at all	

STOP

RECORD RESPONSES 1 TO 7 ON   THE ATTACHED OP-SCAN SHEET.   DO
NOT ENTER YOUR NAME OR ID NUMBER.

DO NOT CONTINUE UNTIL YOU ARE TOLD

Appendix G

SURVEY BOOKLET USED IN PRETEST #5 OF PHASE I

SURVEY RESPONSE BOOKLET (5)

READ THIS PAGE NOW

DO NOT WRITE YOUR NAME OR ID NUMBER ANYWHERE

Please do not open this booklet until you are told. When you are told to begin, read all directions and questions carefully before responding. All responses must be recorded in the booklet FIRST. Do not record your responses on the OP-SCAN sheet until you are directed to do so. When you have completed the study, close the booklet and look up so. that the researcher will know when every one has completed the study. Please be quiet at all times.

You are being asked to participate in a study in which your honest cooperation will be appreciated. Answer as you honestly feel. Your name will not appear on the response booklet and your complete privacy and anonoymity in regard to your responses are assured. On the following page you will find a product description for a Business Use Pocket Calculator. Assume you are interested in buying that product. You will be asked to evaluate different brands for this product.

DO NOT TURN THE PAGE UNTIL YOU ARE INSTRUCTED TO START

Are these instuctions clear? If not, raise your hand and the researcher will answer any questions you may have.

READ THE FOLLOWING INFORMATION VERY CAREFULLY

Product: <u>Business Use Pocket Calculator:</u>

Product Description:

Preprogrammed to solve problems in business school such as financial, statistical, and profit-margin calculations. Case and guidebook included.

Features and Functions:

Financial - can solve most problems involving interest including installment loans, amortization schedules and discounted cash flow for net present value.

Mathematical - include arithmetic, square and square root, reciprocal, and percent and percent change.

Profit margin - involve cost, selling price, and profit margin calculations

Memory - totally accessible memory with store, sum, recall and exchange capabilities.

Statistical Analysis - Linerar regression and trendline analysis

Electronic on and off - provides a special power saving feature. After 50 seconds of non use, the display shuts off but previously displayed value can be easily retrieved. After 10 minutes of nonuse the unit turns itself off completely.

Display advantages - provides a standard 8-digit display with scientific notation available for very large or small numbers.

Use the above information that might be available in a purchase situation to respond to questions on the following page.

The following questions are asking you to evaluate several brands for a Business Use Pocket Calculator. If desired you may turn back to refer to the descriptions at any time while answering these questions. For each brand name, please circle the number on each of the scales below at that place which best reflects your reaction to the brand.

The likelihood that the Business Use Pocket Calculator
would be reliable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

1.   Albinar   1 2 3 4 5 6 7

2.   Hewlett-Packard   1 2 3 4 5 6 7

3.   Royal   1 2 3 4 5 6 7

4.   Texas Instruments   1 2 3 4 5 6 7

The workmanship of the Business Use Pocket Calculator
would be:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

5.   Albinar   1 2 3 4 5 6 7

6.   Hewlett-Packard   1 2 3 4 5 6 7

7.   Royal   1 2 3 4 5 6 7

8.   Texas Instruments   1 2 3 4 5 6 7

This Business Use Pocket Calculator should be of:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

9.   Albinar   1 2 3 4 5 6 7

10.   Hewlett-Packard   1 2 3 4 5 6 7

11.   Royal   1 2 3 4 5 6 7

12.   Texas Instruments 1 2 3 4 5 6 7

The likelihood that this Business Use Pocket Calculator is
dependable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

13.   Albinar   1 2 3 4 5 6 7

14.   Hewlett-Packard   1 2 3 4 5 6 7

15.   Royal   1 2 3 4 5 6 7

16.   Texas Instruments 1 2 3 4 5 6 7

This Business Use Pocket Calculator would seem
to be durable.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strong- ly dis- agree

17.   Albinar   1 2 3 4 5 6 7

18.   Hewlett-Packard   1 2 3 4 5 6 7

19.   Royal   1 2 3 4 5 6 7

20.   Texas Instruments 1 2 3 4 5 6 7

STOP

DO NOT DO THE FOLLOWING UNTIL INSTRUCTED

RECORD RESPONSES 1 TO 20 ON THE ATTACHED OP-SCAN SHEET.

Appendix H

SURVEY BOOKLET USED IN PHASE II - WITH PRICE INFORMATION

427

SURVEY RESPONSE BOOKLET

READ THIS PAGE NOW

DO NOT WRITE YOUR NAME OR ID NUMBER ANYWHERE

Please do not open this booklet until you are told. When you are told to begin, read all directions and questions carefully before responding. All responses must be recorded in the booklet FIRST. Do not record your responses on the OP-SCAN sheet until you are directed to do so. When you have completed the study, close the booklet and look up so that the researcher will know when every one has completed the study. Please be quiet at all times.

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Fill in the spaces below as directed.

— —|— — — — —|— — — — — —
  Record the six digit|Record the six digit
number from page 6 here|number from page 16 here
   DO NOT TURN THE PAGE UNTIL YOU ARE INSTRUCTED TO START

Are these instuctions clear? If not, raise your hand and the researcher will answer any questions you may have.

428

The following statements are concerned with the way you shop
and the feelings you have about shopping. Please indicate
the degree that you agree or disagree with each statement by
circling the number corresponding to the scales below that
best expresses your feelings.

1		2		3		4		5		6		7
strongly		moderately		slightly		neither		slightly		moderately		strongly
agree		agree		agree		agree nor		disagree		disagree		disagree
						disagree						

1. To me shopping is fun:

  1   :   2   :   3   :   4   :   5   :   6   :   7

2. I like to make my own buying decisions without the influence of
   others:

  1   :   2   :   3   :   4   :   5   :   6   :   7

3. I usually buy the lowest priced brand available:

  1   :   2   :   3   :   4   :   5   :   6   :   7

4. My friends and neighbors often come to me for advice on purchases:

  1   :   2   :   3   :   4   :   5   :   6   :   7

5. Advertisements for sales are usually misleading:

  1   :   2   :   3   :   4   :   5   :   6   :   7

6. Comparing alternative brands to decide on a purchase is hard work:

  1   :   2   :   3   :   4   :   5   :   6   :   7

7. When shopping, I always compare prices before making my selection:

  1   :   2   :   3   :   4   :   5   :   6   :   7

8. I like to buy new and different things:

  1   :   2   :   3   :   4   :   5   :   6   :   7

9. Brands within the same price range usually do not differ much
   in terms of performance:

  1   :   2   :   3   :   4   :   5   :   6   :   7

10. Price is the most important factor to me when making purchase
    decisions:

  1   :   2   :   3   :   4   :   5   :   6   :   7

11. Advertising is basically truthful:

  1   :   2   :   3   :   4   :   5   :   6   :   7

12. Comparing alternative brands to decide on a purchase is fun:

  1   :   2   :   3   :   4   :   5   :   6   :   7

13. My choice of brands for many products is influenced by advertising:
___1___:___2___:___3___:___4___:___5___:___6___:___7

14. I am usually among the first to try new products:
___1___:___2___:___3___:___4___:___5___:___6___:___7

15. Purchase decisions represent an important aspect of one's life:
___1___:___2___:___3___:___4___:___5___:___6___:___7

16. I try to stick to well known brand name products:
___1___:___2___:___3___:___4___:___5___:___6___:___7

17. The time I spend deciding on purchases is time well spent:
___1___:___2___:___3___:___4___:___5___:___6___:___7

18. I consider myself a real "bargain hunter":
___1___:___2___:___3___:___4___:___5___:___6___:___7

19. I like to browse in stores with no specific purchase in mind:
___1___:___2___:___3___:___4___:___5___:___6___:___7

20. I pay close attention to advertisements, looking for bargains:
___1___:___2___:___3___:___4___:___5___:___6___:___7

21. Lower priced items usually do not give good value for the money:
___1___:___2___:___3___:___4___:___5___:___6___:___7

22. I often worry that something I buy will turn out to be a mistake:
___1___:___2___:___3___:___4___:___5___:___6___:___7

