International Journal of Statistical Sciences *ISSN 1683–5603*
Vol. 3, 2004, pp 37–52

Effectiveness of Uncertain Product Attribute(s) on Consumer Product Evaluations: A Conceptual Framework

Md. Humayun Kabir Chowdhury and Md. Rabiul Islam
Department of Marketing
University of Rajshahi
Rajshahi - 6205, Bangladesh
Email: mhkchowdhury@yahoo.com

[Received October 10, 2003; Revised January 24, 2004; Accepted April 24, 2004]

Abstract

The authors report the effects of perceived product attributes on consumer perceptions of product quality, risk and perceived value. A conceptual model has been developed where perceived product attribute was considered as an exogenous variable, perceived quality and perceived risk as mediating variable, and perceived value as an endogenous variable. The study conceptually defined and statistically validated four perception related constructs considered in this study. Data collected from student of business classes. Three computer brands were selected on the criteria of being relevant to student sample in the expectation to be able better to elicit relatively specific associations. Information with regard to each brand was manipulated by providing subjects with some formated information. Data was analyzed via structural equation models using AMOS (Analysis of Moment Structures) 4.01 to perform path analysis. Results from structure equation analysis revealed a broader conceptualization that identified the tradeoffs involved between perceived quality and perceived risk of consumer perceptions of value. Finally, the major findings were discussed and directions for future research were suggested.

Keywords and Phrases: Product Attribute, Perceived Value, Perceived Quality, Perceived Risk, Analysis of Moment Structures.

1 Introduction

Attribute means the operating system that cannot be changed without changing the physical characteristics of the product. It is still unknown about which of the attribute cues are chosen by consumers in forming their value in a deal, and why some cues are chosen while others are not. However, it is assumed that there are two general ways to understand how consumers usually form perceived value and how they interact with a company's product. When a consumer confronts with a new product, s/he will consider salient attributes of the product and will form an opinion. But the question becomes important while one brand is preferred over another although they contain the same attributes. That is the reason why the concept enforced consumer behavior researchers to perceive the construct differently from those of the economists as well as the scholars from other disciplines.

Consumers perceive brands as a collection of product attributes. Some of these attribute beliefs create a strong sense of preference in consumer mind; yet, others are not important or weakly effective (Barringer, Foster, Jr., and Macy 1999; Bloch and Richins 1983). However, research suggests that while in the times past, firms could differentiate products as a result of outstanding quality. In the days of consumer oriented marketing, now intrinsic quality is increasingly becoming a basic expectation to consumers (Carpenter, Glazer, and Nakamoto 1994). For example, it will be embarrassing for one if he is asked to mention the best TV set depending upon the attribute "clear picture". In the same context and for the same product, any company can claim about the screen of the computer as being "friendly to your eyes" without documentation.

Nowadays, companies try to differentiate their products emphasizing on some trivial attributes that in a real sense creates no difference from those of its competitors' or, sometimes they are not actually used by consumers at all. Different techniques are suggested in the literature to find out which attributes consumer use to judge products (Snelders and Schoormans 2000). Making a product different from it's competitors by adding even a meaningless attribute can lead to increased consumers' quality perception or can decrease perceived risk (Simonson and Tversky 1992). In reality, during the decision for a deal, it is assumed that consumers not only consider the present value of the product but also take the future value or future risk associated with the product attributes into their consideration account. Consumers, for example, may estimate the risk considering that the total purchase will be failure in the future if they do not buy the product with new attribute now. So, the best way of avoiding the risk is to select the product with additional attribute.

However, various concepts are mentioned as determining factors for consumer value judgment. Although there are disagreements in considering the concepts, most of the previous researchers agreed on the importance of product attributes, perceived quality, and perceived risk and consider them as determining factors for consumers' perceived value. These concepts along with their linkages among themselves deserve special attention.

2 Review of Relevant Literature

The study by Dodds and Monroe (1985) was the first empirical research in the field of consumer value perceptions. The study reports an experiment that studied the influence of price and brand information, and the influence of odd and even prices on subjective product evaluations.

