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## The Effects of Locus of Control and Intolerance of Ambiguity on the Price-Perceived Quality Relationship

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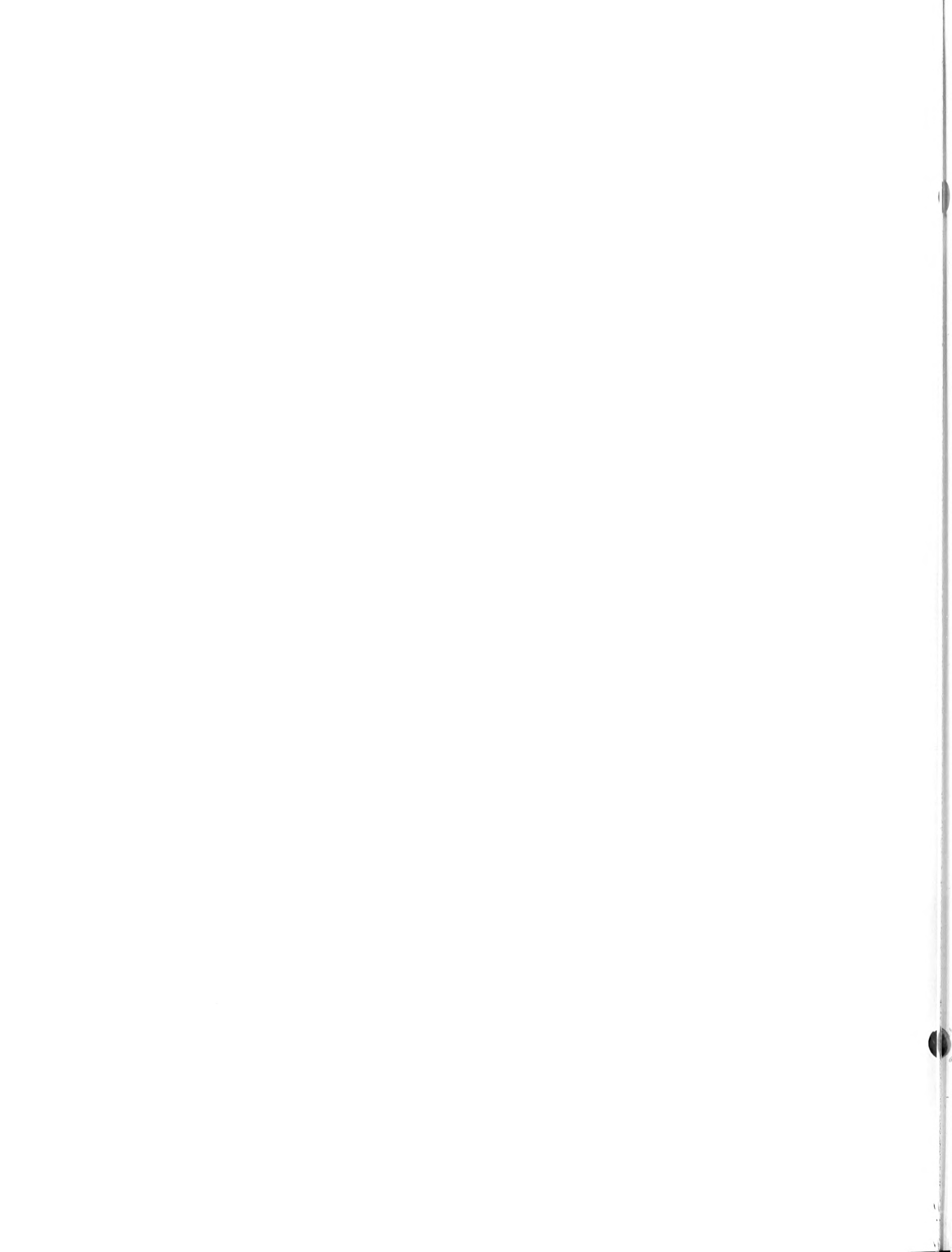
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ABSTRACT

Two important behavioral characteristics of consumers, locus of control and intolerance of ambiguity are examined as potential moderators of the price-perceived quality relationship. Results of the study indicate that, in some product categories, consumers with internal locus of control are different from those with external locus of control in terms of price-quality perceptions, whereas consumers who are intolerant of ambiguity are not significantly different from those who are tolerant.