23. Advertisements are a good source of brand information:
___1___:___2___:___3___:___4___:___5___:___6___:___7

24. Comparing alternative brands to decide on a purchase is usually not worth the time and effort:
___1___:___2___:___3___:___4___:___5___:___6___:___7

25. My friends often come to me for advice:
___1___:___2___:___3___:___4___:___5___:___6___:___7

26. I love to go shopping whenever I can find the time:
___1___:___2___:___3___:___4___:___5___:___6___:___7

27. A person can save a lot of money shopping around for bargains:
___1___:___2___:___3___:___4___:___5___:___6___:___7

28. I only go shopping when I actually need something:

   1   :   2   :   3   :   4   :   5   :   6   :   7

29. Comparing alternative brands to determine which is best for
    me usually just leaves me more confused:

   1   :   2   :   3   :   4   :   5   :   6   :   7

30. "Store brands" represent better buys than nationally
    advertised brands:

   1   :   2   :   3   :   4   :   5   :   6   :   7

31. Product quality is hard to judge for most brands:

   1   :   2   :   3   :   4   :   5   :   6   :   7

32. I like shopping at "sales":

   1   :   2   :   3   :   4   :   5   :   6   :   7

33. When you buy something on sale, you usually do not get a good deal:

   1   :   2   :   3   :   4   :   5   :   6   :   7

34. I usually buy higher priced items to make sure that I get
    good quality in my purchases:

   1   :   2   :   3   :   4   :   5   :   6   :   7

35. I am always looking for store "specials" when I shop:

   1   :   2   :   3   :   4   :   5   :   6   :   7

36. I usually wait to see how other people like new products before I
    try them:

   1   :   2   :   3   :   4   :   5   :   6   :   7

37. When I am shopping I think carefully about which brand to buy:

   1   :   2   :   3   :   4   :   5   :   6   :   7

38. When a store sells a product at a reduced price, there probably
    is something wrong with the product:

   1   :   2   :   3   :   4   :   5   :   6   :   7

39. I usually seek the advice of friends regarding which brands to buy:

   1   :   2   :   3   :   4   :   5   :   6   :   7

40. I have more self-confidence than most people:

   1   :   2   :   3   :   4   :   5   :   6   :   7

41. I am not a penny pincher but I love to shop for bargains:

   1   :   2   :   3   :   4   :   5   :   6   :   7

42. I buy many things with a credit card:

  1 : 2 : 3 : 4 : 5 : 6 : 7

43. I am more independent than most people:

  1 : 2 : 3 : 4 : 5 : 6 : 7

44. I sometimes influence what my friends buy:

  1 : 2 : 3 : 4 : 5 : 6 : 7

45. I spend a lot of time talking with my friends about products and brands:

  1 : 2 : 3 : 4 : 5 : 6 : 7

46. When I see a new brand I often buy it just to see what it's like:

  1 : 2 : 3 : 4 : 5 : 6 : 7

47. I find myself checking the prices in stores even for small items:

  1 : 2 : 3 : 4 : 5 : 6 : 7

48. I like to pay cash for everything I buy:

  1 : 2 : 3 : 4 : 5 : 6 : 7

49. I think I have a lot of personal ability:

  1 : 2 : 3 : 4 : 5 : 6 : 7

50. People come to me more often than I go to them for information about brands:

  1 : 2 : 3 : 4 : 5 : 6 : 7

51. My friends usually give me good advice on what brands to buy in stores:

  1 : 2 : 3 : 4 : 5 : 6 : 7

52. I often try new brands before my friends do:

  1 : 2 : 3 : 4 : 5 : 6 : 7

53. It is good to have credit cards:

  1 : 2 : 3 : 4 : 5 : 6 : 7

54: To buy anything, other than a house or a car, on credit is unwise:

  1 : 2 : 3 : 4 : 5 : 6 : 7

55. I like to be considered a leader:

  1 : 2 : 3 : 4 : 5 : 6 : 7

STOP

1 1 1 1 1 3

READ THE FOLLOWING INFORMATION VERY CAREFULLY

Below you will find a product description for a Business Use Pocket Calculator and other information. Assume you are interested in buying this product. You will be asked to evaluate the product.

Product: Business Use Pocket Calculator

Retail Price: $50.00

Brand Name: HEWLETT PACKARD

Product Description: Business Use Pocket Calculator:

Preprogrammed to solve problems in business school such as financial, statistical, and profit-margin calculations. Case and guidebook included.

Features and Functions:

Financial - can solve most problems involving interest including installment loans, amortization schedules and discounted cash flow for net present value.

Mathematical - include arithmetic, square and square root, reciprocal, and percent and percent change.

Profit margin - involve cost, selling price, and profit margin calculations

Memory - totally accessible memory with store, sum, recall and exchange capabilities.

Statistical Analysis - Linear regression and trendline analysis

Electronic on and off - provides a special power saving feature. After 50 seconds of non use, the display shuts off but previously displayed value can be easily retrieved. After 10 minutes of nonuse the unit turns itself off completely.

Display advantages - provides a standard 8-digit display with scientific notation available for very large or small numbers.

Buying a HEWLETT PACKARD Calculator for $50.00

DIRECTIONS

The following questions are asking you to evaluate the Business Use Pocket Calculator on the previous page. If desired you may turn back to refer to the information at any time while answering these questions. Please circle the number on each of the scales at that place which best reflects your reaction to the Business Use Pocket Calculator.

56. The likelihood that the Business Use Pocket Calculator would be reliable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

57. The workmanship of the Business Use Pocket Calculator would be:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

58. This Business Use Pocket Calculator should be of:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

59. The likelihood that this Business Use Pocket Calculator is dependable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

Buying a HEWLETT PACKARD Calculator for $50.00

60. This Business Use Pocket Calculator would seem
to be durable.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

61. The likelihood that I would not buy this Business Use Pocket
Calculator but continue to search for a Business Use Pocket
Calculator is :

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

62. This Business Use Pocket Calculator is a:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good value for the money		moderately good value for the money		slightly good value for the money		neither good nor poor value for the money		slightly poor value for the money		moderately poor value for the money		very poor value for the money

63. At the price shown this Business Use Pocket Calculator is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very economical		moderately economical		slightly economical		neither economical nor uneconomical		slightly un- economical		moderately un- economical		very uneconom- ical

64. I would consider this Business Use Pocket Calculator to be a
good buy.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

Buying a HEWLETT PACKARD Calculator for $50.00

65. The likelihood that I would purchase this Business Use Pocket
Calculator is :

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

66. The price shown for this Business Use Pocket Calculator is :

1	:	2	:	3	:	4	:	5	:	6	:	7
very acceptable		moderately acceptable		slightly acceptable		neither acceptable nor un-acceptable		slightly un-acceptable		moderately un-acceptable		very un-accept-able

67. I would consider this Business Use Pocket Calculator to be:

1	:	2	:	3	:	4	:	5	:	6	:	7
very expensive		moderately expensive		slightly expensive		neither expensive nor inexpensive		slightly in-expensive		moderately in-expensive		very inex-pensive

68. If I were going to buy a Business Use Pocket Calculator, I
would consider buying this model at the price shown.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

69. This Business Use Pocket Calculator appears to
be a bargain.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

Buying a HEWLETT PACKARD Calculator for $50.00

70. At the price shown, I would consider buying the Business Use Pocket Calculator.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

71. The probability that I would consider buying the Business Use Pocket Calculator is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

72. My willingness to buy the Business Use Pocket Calculator is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

STOP

DO NOT CONTINUE UNTIL YOU ARE INSTRUCTED TO DO SO.

RECORD RESPONSES 56 to 72 ON THE ATTACHED OP -SCAN SHEET

Listed below are a series of characteristics that might per-
tain to the stores. Please evaluate the relative importance
of each characteristic to you in terms of what you think a
store should be like.   Using the scale below, circle the
number that most correctly describes your feelings of the
relative importance of each characteristic.