Despite its contribution on perceived value research, one problem of Dodds and Monroe's study (1985) is the lack of a clear theoretical base from which to postulate the role of brand on perceived quality and value. The brand's main effect was measured by the interaction of price and brand information. Analysis shows that the interaction of brand name and price caused subjects to perceive the three constructs to be higher in quality and value, and to be more willing to purchase the product than when brand name is absent. The main problem here is with the manipulation of this construct by either to a description of a brand or without brand information. The construct, however, could have been better measured by manipulating different levels of brand images.

Dodds, Monroe, and Grewal (1991) extended the study of Dodds and Monroe (1985) by introducing additional variables. In this study authors searched the effects of price, brand, and store information on buyers' perceptions of product quality and value, as well as their willingness to buy. A 5 x 3 x 3 between-subjects factorial design with five price levels, three brand levels and three store levels were tested in their study. Five price levels were low, medium, high, too high, and absent, three brand levels were low, high, and absent, and three store levels were low, high, and absent. Two products, calculators and stereo headset players, four brand names, Hewlett Packard and Royal for calculators and Sony and Grand Prix for Stereo headset players, and four store names, Campus Bookstore and Roses for calculators and Best and K-Mart for stereo headset players were selected. Three price levels were high price, medium price, and low price. Price above subjects' acceptable price ranges was determined as too high and no price information was provided in case of no price situations. Product quality, value and willingness to buy were dependent variables in their study. Two problems with Dodds et al.'s (1991) study are:

First, they included perceived sacrifice in their model but did not test the linkages of this construct. And, second, subjects were not given specific attribute information for evaluation. For instance, although the same product Sony produces a wide variety of models that cover several different price levels. Subjects not having attribute information in their study might have been used different reference prices related to their own experiences.

The article by Teas and Agarwal (2000) is an extension of Dodds et al. (1991) study. Teas and Agarwal extended by: (a) examining linkages specified but not tested (perceived sacrifice) by Dodds et al. study; and, (b) including an additional extrinsic cue - country of origin. They diagrammed their model that suggests that quality and sacrifice perceptions mediate linkages between (a) antecedents of consumers' quality and sacrifice perceptions (e.g., brand, store, and price) and (b) consumers' perceptions

of value. Country of origin is specified as an extrinsic quality cue and as a moderator variable.

Multivariate Analysis of Variance (MANOVA) and Analysis of Variance (ANOVA) were mainly conducted to measure the hypothesized linkages. In general, similar to the results reported by Dodds et al. (1991), the findings indicate that the brand treatment is a statistically significant quality cue in the presence of a price cue and that this effect continues to be significant in the presence of a store quality cue. The country-of-origin cue was found to have a significant main effect on the perceived quality for both of the products examined. However, the findings do not support the hypothesized effects of country-of-origin as a moderator variable.

Some questions remain unanswered from Teas and Agarwal's study (2000). First, the measurement of the hypothesized linkages among the variables is not adequate. Especially, the findings involving mediation are exploratory and inconclusive. To claim strong support, Path Analysis could have been used for their hypotheses. Second, the perceived sacrifice construct has not been developed conceptually. Perceived sacrifice is conceptualized to be a unidimensional construct measured via two items. In fact, the unidimensional self-report method does not reflect the complex nature of perceived sacrifice. To get a clear perspective on the role of perceived sacrifice, multi-dimensional measurement scales should be constructed.

3 Purpose of the Study

The primary goal of this study is to analyze the consumers' perception of value in relation to the underlying cognitive structure. The literature on product attributes, perceived quality, and perceived risk are not yet rich enough to provide a sound conceptual foundation for investigating the process of consumer value judgment. The study will investigate the roles of the theoretical constructs to find out the basic components and will especially concentrate on those aspects that can be generalized. It is hoped that this study will clarify the abstract and uncertain aspects of the constructs and will determine and open the way for the construction of a conceptual value assessment theory. More specifically, this study has two primary purposes.

The first objective is to address how trivial attribute information affect in increasing consumers' quality perceptions or in decreasing perceived risk. If these variables are found to be significant, then what are the specific associations that consumers can make in their deliberation processes is the foremost important concern of this study.