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## Moderating Effects of Locus of Control and Intolerance of Ambiguity on Price-Perceived Quality Relationships

Since the early studies of Levitt (1954) and Tull, Boring, and Gonsior (1964) that first explored the relationship between price and perceived product quality, a number of aspects of this seemingly intuitive relationship have been investigated. Most of the studies to date have been focused on determining whether or not a price/quality relationship is perceived and/or under what conditions such a relationship is likely to be perceived. Despite substantial empirical efforts, the understanding of the price/perceived quality relationship is lacking in the type of knowledge that allows generalization to a wide variety of situations as well as understanding under which conditions such a relationship might exist. The need for generalization is increased because existing studies have produced somewhat confusing, and sometimes conflicting results.

Monroe and Krishnan (1985), in their comprehensive review of the research on the price-perceived quality (PPQ, hereafter) relationship, concluded that a positive PPQ relationship does appear to exist. Nevertheless, a number of studies have found conflicting results. Some studies showed that the overall PPQ relationship is weak (Friedman 1967; Swan 1974), or negative (Leavitt 1954; Tull, Boring, and Gonsior 1964). Other studies showed that the relationship is nonlinear (Peterson 1970; Peterson and Jolibert 1976), variable across products being judged (Gardner 1971), and variable across individuals (Lambert 1972; Obermiller and Wheatley 1984; Peterson and Wilson 1985; Rao

and Monroe 1988; Zeithaml 1985).

Consequently, the universality of the PPQ relationship is still seriously questionable. As Zeithaml (1988) suggested, the relationship may be contingent on many variables, detected and studied or still hidden. One can speculate that the conflicting results of previous studies may primarily be due to the failure to adequately specify the variables influencing the relationship.

Therefore, we believe that the emphasis in future PPQ relationship studies should move towards specifying the conditions under which consumers will show different types of PPQ relationships, instead of documenting the general relationship (Peterson and Wilson 1985; Olshavsky 1985). Following this logic, one of the interesting questions is who or what type(s) of consumers tend to perceive a stronger positive price-quality relationship, or what type(s) of consumers rely more heavily than others on price when judging the quality of a product.

One approach to answering this question is to examine consumers' socio/demographic characteristics for their ability to identify consumers who differentially respond to price in estimating product quality. For instance, the variables of income, occupation, sex, age or education could be explored for their ability to explain differential response to price (see Etgar and Malhotra 1981).

Another approach would be to identify behavioral constructs that have the potential to explain differential response. For instance, attitudes, motives, and personality may lend themselves

to exploration. Likewise, more specific variables such as behavioral intention, involvement, and knowledge may offer potential explanation. Similarly, the entire range of variables generally associated with consumer information processing may offer insight.

Within the context of behavioral constructs, the approach used in this study, is to identify several existing behavioral measurement scales that have been validated as representing a given behavioral construct. Then, it is explored whether subjects determined to be different on a given construct judge product quality in a differential manner.

There are many measurement scales and their associated constructs that could be relevant to such an investigation. For the present study, constructs and their scales were searched for on the basis of the criteria described below. First, the measurement scales had to be validated and accepted either in the consumer behavior and/or psychology literature. Second, there needed to be a logical link between the construct and the potential explanation of the PPQ relationship. Finally, it was desirable but not essential, that the construct had been previously used in consumer behavior studies.

The two constructs and their associated scales chosen for this exploratory investigation - locus of control and intolerance of ambiguity - meet the first two criteria. They are both well known, widely used and validated in a variety of applications. Also, they are selected out of the expectation that consumers'

attribution mode and their reaction to uncertainty will affect their PPQ relationship. However, only locus of control meets the third criterion as we were unable to find specific reference to intolerance of ambiguity in a consumer context in the literature.

The present study is designed to explore whether consumer's personal characteristics may provide possible explanations of PPQ relationships. Specifically, this study examines two personal characteristics, i.e., locus of control and intolerance of ambiguity as potential determinants of the PPQ relationship. Each measure will be discussed in more detail in the following sections, where the research hypotheses will also be derived.

#### LOCUS OF CONTROL

One personal characteristic which has the potential to explain the PPQ phenomenon is locus of control. The locus of control construct is grounded in attribution theory (Heider 1958) and primarily identified with the work of Rotter (1966). In essence, the internal-external locus of control scale measures individuals' perception of how much control they are able to exert over the events in their life. The scale classifies individuals in the extreme as internals and externals. Internal persons believe that events in their life are the result of their own efforts, and they eventually get what they deserve. External persons see the events in their life as beyond their control; as attributable to chance or fate. Appendix provides selected examples of internal-external locus of control scale items.