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

73. Advertising is informative:

  1   :   2   :   3   :   4   :   5   :   6   :   7

74. Near to home:

  1   :   2   :   3   :   4   :   5   :   6   :   7

75. Near to other stores where I shop:

  1   :   2   :   3   :   4   :   5   :   6   :   7

76. Extensive selection of brands:

  1   :   2   :   3   :   4   :   5   :   6   :   7

77. Many different models for each brand:

  1   :   2   :   3   :   4   :   5   :   6   :   7

78. Quality of store's own brand:

  1   :   2   :   3   :   4   :   5   :   6   :   7

79. Well known brands available:

  1   :   2   :   3   :   4   :   5   :   6   :   7

80. Well stocked store:

  1   :   2   :   3   :   4   :   5   :   6   :   7

81. Relatively low prices:

  1   :   2   :   3   :   4   :   5   :   6   :   7

82. Many price specials:

    1   :   2   :   3   :   4   :   5   :   6   :   7

83. Easy to drive to:

    1   :   2   :   3   :   4   :   5   :   6   :   7

84. Convenient parking:

    1   :   2   :   3   :   4   :   5   :   6   :   7

85. Advertising is helpful:

    1   :   2   :   3   :   4   :   5   :   6   :   7

86. Helpful personnel:

    1   :   2   :   3   :   4   :   5   :   6   :   7

87. Knowledgeable personnel:

    1   :   2   :   3   :   4   :   5   :   6   :   7

88. Friendly personnel:

    1   :   2   :   3   :   4   :   5   :   6   :   7

89. Ease of merchandise return.

    1   :   2   :   3   :   4   :   5   :   6   :   7

90. Advertising is truthful:

    1   :   2   :   3   :   4   :   5   :   6   :   7

91. Fast checkout:

    1   :   2   :   3   :   4   :   5   :   6   :   7

92. Easy to find the items you want:

    1   :   2   :   3   :   4   :   5   :   6   :   7

93. Easy to move through the store:

    1   :   2   :   3   :   4   :   5   :   6   :   7

94. Comfortable heating and air conditioning:

    1   :   2   :   3   :   4   :   5   :   6   :   7

95. Convenient and visible washrooms.

    1   :   2   :   3   :   4   :   5   :   6   :   7

96. Carpeting:
___1___:___2___:___3___:___4___:___5___:___6___:___7

97. Pleasing architecture:
___1___:___2___:___3___:___4___:___5___:___6___:___7

98. Clean:
___1___:___2___:___3___:___4___:___5___:___6___:___7

99. Many friends shop there:
___1___:___2___:___3___:___4___:___5___:___6___:___7

100. Pleasing atmoshere:
___1___:___2___:___3___:___4___:___5___:___6___:___7

101. Tasteful display of merchandise:
___1___:___2___:___3___:___4___:___5___:___6___:___7

102. Postsale service:
___1___:___2___:___3___:___4___:___5___:___6___:___7

103. Return of merchandise:
___1___:___2___:___3___:___4___:___5___:___6___:___7

104. Replacement of defective merchandise:
___1___:___2___:___3___:___4___:___5___:___6___:___7

CONTINUE

READ THE FOLLOWING VERY CAREFULLY.

The following questions ask you to evaluate, in general, products
that might be found in ROSES. Please circle the number
of each of the scales below at that place which best reflects your
reaction to the statement.

105. The likelihood that products sold at ROSES would be
reliable is:

```
    1      :    2      :    3      :    4      :    5      :    6      :    7
  very         moderately slightly   neither      slightly   moderately very
  high         high       high       high nor     low        low        low
                                     low
```

106. The workmanship of products sold at ROSES
would be:

```
    1      :    2      :    3      :    4      :    5      :    6      :    7
  very         moderately slightly   neither      slightly   moderately very
  high         high       high       high nor     low        low        low
                                     low
```

107. Products sold at ROSES would be of:

```
    1      :    2      :    3      :    4      :    5      :    6      :    7
 very good   moderately slightly   neither      slightly   moderately very
 quality     good       good       good nor     poor       poor       poor
             quality    quality    poor         quality    quality    quality
                                   quality
```

108. The dependability of products sold at ROSES
is:

```
    1      :    2      :    3      :    4      :    5      :    6      :    7
  very         moderately slightly   neither      slightly   moderately very
  high         high       high       high nor     low        low        low
                                     low
```

109. The durability of products sold at ROSES
would be high:

```
    1      :    2      :    3      :    4      :    5      :    6      :    7
 strongly    moderately slightly   neither      slightly   moderately strongly
 agree       agree      agree      agree nor    disagree   disagree
                                   disagree                           disagree
```

110. In general, I find the overall quality of ROSES
to be high:

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

111. In general, I would be very satisfied shopping at ROSES

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

112. Regarding ROSES, I consider myself to be:

1	:	2	:	3	:	4	:	5	:
Extremely Knowledge- able		Very Knowledge- able		Moderately Knowledge- able		Slightly Knowledge- able		Not Knowledge- able at all	

STOP

DO NOT CONTINUE UNTIL YOU ARE INSTRUCTED

RECORD RESPONSES 73 TO 112 ON THE ATTACHED OP SCAN SHEET.

2 1 1 1 1 3

READ THE FOLLOWING INFORMATION VERY CAREFULLY

Below you will find a product description for a FM Stereo
Cassette Headset Player and other information. Assume you
are interested in buying this product. You will be asked to
evaluate the product.

Product: FM Stereo Cassette Headset Player

Retail Price: $115.00

Brand Name: SONY

Product Description: FM Stereo Cassette Headset Player:

Sound system combines cassette player and FM tuner in one
compact unit. High/low switch, stereo/mono, tape/radio con-
trols.

Features:

Portability: Option of using a shoulder strap or a belt
clip. The clip is attached directly to the unit and is re-
movable.

Controls: Balance and tuning controls will let you make ad-
justments for poor tapes. Locking fast/forward and rewind
controls mean that you needn't keep your fingers on a but-
ton. A cue/rewind feature lets you go from playback to fast
forward or rewind and back without having to press the stop
control, handy if you are searching for a particular pas-
sage.

Automatic reverse. Once you've played the first side of a
tape, this model shifts into reverse to play the rest of the
tape.

Power options: A jack for an AC adapter lets the machine run
on household current.

Headphones: Light, small and unobtrusive.

Other: Uses 4 "AA" cell batteries.   Gray with silver tone
trim.   Cabinet measures 3 9/16" by 1 5/16" by 4 3/8".

Use the above information that might be available in a pur-
chase situation to respond to questions on the following
page.

DIRECTIONS

The following questions are asking you to evaluate the FM Stereo Cassette Headset Player on the previous page. If desired you may turn back to refer to the information at any time while answering these questions. Please circle the number on each of the scales below at that place which best reflects your reaction to the FM Stereo Cassette Headset Player.

113. The likelihood that the FM Stereo Cassette Headset Player would be reliable is:

```
    1       :    2      :    3    :    4     :    5     :    6      :    7
   very         moderately slightly  neither     slightly   moderately very
   high         high       high      high nor    low        low        low
                                     low
```

114. The workmanship of the FM Stereo Cassette Headset Player would be:

```
    1       :    2      :    3    :    4     :    5     :    6      :    7
   very         moderately slightly  neither     slightly   moderately very
   high         high       high      high nor    low        low        low
                                     low
```

115. This FM Stereo Cassette Headset Player should be of:

```
    1       :    2      :    3    :    4     :    5     :    6      :    7
   very good    moderately slightly  neither     slightly   moderately very
   quality      good       good      good nor    poor       poor       poor
                quality    quality   poor        quality    quality    quality
                                     quality
```

116. The likelihood that this FM Stereo Cassette Headset Player is dependable is:

```
    1       :    2      :    3    :    4     :    5     :    6      :    7
   very         moderately slightly  neither     slightly   moderately very
   high         high       high      high nor    low        low        low
                                     low
```

117. This FM Stereo Cassette Headset Player would seem
     to be durable.

```
   1      :     2     :    3     :     4    :    5     :     6    :    7
strongly   moderately slightly  neither    slightly  moderately strongly
agree      agree      agree     agree nor  disagree  disagree
                                disagree                              disagree
```