The second objective is to address whether the value perceived by consumers depends only on the tradeoff between perceived quality and perceived risk. Perceived value should be considered rather in a broader concept of the consumers' overall assessment of the utility of a product based on perceptions of what is received (quality) and the possibility of loss (risk). In this study, it is predicted that perceived product attributes have direct effects on consumers' perceptions of quality and perceived risk and these in turn have a mediating effect on consumers' perception of value.

4 Model Specification and Hypotheses

It is predicted that perceived product attribute directly influence the perceptions of quality and perceived risk and that perceived quality and perceived risk influence consumer perceptions of value. Consequently, it has been expected that the perceived quality and perceived risk will mediate perceived attribute and perceived value.

The above discussion suggests a number of hypotheses concerning consumer value judgment. First, the underlying assumptions of the proposed research are discussed, and then hypotheses are developed to test the direct and mediating effects of the variables on consumer value perceptions.

4.1 Influence of Perceived Product Attributes

Consider the fact that most of the computers now available in the market has fax modem that average consumers very seldom or never use. But, for sure, this additional attribute due to its manufacturing cost charges more to consumers. In this situation, a consumer can avoid the computer of additional attribute with higher price if the consumer is sure that s/he will never use that attribute. But, it is not the total picture in reality of consumer decision process. The consumer may guess that sending and receiving a fax, as like as e-mail, might be a popular medium of communication in the near future. Consequently, the total purchase will be a loss for him if s/he doesn't buy the product with the additional attribute now. Thus, a possibility of regret may prevent him from not choosing the product without additional attribute.

H1a: Perceived product attribute has a direct positive effect on consumer perceived quality.

H1b: Perceived product attribute has a direct negative effect on consumer perceived risk.

4.2 Antecedents of Perceived Value

Perceived value is the consumer's estimate of the product's overall capacity to satisfy his or her needs. It is the consumer's overall assessment of the utility of a product based on perceptions of what is received and what might be given. In fact, a purchase can be viewed in terms of which of the elements is considered a cost or a benefit and which is considered most critical for a particular purchase. In other words, value will be perceived only if a consumer feels that the benefits of the purchase offer overlap possible risk and if s/he is willing to exchange to receive these benefits.

4.3 Influence of quality on perceived value

In examination of previous research on consumer value judgment suggests that consumers receive value through a selection and organization process, that is, first quality, and only then value. Researchers generally have postulated a positive direct effect of

perceived quality on perceptions of value (Hauser and Urban 1986; Dodds et al. 1991; Zeithaml 1988). Such effects have been confirmed by Teas and Agarwal (2000) and Wood and Scheer (1996) in their empirical studies. Of course, people are believed to use various decision rules, or a mixture of all those rules. What really happens when a consumer face a new brand? Categorization theory suggests that if a product possesses all the properties required by the defining criteria of a category, the product belongs to the referring category (Alba and Hutchinson 1987). Once the product is activated as a category, the consumer will immediately infer cognitive judgments associated with the product. If the product is associated with high-perceived quality, the consumer's memory rehearsal about the brand will center on pleasant thoughts in relation with his expected value. As one's perceptions of quality toward the brand increases, a consumer's trust of a brand as a satisfaction supplier and thus a provider of high value will also increase.

4.4 Influence of risk on perceived value

A considerable number of researchers have utilized perceived risk to investigate various aspects of consumer behavior (Jacoby and Kaplan 1972). Most of these have only studied the determinants of risk and how consumers evaluate different types of risks in evaluating a product. A tentative conclusion is that high or low perceived risk influence perceived value by decreasing consumers' confidence of using the product or increasing their feelings of loss. Hence, risk is the possible cost may incur in the future. Additional feature cues, however, can serve to reduce risk and to enhance consumers' perception of value. It is hypothesized that perceived risk will affect negatively to perceived value, that is, the greater the risk associated with a product, the less the consumers will perceive the value of that product. The opposite will be observed in the cases of smaller risk conditions. The above discussion leads to the following hypotheses:

H2a: Perceived value will be affected positively by perceived quality.

H2b: Perceived value will be influenced negatively by perceived risk.