The locus of control construct has been broadly used in

psychological and social research due to its wide range of generalizability and social relevance (see McDonald, Jr., 1973 for a review). Research in psychology provides evidence that locus of control may be related to decision making. Earlier consumer studies found that locus of control is related to behavioral intention towards new products (Mazis and Sweeney 1973), role structure in family financial management (Rosen and Granbois 1983), and use of varying types of information in decision making (Nielson and Stanton 1973).

Even though locus of control has not been used in the PPQ context, there seems to be sufficient logic for the notion that internals and externals may differ in their perception of price as an indicator of product quality. Specifically, it is expected that in a single-cue situation where price is the only information available for the product being evaluated, internals will show a stronger positive PPQ relationship, because they are likely to believe you get as much as you pay for. On the other hand, externals will show a weaker PPQ relationship, because they tend to believe that regardless of how much you pay for a product, there are so many factors (other than price) that may determine the product quality. Thus it is hypothesized that:

- H1: Consumers who have internal locus of control will exhibit a stronger positive price-perceived quality relationship than those who have external locus of control.

#### INTOLERANCE OF AMBIGUITY

The other personal characteristic variable that, we

hypothesize, may be related to the PPQ relationship is intolerance of ambiguity (Budner 1962). Intolerance of ambiguity measures the extent to which one feels threatened by ambiguity or ambiguous situations (Budner 1962; Dermer 1973). It was indicated that individuals classified as intolerant of ambiguity (called intolerants) are expected to be less confident in their decisions and to seek more information in ambiguous situations or when faced with ambiguous information than those classified as tolerant of ambiguity (called tolerants; McGhee, Shields, and Birnberg 1978). Appendix provides selected items from intolerance of ambiguity scale.

Even though our review of the literature found no previous use of this variable in either a consumer and/or marketing study we feel this variable has strong potential in explaining the PPQ relationship. Our expectation is that in a product evaluation situation, intolerants will try to gather enough information about the product (e.g., brand name, product attributes, etc.) until they feel comfortable. Under a single-cue condition, however, where they are given only price and forced to make a quality judgment, they will feel less confident and less comfortable in using only price to make their judgment; that is, without further information, they will not be so sure if and how much quality would covary with price. Consequently, they will show a weaker positive PPQ relationship than tolerants who will feel more comfortable in relying on an indirect sign of quality, namely price. Thus it is expected that:



H2: Consumers who are intolerant of ambiguity will exhibit a weaker positive price-perceived quality relationship than those who are tolerant of ambiguity.

#### METHOD

An experiment was designed and conducted to explore the potential of these two personal characteristic factors to explain individual differences in the PPQ relationship. Subjects were juniors and seniors enrolled in an introductory marketing course at the University of Illinois at Urbana-Champaign. Data was obtained from subjects on two occasions separated by approximately 60 days. The first session collected data used to compute the two personal characteristic factors. The second session had subjects judge perceived product quality of three products.

Products to be used in the experiment were selected through a pretest. All products had to be familiar to students and only products for which acceptable price ranges were largely identical for all students were used. Furthermore, since this is an exploratory study, it was desirable that the three products represent different types of purchase decisions. Consequently, one product was a consumer durable, another was clothing and the third was a food item. The actual products used in the study were:

- (1) Nationally advertised 19" portable color T.V. set with remote control;
- (2) Nationally advertised stone-washed denim jeans;
- (3) Nationally advertised brand of eight-ounce size brand of snack crackers.

Pretest : Measuring Acceptable Price Ranges. Following Gabor and Granger (1961), a preliminary study was conducted to determine the acceptable price ranges of each product. Twenty six students in an introductory marketing course participated in the study. From this pretest, upper and lower price limits for each of the products were determined as shown in Table 1. These two price limits were used later in the main study as independent measures (high vs. low prices).

[ Insert Table 1 about here ]

Design. The study was a 3 (product) X 2 (price) X 2 (personal characteristics) mixed design, in which product is treated as a within-subjects factor, i.e.,

- (1) Products (3): television, denim jeans, and snack crackers;
- (2) Price (2): high vs. low;
- (3) Personal characteristics (2): internals vs. externals, or intolerants vs. tolerants.