118. The likelihood that I would not buy this FM Stereo Cassette Headset
     Player but continue to search for a FM Stereo Cassette Headset
     Player is :

```
   1      :     2     :    3     :     4    :    5     :     6    :    7
very       moderately slightly  neither    slightly  moderately very
high       high       high      high nor   low       low        low
                                low
```

119. This FM Stereo Cassette Headset Player is a:

```
   1        :     2       :    3      :     4     :    5      :     6     :    7
very good   moderately   slightly    neither    slightly   moderately very
value for   good         good        good nor   poor       poor       poor
the         value for    value for   poor       value      value      value
money       the money    the money   value      for the    for the    for
                                     for the    money      money      the
                                     money                            money
```

120. At the price shown this FM Stereo Cassette Headset Player is:

```
   1        :     2       :    3      :     4     :    5      :     6     :    7
very         moderately  slightly    neither    slightly   moderately very
economical   economical  economical  economical un-        un-        un-
                                     nor        economical economical econom-
                                     uneconomical                     ical
```

121. I would consider this FM Stereo Cassette Headset Player to be a
     good buy.

```
   1      :     2     :    3     :     4    :    5     :     6    :    7
strongly   moderately slightly  neither    slightly  moderately strongly
agree      agree      agree     agree nor  disagree  disagree
                                disagree                              disagree
```

122. The likelihood that I would purchase this FM Stereo Cassette
Headset Player is :

```
     1      :    2      :    3      :    4      :    5      :    6      :    7
   very        moderately slightly    neither    slightly   moderately very
   high        high       high        high nor   low        low        low
                                      low
```

123. The price shown for this FM Stereo Cassette Headset Player is :

```
     1        :    2        :    3        :    4        :    5        :    6        :    7
   very          moderately slightly      neither      slightly     moderately very
   acceptable    acceptable acceptable    acceptable   un-          un-        un-
                                          nor          acceptable   acceptable accept-
                                          un-                                  able
                                          acceptable
```

124. I would consider this FM Stereo Cassette Headset Player to be:

```
     1        :    2        :    3        :    4        :    5        :    6        :    7
   very          moderately slightly      neither      slightly     moderately very
   expensive     expensive  expensive     expensive    in-          in-        inex-
                                          nor          expensive    expensive  pensive
                                          inexpensive
```

125. If I were going to buy a FM Stereo Cassette Headset Player, I
     would consider buying this model at the price shown.

```
     1        :    2        :    3        :    4        :    5        :    6        :    7
   strongly      moderately slightly      neither      slightly     moderately strongly
   agree         agree      agree         agree nor    disagree     disagree
                                          disagree                              disagree
```

126. This FM Stereo Cassette Headset Player appears to
     be a bargain.

```
     1        :    2        :    3        :    4        :    5        :    6        :    7
   strongly      moderately slightly      neither      slightly     moderately strongly
   agree         agree      agree         agree nor    disagree     disagree
                                          disagree                              disagree
```

127. At the price shown, I would consider buying the FM Stereo
     Cassette Headset Player.

```
    1      :    2     :    3    :    4    :    5    :    6    :    7
strongly   moderately slightly  neither    slightly  moderately strongly
agree       agree      agree   agree nor  disagree  disagree
                               disagree                         disagree
```

128. The probability that I would consider buying the FM Stereo
     Cassette Headset Player
is:

```
    1      :    2     :    3    :    4    :    5    :    6    :    7
very       moderately slightly  neither    slightly  moderately very
high        high       high    high nor   low       low        low
                               low
```

129. My willingness to buy the FM Stereo Cassette Headset Player is:

```
    1      :    2     :    3    :    4    :    5    :    6    :    7
very       moderately slightly  neither    slightly  moderately very
high        high       high    high nor   low       low        low
                               low
```

                         STOP

    DO NOT CONTINUE UNTIL YOU ARE INSTRUCTED TO DO SO.

RECORD RESPONSES 113 to 129 ON THE ATTACHED OP SCAN SHEET.

448

To give a better understanding of your responses, please answer the
following questions by placing a check in the appropriate space.

130. Your age: ___under18 ___18 ___19 ___20 ___21
                   1   2   3   4   5

               ___22   ___23   ___over 23
                  6   7   8

131. Your sex: ___female   ___male
                   1   2

132. Graduated from High School: ___Tidewater area   ___Richmond area
                                    1   2
___Southwestern Virginia   ___Northern Virginia ___ Northeast USA
   3   4   5
___Southeast USA   ___other area of USA please-state_____
   6   7

133. Your college: ___Business
                       1
                    ___Agriculture and life Sciences
                       2
                    ___Architecture and Urban Studies
                       3
                    ___Arts and Sciences
                       4
                    ___Education
                       5
                    ___Engineering
                       6
                    ___Human Resources
                       7
                    ___Other
                       8

134. If you are a student in the College of Business, what is your
major?
              ___Accounting
                 1
              ___Economics
                 2
              ___Finance,Insurance,and Business Law
                 3
              ___Management
                 4
              ___Management Science
                 5
              ___Marketing
                 6

___Public Administration
7
___other
8

QUESTIONS 135 TO 144 refer to Business Use Pocket Calculator.

135. Do you presently own a Business Use Pocket Calculator ?

_____no (go to question 137)
1

_____yes (continue with question 136
2

136. Did you purchase the Business Use Pocket Calculator or was it a gift?

_____purchased
1

_____gift
2

137. Have you shopped for a Business Use Pocket Calculator in the past month?

_____yes
1

_____no
2

138. Regarding a Business Use Pocket Calculator, I consider myself to be:

    1   :   2   :   3   :   4   :   5   :
 Extremely Very   Moderately Slightly Hardly
 Knowledge- Knowledge- Knowledge- Knowledge- Knowledge-
 able   able   able   able   able

In regard to the exercise that you just completed, without looking back, answer the following:

139. What was the price of the Business Use Pocket
Calculator? _____(1)
141. What was the brand name of the Business Use Pocket
Calculator? _____(1)
141. What was the store name where the Business Use Pocket
Calculator was sold? _____(1)

142. The price for the Business Use Pocket Calculator is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

143. The brand for the Business Use Pocket Calculator is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

144. I consider the store where the Business Use Pocket Calculator was sold to be:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

QUESTIONS 145 TO 154 REFER TO the FM Stereo Cassette Headset Player.

145. Do you presently own a FM Stereo Cassette Headset Player ?

_____no (go to question 147)
    1
_____yes (continue with question 146)
    2

146.   Did you purchase the FM Stereo Cassette Headset Player or was it a gift?

_____purchased (continue with 147)
    1
_____gift (go to question 148)
    2

147. Have you shopped for a FM Stereo Cassette Headset Player in the past month?

_____yes(1)
_____no(2)

148. Regarding a FM Stereo Cassette Headset Player, I consider myself to be:

```
    1      :    2      :    3      :    4      :    5      :
Extremely  Very        Moderately Slightly   Hardly
Knowledge- Knowledge-  Knowledge- Knowledge- Knowledge-
able       able        able       able       able
```

In regard to the exercise that you just completed, without looking back, answer the following:

149. What was the price of the FM Stereo Cassette Headset Player ? _____(1)
150. What was the brand name of the FM Stereo Cassette Headset Player ?_____(1)
151. What was the store name where the FM Stereo Cassette Headset Player was sold? _____(1)
152. The price for the FM Stereo Cassette Headset Player is:

```
   1      :    2       :    3      :    4       :    5      :    6       :    7
very        moderately slightly   neither    slightly   moderately very
high        high       high       high nor   low        low        low
                                  low
```

153. The brand for the FM Stereo Cassette Headset Player is:

```
   1       :    2       :    3      :    4       :    5      :    6       :    7
very good   moderately slightly   neither    slightly   moderately very
quality     good       good       good nor   poor       poor       poor
            quality    quality    poor       quality    quality    quality
                                  quality
```

154. I consider the store where the FM Stereo Cassette Headset Player was sold to be:

```
   1       :    2       :    3      :    4       :    5      :    6       :    7
very good   moderately slightly   neither    slightly   moderately very
quality     good       good       good nor   poor       poor       poor
            quality    quality    poor       quality    quality    quality
                                  quality
```

                                STOP

          DO NOT DO THE FOLLOWING UNTIL INSTRUCTED

RECORD RESPONSES 130 TO 154 ON THE ATTACHED OP-SCAN SHEET.
ENTER "1" FOR QUESTIONS 139, 140, 141, 149 150 and 151.

DO NOT ENTER YOUR NAME OR ID NUMBER.   MAKE SURE   YOU HAVE
ANSWERED THE FOLLOWING QUESTION.

155.   What do you think the researcher is trying to find in
this experiment?

Appendix I

SURVEY BOOKLET USED IN PHASE II - WITHOUT PRICE
INFORMATION

SURVEY RESPONSE BOOKLET

READ THIS PAGE NOW

DO NOT WRITE YOUR NAME OR ID NUMBER ANYWHERE

Please do not open this booklet until you are told.   When
you are told to begin,   read all directions and questions
carefully before responding. All responses must be recorded
in the booklet FIRST.   Do not record your responses on the
OP-SCAN sheet until you are directed to do so.   When you
have completed the study, close the booklet and look up so
that the researcher will know when every one has completed
the study. Please be quiet at all times.

You are being asked to participate in a study in which your
honest cooperation will be appreciated.   Answer as you hon-
estly feel. Your name will not appear on the response book-
let and your complete privacy and anonoymity in regard to
your responses are assured.

Fill in the spaces below as directed.

— —| — — — — — —|— — — — — —
     Record the six digit| Record the six digit
 number from page 6 here| number from page 16 here
    DO NOT TURN THE PAGE UNTIL YOU ARE INSTRUCTED TO START

Are these instuctions clear?   If not, raise your hand and
the researcher will answer any questions you may have.

The following statements are concerned with the way you shop
and the feelings you have about shopping. Please indicate
the degree that you agree or disagree with each statement by
circling the number corresponding to the scales below that
best expresses your feelings.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

1. To me shopping is fun:

    1 : 2 : 3 : 4 : 5 : 6 : 7

2. I like to make my own buying decisions without the influence of
   others:

    1 : 2 : 3 : 4 : 5 : 6 : 7

3. I usually buy the lowest priced brand available:

    1 : 2 : 3 : 4 : 5 : 6 : 7

4. My friends and neighbors often come to me for advice on purchases:

    1 : 2 : 3 : 4 : 5 : 6 : 7

5. Advertisements for sales are usually misleading:

    1 : 2 : 3 : 4 : 5 : 6 : 7

6. Comparing alternative brands to decide on a purchase is hard work:

    1 : 2 : 3 : 4 : 5 : 6 : 7

7. When shopping, I always compare prices before making my selection:

    1 : 2 : 3 : 4 : 5 : 6 : 7

8. I like to buy new and different things:

    1 : 2 : 3 : 4 : 5 : 6 : 7

9. Brands within the same price range usually do not differ much
   in terms of performance:

    1 : 2 : 3 : 4 : 5 : 6 : 7

10. Price is the most important factor to me when making purchase
    decisions:

    1 : 2 : 3 : 4 : 5 : 6 : 7

11. Advertising is basically truthful:

    1 : 2 : 3 : 4 : 5 : 6 : 7

12. Comparing alternative brands to decide on a purchase is fun:

    1 : 2 : 3 : 4 : 5 : 6 : 7

13. My choice of brands for many products is influenced by advertising:

____1____:____2____:____3____:____4____:____5____:____6____:____7

14. I am usually among the first to try new products:

____1____:____2____:____3____:____4____:____5____:____6____:____7

15. Purchase decisions represent an important aspect of one's life:

____1____:____2____:____3____:____4____:____5____:____6____:____7

16. I try to stick to well known brand name products:

____1____:____2____:____3____:____4____:____5____:____6____:____7

17. The time I spend deciding on purchases is time well spent:

____1____:____2____:____3____:____4____:____5____:____6____:____7

18. I consider myself a real "bargain hunter":

____1____:____2____:____3____:____4____:____5____:____6____:____7

19. I like to browse in stores with no specific purchase in mind:

____1____:____2____:____3____:____4____:____5____:____6____:____7

20. I pay close attention to advertisements, looking for bargains:

____1____:____2____:____3____:____4____:____5____:____6____:____7

21. Lower priced items usually do not give good value for the money:

____1____:____2____:____3____:____4____:____5____:____6____:____7

22. I often worry that something I buy will turn out to be a mistake:

____1____:____2____:____3____:____4____:____5____:____6____:____7

23. Advertisements are a good source of brand information:

____1____:____2____:____3____:____4____:____5____:____6____:____7

24. Comparing alternative brands to decide on a purchase is usually not worth the time and effort:

____1____:____2____:____3____:____4____:____5____:____6____:____7

25. My friends often come to me for advice:

____1____:____2____:____3____:____4____:____5____:____6____:____7

26. I love to go shopping whenever I can find the time:

____1____:____2____:____3____:____4____:____5____:____6____:____7

27. A person can save a lot of money shopping around for bargains:

____1____:____2____:____3____:____4____:____5____:____6____:____7

28. I only go shopping when I actually need something:

____1____:____2____:____3____:____4____:____5____:____6____:____7

29. Comparing alternative brands to determine which is best for
me usually just leaves me more confused:

   1   :   2   :   3   :   4   :   5   :   6   :   7

30. "Store brands" represent better buys than nationally
advertised brands:

   1   :   2   :   3   :   4   :   5   :   6   :   7

31. Product quality is hard to judge for most brands:

   1   :   2   :   3   :   4   :   5   :   6   :   7

32. I like shopping at "sales":

   1   :   2   :   3   :   4   :   5   :   6   :   7

33. When you buy something on sale, you usually do not get a good deal:

   1   :   2   :   3   :   4   :   5   :   6   :   7

34. I usually buy higher priced items to make sure that I get
good quality in my purchases:

   1   :   2   :   3   :   4   :   5   :   6   :   7

35. I am always looking for store "specials" when I shop:

   1   :   2   :   3   :   4   :   5   :   6   :   7

36. I usually wait to see how other people like new products before I
try them:

   1   :   2   :   3   :   4   :   5   :   6   :   7

37. When I am shopping I think carefully about which brand to buy:

   1   :   2   :   3   :   4   :   5   :   6   :   7

38. When a store sells a product at a reduced price, there probably
is something wrong with the product:

   1   :   2   :   3   :   4   :   5   :   6   :   7

39. I usually seek the advice of friends regarding which brands to buy:

   1   :   2   :   3   :   4   :   5   :   6   :   7

40. I have more self-confidence than most people:

   1   :   2   :   3   :   4   :   5   :   6   :   7

41. I am not a penny pincher but I love to shop for bargains:

   1   :   2   :   3   :   4   :   5   :   6   :   7

42. I buy many things with a credit card:

   1   :   2   :   3   :   4   :   5   :   6   :   7

43. I am more independent than most people:

   1   :   2   :   3   :   4   :   5   :   6   :   7

44. I sometimes influence what my friends buy:
  1   :   2   :   3   :   4   :   5   :   6   :   7

45. I spend a lot of time talking with my friends about products
    and brands:
  1   :   2   :   3   :   4   :   5   :   6   :   7

46. When I see a new brand I often buy it just to see what it's like:
  1   :   2   :   3   :   4   :   5   :   6   :   7

47. I find myself checking the prices in stores even for small items:
  1   :   2   :   3   :   4   :   5   :   6   :   7

48. I like to pay cash for everything I buy:
  1   :   2   :   3   :   4   :   5   :   6   :   7

49. I think I have a lot of personal ability:
  1   :   2   :   3   :   4   :   5   :   6   :   7

50. People come to me more often than I go to them for
    information about brands:
  1   :   2   :   3   :   4   :   5   :   6   :   7

51. My friends usually give me good advice on what brands to buy in
    stores:
  1   :   2   :   3   :   4   :   5   :   6   :   7

52. I often try new brands before my friends do:
  1   :   2   :   3   :   4   :   5   :   6   :   7

53. It is good to have credit cards:
  1   :   2   :   3   :   4   :   5   :   6   :   7

54: To buy anything, other than a house or a car, on credit is unwise:
  1   :   2   :   3   :   4   :   5   :   6   :   7

55. I like to be considered a leader:
  1   :   2   :   3   :   4   :   5   :   6   :   7

STOP

DO NOT CONTINUE UNTIL YOU ARE INSTRUCTED

RECORD RESPONSES 1-55 ON THE ATTACHED OP-SCAN SHEET.