Product descriptions presented to subjects were brief and no pictures were used. For example, for crackers, the following stimulus was presented to subjects:

Suppose you are considering buying a nationally advertised brand of 8 oz. package of snack crackers for 75 cents next time you go shopping;

The dependent measure used in this study was perceived product quality measured on a 7-point scale ranging from extremely high to extremely low.

Sixty subjects were randomly assigned treatment conditions such that they received either high or low prices for each of the

three products. Data on personal characteristics were gathered at an earlier session.

The personal characteristic independent variables were determined by dividing the subjects into two groups. For instance, using the locus of control measure, subjects whose score was less than the median were classified as internals, with those scoring more than the median being classified as externals. Using the same procedure, those scoring less than the median on the intolerance of ambiguity measure were classified as intolerants and those above the median as tolerants.

**Data Analysis.** A separate ANOVA procedure was performed for each product. In total, six 3 X 2 X 2 ANOVA procedures were run: 3 products X 2 personal characteristic variables.

## RESULTS

**Manipulation Checks.** As shown in Table 2, the simple main effects of the price level (high vs. low) were consistently significant for all the three products, which means the manipulation of price level was successful. But, the real question is whether individual differences associated with the personal characteristics of locus of control and intolerance of ambiguity help explain this finding.

**Interaction Effects.** The two hypotheses in this study were tested by examining the interaction effects of price X personal characteristics. The results are summarized in Table 2, Figure 1, and Figure 2. Hypothesis 1 predicted that internals will show a stronger positive PPQ relationship than will externals.

As shown in Table 2, the interaction effect of price X locus of control measure proved to be significant in the case of crackers ( $F = 9.11, p < .005$ ), which suggests that for this particular product, internals and externals differ in the PPQ relationship. Figure 1 illustrates the effects of price and locus of control for each of the products. The steeper slope of the line for the internals in the case of crackers indicates that they showed a stronger positive PPQ relationship. It should be noted that, even though not significant, the same basic relationship holds for the product denim jeans. For reasons not completely understood, the relationship for TV set is contrary to our hypothesis. Thus, Hypothesis 1 is only partially supported.

The second hypothesis predicted that intolerants will show a weaker positive PPQ relationship than tolerants. Surprisingly, as shown in Table 2 and Figure 2, no significant interactions between price and intolerance of ambiguity were found for any of the three products. Clearly, Hypothesis 2 must be rejected.

[ Insert Table 2, Figure 1 and Figure 2 about here ]

## DISCUSSION

The notion of individual difference in the PPQ relationship is not a completely new one. The individual variation has been shown to depend on the ability to detect quality differences (Lambert 1972; Zeithaml 1985), the strength of prior belief in quality differences (Obermiller and Wheatley 1984), the strength of a price-quality schema (Peterson and Wilson 1985), and prior product knowledge (Rao and Monroe 1988). In sum, quality is most

likely to be assessed from price by consumers who have developed a price-quality heuristic and who believe that price and quality differ across alternatives (Obermiller 1988). But the question still remains: What type(s) of consumers are more likely to develop such a heuristic or belief? Do some consumers have an inherent tendency to judge quality from price?

The present study was designed and conducted to answer these research questions. It focused on the potential moderating effects of individual behavioral characteristics on perception of product quality as influenced by price. The two characteristics chosen were locus of control and intolerance of ambiguity.

The results of the study are both encouraging and discouraging. Although Hypothesis 1 was only partially supported, it does appear that the personal characteristic variable, locus of control, seems to have the potential to explain some of the individual differences in the PPQ relationship. One interesting observation in Figure 1 is that externals exhibited a positive PPQ relationship for product TV set, whereas internals showed stronger positive PPQ relationships for jeans and crackers. This suggests that other variables such as the levels of involvement might have played a moderating role in the effects of these two variables. Or, for some other reason, locus of control has a differential effect for more expensive and/or consumer durables. Or, possibly, the effects were unique to the product TV. The potential effect of consumer involvement levels is worthy of future investigation (e.g.,

Lichtenstein, Bloch, and Black 1988).

While intolerance of ambiguity is a well-known and researched variable in social psychology, absolutely no evidence was found in this study to support Hypothesis 2 that this variable offers partial explanation of the PPQ relationship. However, considering the seemingly potential relevance of this measure in understanding the PPQ relationship, replications and other explorations with this variable, using additional types of products in different situations seems desirable.

This study has two significant and closely related limitations that must be recognized. First is sample size. Individual cell sizes are quite small increasing the probability of variance. Second, because of small sample size, the determination of internals versus externals and intolerants versus tolerants was made by separation into two groups at the median. It is likely that had the sample size been large enough to only include more extreme cases, i.e., bottom and top 25 percent, the resulting reduced variance may have led to different results.

But, what can we learn from this study, and what does it suggest for future studies? We have learned that individual difference variables do have some (maybe limited) potential to help us understand the PPQ relationship. Yet, at the same time, we again see the hazard of using variables without proven relationships to help us understand consumer behavior relationships, no matter how sound the logic in support of their

inclusion.

In conclusion, we do believe that future research should focus on identifying and studying the conditions under which the PPQ relationships differ. A major component of the future research agenda should be to investigate individual differences and contextual differences in the PPQ relationship. What we will find is that the whole price-quality area is far more complex than many might believe.

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Table 1

## Acceptable Price Ranges of the Products (in dollars)

	Means	Standard Deviations	Upper Price Limit	Lower Price Limit
TV set	\$278.00	156.4	\$349.00	\$199.00
Jeans	25.83	11.47	35	16.95
Crackers	1.35	0.75	1.95	0.75

Table 2

## F-Ratios and P-values for Dependent Measures

[1] Locus of Control				
	Source	d.f.	F-ratios	p-values
TV set	LOCUS*	1	0.02	0.8838
	Price	1	9.97	0.0026
	LOCUS x Price	1	1.85	0.1790
Jeans	LOCUS	1	0.04	0.8329
	Price	1	19.82	0.0001
	LOCUS x Price	1	1.59	0.2132
Crackers	LOCUS	1	0.94	0.3354
	Price	1	7.82	0.0071
	LOCUS x Price	1	9.11	0.0038
[2] Intolerance of Ambiguity				
	Source	d.f.	F-ratios	p-values
TV set	INTAMB**	1	0.19	0.6656
	Price	1	9.71	0.0029
	INTAMB x Price	1	0.17	0.6813
Jeans	INTAMB	1	3.18	0.0802
	Price	1	20.19	0.0001
	INTAMB x Price	1	0.00	1.0000
Crackers	INTAMB	1	0.13	0.7163
	Price	1	6.64	0.0126
	INTAMB x Price	1	0.00	1.0000