1 1 5 5 1 3

READ THE FOLLOWING INFORMATION VERY CAREFULLY

Below you will find a product description for a Business Use Pocket Calculator and other information. Assume you are interested in buying this product. You will be asked to evaluate the product.

Product: Business Use Pocket Calculator

Brand Name: HEWLETT PACKARD

Product Description: Business Use Pocket Calculator:

Preprogrammed to solve problems in business school such as financial, statistical, and profit-margin calculations. Case and guidebook included.

Features and Functions:

Financial - can solve most problems involving interest including installment loans, amortization schedules and discounted cash flow for net present value.

Mathematical - include arithmetic, square and square root, reciprocal, and percent and percent change.

Profit margin - involve cost, selling price, and profit margin calculations

Memory - totally accessible memory with store, sum, recall and exchange capabilities.

Statistical Analysis - Linear regression and trendline analysis

Electronic on and off - provides a special power saving feature. After 50 seconds of non use, the display shuts off but previously displayed value can be easily retrieved. After 10 minutes of nonuse the unit turns itself off completely.

Display advantages - provides a standard 8-digit display with scientific notation available for very large or small numbers.

Buying a HEWLETT PACKARD Calculator

DIRECTIONS

The following questions are asking you to evaluate the Business Use
Pocket Calculator on the previous page. If desired you may turn back
to refer to the information at any time while answering these questions.
Please circle the number on each of the scales at that place which best
reflects your reaction to the Business Use Pocket Calculator.

56. The likelihood that the Business Use Pocket Calculator
would be reliable is:

```
   1      :    2     :    3     :    4     :    5     :    6     :    7
 very        moderately slightly   neither   slightly  moderately very
 high        high       high       high nor  low       low        low
                                   low
```

57. The workmanship of the Business Use Pocket Calculator
would be:

```
   1      :    2     :    3     :    4     :    5     :    6     :    7
 very        moderately slightly   neither   slightly  moderately very
 high        high       high       high nor  low       low        low
                                   low
```

58. This Business Use Pocket Calculator should be of:

```
   1      :    2     :    3     :    4     :    5     :    6     :    7
 very good  moderately slightly   neither   slightly  moderately very
 quality    good       good       good nor  poor      poor       poor
            quality    quality    poor      quality   quality    quality
                                  quality
```

59. The likelihood that this Business Use Pocket Calculator is
dependable is:

```
   1      :    2     :    3     :    4     :    5     :    6     :    7
 very        moderately slightly   neither   slightly  moderately very
 high        high       high       high nor  low       low        low
                                   low
```

462

Buying a HEWLETT PACKARD Calculator

60. This Business Use Pocket Calculator would seem
to be durable.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly		moderately	slightly		neither		slightly		moderately	strongly
agree		agree		agree		agree nor	disagree		disagree		disagree
						disagree						disagree

61. 1   Enter 1 on the op-scan when instructed.

62. 1   Enter 1 on the op-scan when instructed.

63. 1   Enter 1 on the op-scan when instructed.

64. 1   Enter 1 on the op-scan when instructed.

Buying a HEWLETT PACKARD Calculator

65. 1   Enter 1 on the op-scan when instructed.

66. 1   Enter 1 on the op-scan when instructed.

67. 1   Enter 1 on the op-scan when instructed.

68. 1   Enter 1 on the op-scan when instructed.

69. 1   Enter 1 on the op-scan when instructed.
         Buying a HEWLETT PACKARD Calculator

70. 1   Enter 1 on the op-scan when instructed.

71. 1   Enter 1 on the op-scan when instructed.

72. 1   Enter 1 on the op-scan when instructed.

STOP

DO NOT CONTINUE UNTIL YOU ARE INSTRUCTED TO DO SO.

RECORD RESPONSES 56 to 72 ON THE ATTACHED OP -SCAN SHEET

Listed below are a series of characteristics that might pertain to the stores. Please evaluate the relative importance of each characteristic to you in terms of what you think a store should be like.   Using the scale below, circle the number that most correctly describes your feelings of the relative importance of each characteristic.

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important		slightly important		neither important nor un- important		slightly un- important		moderately un- important		very un- important

73. Advertising is informative:

    1   :   2   :   3   :   4   :   5   :   6   :   7

74. Near to home:

    1   :   2   :   3   :   4   :   5   :   6   :   7

75. Near to other stores where I shop:

    1   :   2   :   3   :   4   :   5   :   6   :   7

76. Extensive selection of brands:

    1   :   2   :   3   :   4   :   5   :   6   :   7

77. Many different models for each brand:

    1   :   2   :   3   :   4   :   5   :   6   :   7

78. Quality of store's own brand:

    1   :   2   :   3   :   4   :   5   :   6   :   7

79. Well known brands available:

    1   :   2   :   3   :   4   :   5   :   6   :   7

80. Well stocked store:

    1   :   2   :   3   :   4   :   5   :   6   :   7

81. Relatively low prices:

    1   :   2   :   3   :   4   :   5   :   6   :   7

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important	slightly important			neither important nor un- important		slightly un- important		moderately un- important		very un- important

82. Many price specials:

1 : 2 : 3 : 4 : 5 : 6 : 7

83. Easy to drive to:

1 : 2 : 3 : 4 : 5 : 6 : 7

84. Convenient parking:

1 : 2 : 3 : 4 : 5 : 6 : 7

85. Advertising is helpful:

1 : 2 : 3 : 4 : 5 : 6 : 7

86. Helpful personnel:

1 : 2 : 3 : 4 : 5 : 6 : 7

87. Knowledgeable personnel:

1 : 2 : 3 : 4 : 5 : 6 : 7

88. Friendly personnel:

1 : 2 : 3 : 4 : 5 : 6 : 7

89. Ease of merchandise return.

1 : 2 : 3 : 4 : 5 : 6 : 7

90. Advertising is truthful:

1 : 2 : 3 : 4 : 5 : 6 : 7

91. Fast checkout:

1 : 2 : 3 : 4 : 5 : 6 : 7

92. Easy to find the items you want:

1 : 2 : 3 : 4 : 5 : 6 : 7

93. Easy to move through the store:

1 : 2 : 3 : 4 : 5 : 6 : 7

94. Comfortable heating and air conditioning:

1 : 2 : 3 : 4 : 5 : 6 : 7

95. Convenient and visible washrooms.

1 : 2 : 3 : 4 : 5 : 6 : 7

1	:	2	:	3	:	4	:	5	:	6	:	7
very important		moderately important	slightly important			neither important nor un- important		slightly un- important		moderately un- important		very un- important

96. Carpeting:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

97. Pleasing architecture:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

98. Clean:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

99. Many friends shop there:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

100. Pleasing atmoshere:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

101. Tasteful display of merchandise:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

102. Postsale service:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

103. Return of merchandise:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

104. Replacement of defective merchandise:

<u>1</u> : 2 : 3 : 4 : 5 : 6 : 7

<div align="center">CONTINUE</div>

READ THE FOLLOWING VERY CAREFULLY.

The following questions ask you to evaluate, in general, products
that might be found in BEST. Please circle the number
of each of the scales below at that place which best reflects your
reaction to the statement.

105. The likelihood that products sold at BEST would be
reliable is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

106. The workmanship of products sold at BEST
would be:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

107. Products sold at BEST would be of:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

108. The dependability of products sold at BEST
is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

109. The durability of products sold at BEST
would be high:

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

110. In general, I find the overall quality of BEST
to be high:

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

111. In general, I would be very satisfied shopping at BEST

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly agree		moderately agree		slightly agree		neither agree nor disagree		slightly disagree		moderately disagree		strongly disagree

112. Regarding BEST, I consider myself to be:

1	:	2	:	3	:	4	:	5	:
Extremely Knowledge-able		Very Knowledge-able		Moderately Knowledge-able		Slightly Knowledge-able		Not Knowledge-able at all	

STOP

DO NOT CONTINUE UNTIL YOU ARE INSTRUCTED

RECORD RESPONSES 73 TO 112 ON THE ATTACHED OP SCAN SHEET.