\* LOCUS: locus of control

\*\* INTAMB: intolerance of ambiguity

Figure 1

Perceived Quality By Price and Locus of Control

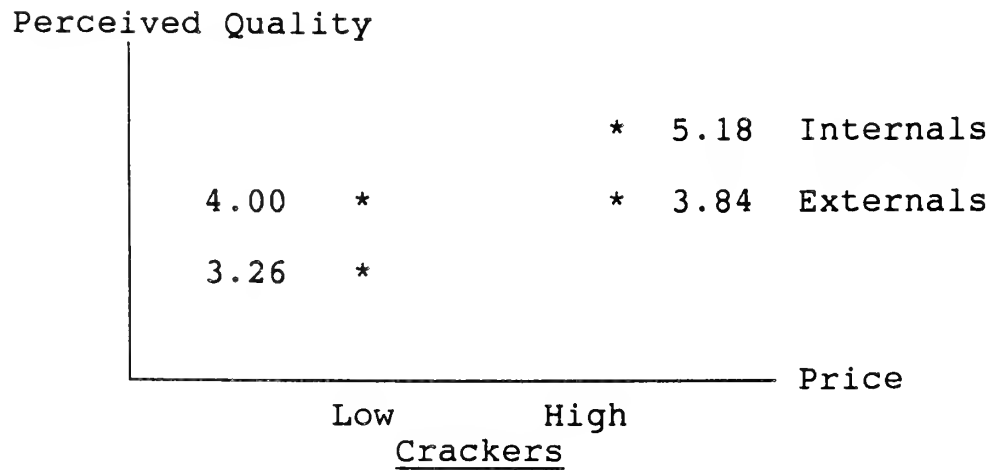
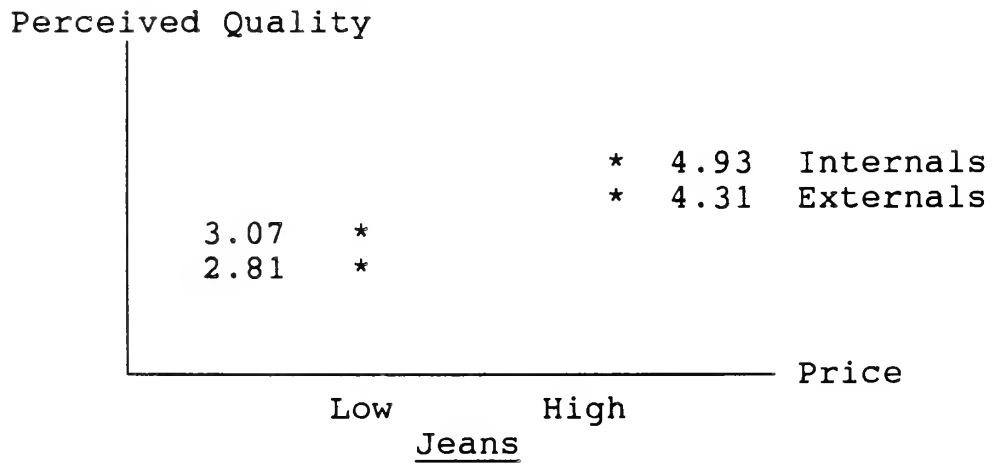
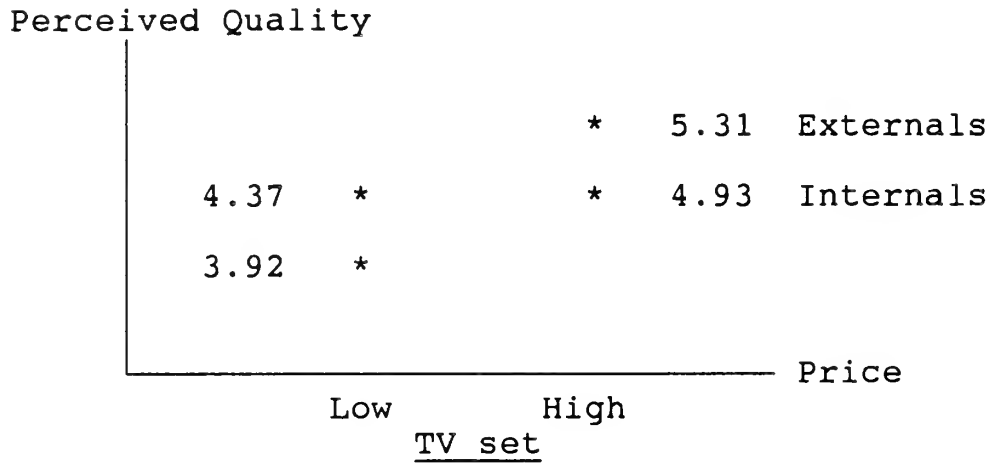
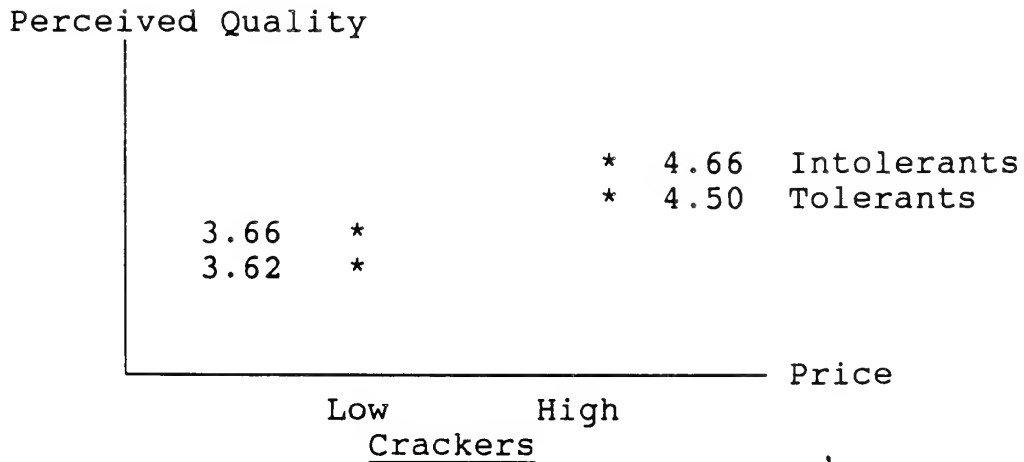
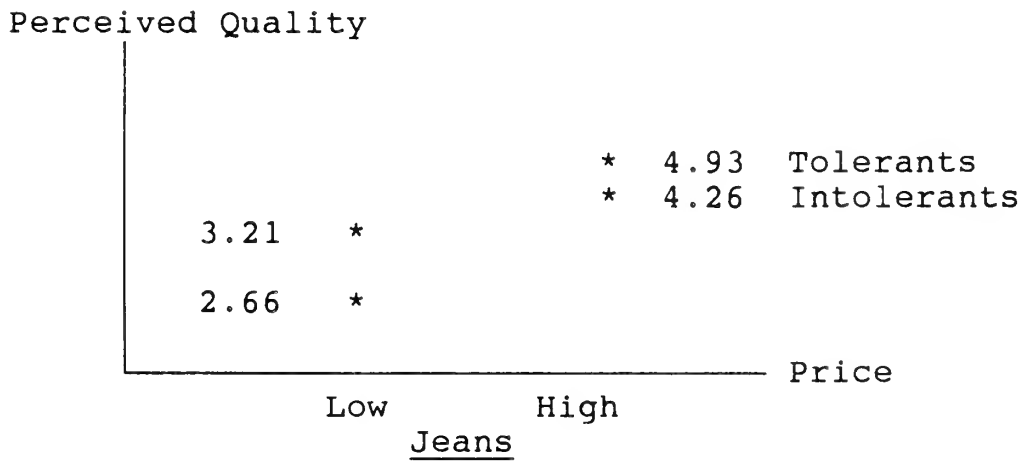
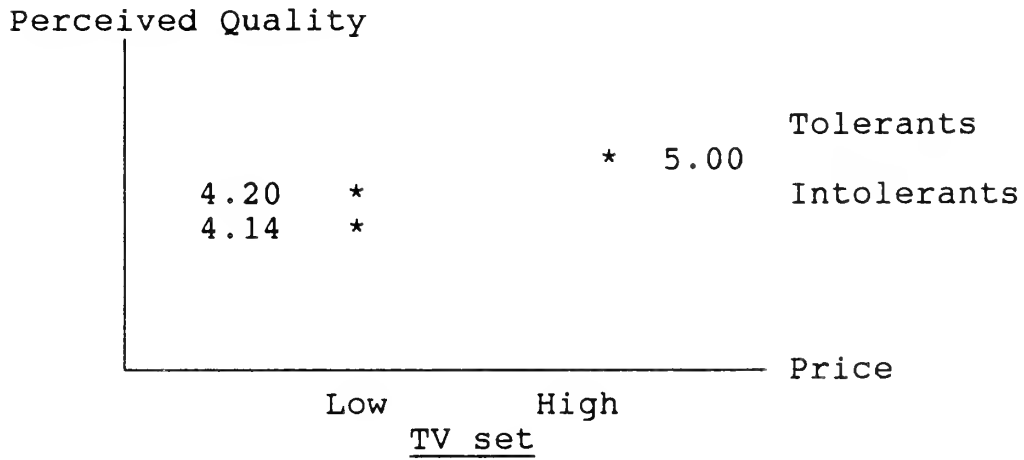


Figure 2

Perceived Quality By Price and Intolerance of Ambiguity



## Appendix

### Selected Scale Items

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#### [1] Locus of Control

##### a. Internals

Becoming a success is a matter of hard work; luck has little or nothing to do with it.

In many case, getting what I want has little or nothing to do with luck.

There is no such thing as "luck."

##### b. Externals

Most people don't realize the extent to which their lives are controlled by accidental happenings.

Many times, we might as well decide what to do by flipping a coin.

Many of the unhappy things in people's lives are partly due to bad luck.

#### [2] Intolerance of Ambiguity

##### a. Intolerants

There is no such thing as a problem that can't be solved.

I like parties where I know most of the people more than ones where all or most of the people are complete strangers.

A good job is one where what is to be done and how it is to be done are always clear.

##### b. Tolerants

Many of our most important decisions are based upon insufficient information.

Teachers or supervisors who hand out vague assignments give a chance for one to show initiative and originality.

I would like to live in a foreign country for a while.

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