2 1 5 5 1 3

READ THE FOLLOWING INFORMATION VERY CAREFULLY

Below you will find a product description for a FM Stereo Cassette Headset Player and other information. Assume you are interested in buying this product. You will be asked to evaluate the product.

Product: FM Stereo Cassette Headset Player

Brand Name: SONY

Product Description: <u>FM Stereo Cassette Headset Player:</u>

Sound system combines cassette player and FM tuner in one compact unit. High/low switch, stereo/mono, tape/radio controls.

Features:

Portability: Option of using a shoulder strap or a belt clip. The clip is attached directly to the unit and is removable.

Controls: Balance and tuning controls will let you make adjustments for poor tapes. Locking fast/forward and rewind controls mean that you needn't keep your fingers on a button. A cue/rewind feature lets you go from playback to fast forward or rewind and back without having to press the stop control, handy if you are searching for a particular passage.

Automatic reverse. Once you've played the first side of a tape, this model shifts into reverse to play the rest of the tape.

Power options: A jack for an AC adapter lets the machine run on household current.

Headphones: Light, small and unobtrusive.

Other: Uses 4 "AA" cell batteries. Gray with silver tone trim. Cabinet measures 3 9/16" by 1 5/16" by 4 3/8".

Use the above information that might be available in a purchase situation to respond to questions on the following page.

Buying a SONY Headset Player

DIRECTIONS

The following questions are asking you to evaluate the FM Stereo Cassette Headset Player on the previous page. If desired you may turn back to refer to the information at any time while answering these questions. Please circle the number on each of the scales below at that place which best reflects your reaction to the FM Stereo Cassette Headset Player.

113. The likelihood that the FM Stereo Cassette Headset Player would be reliable is:

```
     1      :    2     :    3     :    4     :    5     :    6     :    7
  very          moderately slightly  neither    slightly.  moderately very
  high          high       high      high nor   low        low        low
                                     low
```

114. The workmanship of the FM Stereo Cassette Headset Player would be:

```
     1      :    2     :    3     :    4     :    5     :    6     :    7
  very          moderately slightly  neither    slightly   moderately very
  high          high       high      high nor   low        low        low
                                     low
```

115. This FM Stereo Cassette Headset Player should be of:

```
     1      :    2     :    3     :    4     :    5     :    6     :    7
  very good  moderately slightly  neither    slightly   moderately very
  quality    good       good      good nor   poor       poor       poor
             quality    quality   poor       quality    quality    quality
                                  quality
```

116. The likelihood that this FM Stereo Cassette Headset Player is dependable is:

```
     1      :    2     :    3     :    4     :    5     :    6     :    7
  very          moderately slightly  neither    slightly   moderately very
  high          high       high      high nor   low        low        low
                                     low
```

Buying a SONY Headset Player

117. This FM Stereo Cassette Headset Player would seem
to be durable.

1	:	2	:	3	:	4	:	5	:	6	:	7
strongly		moderately		slightly		neither		slightly		moderately		strongly
agree		agree		agree		agree nor		disagree		disagree		
						disagree						disagree

118. 1 Enter 1 on the op-scan when instructed

119. 1 Enter 1 on the op-scan when instructed

120. 1 Enter 1 on the op-scan when instructed

121. 1 Enter 1 on the op-scan when instructed

Buying a SONY Headset Player

122. 1 Enter 1 on the op-scan when instructed

123. 1 Enter 1 on the op-scan when instructed

124. 1 Enter 1 on the op-scan when instructed

125. 1 Enter 1 on the op-scan when instructed

126. 1 Enter 1 on the op-scan when instructed

Buying a SONY Headset Player

127. 1 Enter 1 on the op-scan when instructed

128. 1 Enter 1 on the op-scan when instructed

129. 1 Enter 1 on the op-scan when instructed

STOP

DO NOT CONTINUE UNTIL YOU ARE INSTRUCTED TO DO SO.

RECORD RESPONSES 113 to 129 ON THE ATTACHED OP SCAN SHEET.

To give a better understanding of your responses, please answer the following questions by placing a check in the appropriate space.

130. Your age: ___under18   ___18   ___19   __20   __21
                    1   2   3   4   5

             __22   __23   __over 23
               6   7   8

131. Your sex: __female   __male
                    1   2

132. Graduated from High School: ___Tidewater area   ___Richmond area
                                     1   2
___Southwestern Virginia   ___Northern Virginia   __ Northeast USA
   3   4   5
___Southeast USA   ___other area of USA please-state_____
   6   7

133. Your college: ___Business
                        1
                     ___Agriculture and life Sciences
                        2
                     ___Architecture and Urban Studies
                        3
                     ___Arts and Sciences
                        4
                     ___Education
                        5
                     ___Engineering
                        6
                     ___Human Resources
                        7
                     ___Other
                        8

134. If you are a student in the College of Business, what is your major?
                  ___Accounting
                     1
                  ___Economics
                     2
                  ___Finance,Insurance,and Business Law
                     3
                  ___Management
                     4
                  ___Management Science
                     5
                  ___Marketing

6
___Public Administration
7
___other
8

QUESTIONS 135 TO 144 refer to Business Use Pocket Calculator.

135. Do you presently own a Business Use Pocket Calculator ?

_____no (go to question 137)
1

_____yes (continue with question 136
2

136. Did you purchase the Business Use Pocket Calculator or was it a gift?

_____purchased
1

_____gift
2

137. Have you shopped for a Business Use Pocket Calculator in the past month?

_____yes(1)

_____no(2)

138. Regarding a Business Use Pocket Calculator, I consider myself to be:

1	:	2	:	3	:	4	:	5	:
Extremely		Very		Moderately		Slightly		Hardly	
Knowledge-		Knowledge-		Knowledge-		Knowledge-		Knowledge-	
able		able		able		able		able	

In regard to the exercise that you just completed, without looking back, answer the following:

139. What was the price of the Business Use Pocket Calculator? _____(1)
141. What was the brand name of the Business Use Pocket Calculator? _____(1)
141. What was the store name where the Business Use Pocket Calculator was sold? _____(1)

142. The price for the Business Use Pocket Calculator is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very high		moderately high		slightly high		neither high nor low		slightly low		moderately low		very low

143. The brand for the Business Use Pocket Calculator is:

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

144. I consider the store where the Business Use Pocket Calculator was sold to b

1	:	2	:	3	:	4	:	5	:	6	:	7
very good quality		moderately good quality		slightly good quality		neither good nor poor quality		slightly poor quality		moderately poor quality		very poor quality

QUESTIONS 145 TO 154 REFER TO the FM Stereo Cassette Headset Player.

145. Do you presently own a M Stereo Cassette Headset Player ?

_____no (go to question 147)
    1
_____yes (continue with question 146)
    2

146. Did you purchase the FM Stereo Cassette Headset Player or was it a gift?

_____purchased (continue with 147)
    1
_____gift (go to question 148)
    2

147. Have you shopped for a FM Stereo Cassette Headset Player in the past month?

_____yes
    1
_____no
    2

148. Regarding a FM Stereo Cassette Headset Player, I consider myself to be:

```
    1       :    2      :    3       :    4      :    5      :
Extremely   Very       Moderately Slightly   Hardly
Knowledge-  Knowledge- Knowledge- Knowledge- Knowledge-
able        able       able       able       able
```

In regard to the exercise that you just completed, without looking back, answer the following:

149. What was the price of the FM Stereo Cassette Headset Player ? _____
1

150. What was the brand name of the FM Stereo Cassette Headset Player ? _____
1

151. What was the store name where the FM Stereo Cassette Headset Player was sold? _____
1

152. The price for the FM Stereo Cassette Headset Player is:

```
   1      :    2       :    3     :    4       :    5      :    6       :    7
very        moderately slightly   neither     slightly   moderately very
high        high       high       high nor    low        low        low
                                  low
```

153. The brand for the FM Stereo Cassette Headset Player is:

```
   1      :    2       :    3     :    4       :    5      :    6       :    7
very good   moderately slightly   neither     slightly   moderately very
quality     good       good       good nor    poor       poor       poor
            quality    quality    poor        quality    quality    quality
                                  quality
```

154. I consider the store where the FM Stereo Cassette Headset Player was sold to be:

```
   1      :    2       :    3     :    4       :    5      :    6       :    7
very good   moderately slightly   neither     slightly   moderately very
quality     good       good       good nor    poor       poor       poor
            quality    quality    poor        quality    quality    quality
                                  quality
```

STOP

DO NOT DO THE FOLLOWING UNTIL INSTRUCTED

RECORD RESPONSES 130 TO 154 ON THE ATTACHED OP-SCAN SHEET.
ENTER "1" FOR QUESTIONS 139, 140, 141, 149 150 and 151.

DO NOT ENTER YOUR NAME OR ID NUMBER. MAKE SURE YOU HAVE
ANSWERED THE FOLLOWING QUESTION.

155. What do you think the researcher is trying to find in
this experiment?

Appendix J

CELL MEANS FROM THE PHASE II EXPERIMENTS

Brand Name	Too High	High	Price Medium	Low	No Price	Store Name
High	.685 (.425)	.765 (.496)	.620 (.550)	.119 (1.202)	.842 (.490)	High
High	.617 (.556)	.540 (.546)	.226 (.879)	-.024 (.666)	.685 (.601)	Low
High	.633 (.604)	.395 (.641)	.802 (.570)	.396 (.876)	.605 (.715)	No
Low	-.207 (.670)	-.207 (.599)	-.592 (1.457)	-.601 (1.307)	.067 (.492)	High
Low	-.497 (.806)	-.394 (.652)	-.419 (.924)	-.930 (.851)	-.403 (.949)	Low
Low	-.011 (.740)	.015 (.899)	-.260 (.851)	-.653 (1.198)	.159 (.724)	No
No	.173 (.769)	.159 (.586)	.329 (.634)	-.141 (.780)	.108 (.713)	High
No	-.260 (.635)	-.487 (.677)	-.708 (1.018)	-.798 (.991)	-.273 (.557)	Low
No	.239 (.570)	-.025 (.825)	-.406 (.895)	-.837 (1.187)	-.050 (.628)	No

STANDARDIZED CELL MEANS - PERCEIVED QUALITY FOR CALCULATORS

	STANDARDIZED CELL MEANS - PERCEIVED VALUE FOR CALCULATORS					
Brand Name	Too High	High	Price Medium	Low	No Price	Store Name
High	-.542 (.795)	-.111 (.893)	.116 (.812)	.529 (.412)		High
High	-.262 (.823)	-.016 (.745)	.155 (.591)	.359 (.960)		Low
High	-.431 (.577)	.015 (.678)	.555 (.395)	.446 (.762)		No
Low	-.871 (.800)	-.729 (1.169)	-.262 (.971)	.186 (.685)		High
Low	-1.165 (.729)	-.847 (.841).	-.602 (1.126)	.088 (.357)		Low
Low	-.585 (.999)	-.215 (.707)	-.137 (.752)	.036 (.489)		No
No	-.836 (.840)	-.416 (.645)	-.307 (1.011)	.172 (.592)		High
No	-.555 (.700)	-.931 (.611)	-.487 (.771)	-.411 (.356)		Low
No	-1.06 (.827)	-.229 (.765)	.144 (.529)	.215 (.515)		No

		STANDARDIZED CELL MEANS - WILLINGNESS TO BUY FOR CALCULATORS				

Brand Name	Too High	High	Price Medium	Low	No Price	Store Name
High	-.418 (.747)	-.169 (.861)	-.135 (.938)	.304 (.770)		High
High	-.102 (.946)	.204 (.685)	.030 (.907)	.428 (.832)		Low
High	-.300 (.602)	.139 (.748)	.585 (.596)	.403 (.720)		No
Low	-.938 (.820)	-.516 (1.013)	-.408 (1.150)	-.482 (1.064)		High
Low	-1.020 (.595)	-.914 (.782)	-.833 (1.048)	-.250 (.429)		Low
Low	-.245 (.878)	-.101 (.751)	-.153 (.818)	-.285 (.836)		No
No	-.683 (.598)	.-334 (.598)	-.294 (1.050)	.0222 (.674)		High
No	-.705 (.825)	-.700 (.728)	-.806 (.660)	-.375 (.490)		Low
No	-.716 (.707)	-.069 (.875)	.-175 (.821)	-.019 (.772)		No

STANDARDIZED CELL MEANS - PERCEIVED QUALITY FOR STEREO HEADSET PLAYERS					
Brand Name	Too High	High	Price Medium	Low	No Price	Store Name
High	.588 (.569)	.851 (.436)	.559 (.539)	.365 (.584)	.837 (.565)	High
High	.694 (.753)	.484 (.666)	.812 (.504)	.654 (.684)	.233 (.815)	Low
High	.573 (.447)	.507 (.656)	.495 (.687)	.363 (.557)	.508 (.680)	No
Low	-.194 (1.097)	-.335 (.793)	-.138 (.986)	-.164 (.720)	-.414 (.959)	High
Low	-.708 (.965)	-.745 (.984)	-1.021 (.903)	-.654 (1.250)	-.692 (1.062)	Low
Low	-.405 (1.142)	-.187 (.837)	-.139 (.665)	-.640 (.852)	-.244 (.430)	No
No	.322 (.619)	.166 (.555)	.272 (.618)	.506 (.756)	.151 (.586)	High
No	.113 (.622)	-.127 (.975)	-.627 (1.050)	-.827 (1.164)	-.430 (.711)	Low
No	.337 (.653)	.007 (.632)	.006 (.677)	-.762 (1.216)	.063 (.466)	No

	STANDARDIZED CELL MEANS - PERCEIVED VALUE FOR STEREO HEADSET PLAYERS					
Brand Name	Too High	High	Price Medium	Low	No Price	Store Name
High	-.526 (.713)	-.088 (.628)	-.154 (.707)	.270 (.701)		High
High	-.617 (.840)	-.238 (.717)	.272 (.696)	.395 (.542)		Low
High	-.495 (.701)	-.359 (.718)	.143 (.508)	.410 (.560)		No
Low	-.695 (.666)	-.679 (.743)	.050 (.713)	.294 (.538)		High
Low	-1.061 (.733)	-.983 (.631)	-.638 (.691)	-.113 (1.096)		Low
Low	-1.01 (.696)	-.705 (.842)	-.115 (.671)	-.106 (.709)		No
No	-.398 (.738)	-.417 (.624)	-.097 (.903)	.016 (.519)		High
No	-.375 (.636)	-.647 (.736)	-.576 (.694)	.201 (.786)		Low
No	-.881 (.495)	-.565 (.906)	-.289 (.717)	.241 (.618)		No

STANDARDIZED CELL MEANS - WILLINGNESS TO BUY FOR STEREO HEADSET PLAYERS						
Brand Name	Too High	High	Price Medium	Low	No Price	Store Name
High	-.305 (.831)	-.067 (.805)	.001 (.632)	.347 (.657)		High
High	-.650 (.887)	-.174 (.825)	.230 (.659)	.363 (.613)		Low
High	-.482 (.850)	-.174 (.908)	.103 (.737)	.522 (.522)		No
Low	-.728 (.706)	-.655 (.705)	-.235 (.987)	.225 (.677		High
Low	-1.017 (.591)	-.962 (.554)	-.963 (.452)	-.274 (1.053)		Low
Low	-.919 (.796)	-.749 (.721)	-.311 (.772)	-.494 (.862)		No
No	-.143 (.613)	-.298 (.517)	.010 (.906)	-.165 (.687)		High
No	-.397 (.666)	-.746 (.770)	-.574 (.587)	-.099 (.865)		Low
No	-.681 (.546)	-.313 (.852)	-.275 (.754)	-.050 (.825)		No

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