5 Research Methodology

5.1 Variables and Their Measurement

After first specifying the domain of each construct multiple item scales were developed, as suggested by Churchill (1979). Consumer value perception was assessed using nine measure scales developed by Chowdhury (2002). Consumer quality perception was assessed using thirteen measure scales developed by Lee (1994) and these were again validated for this study. Consumer perceptions of risk were measured using four likert statements that assessed financial risk and performance risk. Perceptions of product

attributes were based on scales developed by Zaichkowsky (1985) and Laurent and Kapferer (1985).

5.2 Manipulation of Stimulus

Three computer brands were selected on the criteria of being relevant to student sample in the expectation to be able better to elicit relatively specific associations. They comprised a Japanese brand (Sony), an American brand (Gateway), and a brand from Taiwan (Acer). These were selected based on the theoretical definitions provided and keeping relation with the need of the study. Although real brands were employed, pretest result showed that subjects might not be familiar with the specific brands employed in the experiment. Very few number of subjects reported owning brands represented by the three countries ultimately employed in the main experiment. Because of subjects' relative unfamiliarity with the three brands, descriptive information about each brand was employed as part of the manipulations of the independent variables. Employing such information increased control in the experiment by increasing the likelihood of a uniform manipulation of quality of the attributes across subjects. Information with regard to each brand was manipulated by providing subjects with some formatted information.

A total of 12 computer brands were presented. One page of information relevant to the attributes of each brand was attached to each questionnaire. Subjects were told that the information was an excerpt from a consumer personal computer magazine. It was exactly the same across all the questionnaires. These 12 brands were rated with overall rating, street price, performance, base configuration, extra features, ease of use, graphics, and reliability.

5.3 Subjects and Sampling

A student sample was used in this study. There are many arguments in favor and against the convenience samples containing students. Several authors have enumerated the dangers of using student samples in research (Beltramini 1983; Oakes 1972). These authors have generally cited threats to external validity as their primary concern, arguing that students are atypical of the "general population", and that any findings based on student samples may therefore not be generalizable to other populations (Cunningham, Anderson Jr., and Murphy 1974). However, some scholars disagree on this issue. Oakes (1972) contends that such arguments are specious because, regardless of what population is sampled, generalization can be made only with caution to other populations. Because the primary focus of this study was a theory test and not effects generalization, considerations of internal validity were paramount and a student sample was appropriate (Calder, Philips, and Tybout 1982; Cook and Campbell 1975). Concerns about external validity were secondary.

There was also some concern that students would be more likely to know or guess the true purpose of the study. This concern would have been particularly important if

students had been previously exposed to the theory and/or empirical work upon which the study is based. For this reason, student respondents were selected in a manner to reduce the probability that they would have such knowledge. Primarily undergraduate business and non-business majors taking business courses were used. Only 16 out of 356 students were other than undergraduate status. Among the undergraduate students 87.6% included business major while 12.4% were non-business major. Only business majors were deemed likely to have been exposed to the concepts considered in this study. The probability that these students could have anticipated hypotheses being tested, conceivably producing biased results for the study. To confirm that such bias did not occur, a ANOVA was conducted in which responses of all business majors were compared to the combined responses of non-business majors representing in the sample. Neither of the mean differences was deemed large enough to produce any bias in the overall results of the study. Henceforth, it was concluded that no bias was introduced into the study because of considering business students in the sample. A total of 356 responses were collected. Standard demographic measures were included in order to characterize the sample. Briefly, the male-female ratio is around 3 to 1 (male = 70.5% vs. female = 29.5%)

Three brands of computer were used for the study, i.e., Sony, Gateway, and Acer. Consequently, there were three versions of the questionnaire, a version corresponding to each of the computer brands in consideration. The brands used for evaluation were the same for all versions of the questionnaires. All instructions regarding the brands under evaluation were of similar length and paragraph construction.

5.4 Data Collection Procedure

A questionnaire served as a data-gathering instrument. Subjects were first instructed to read very carefully the brand information provided in the first few pages (Mackenzie and Spreng 1992). This was intended to aid the subject in forming a specific image about the manipulated brand.

After reading the surface page of the questionnaire, the subject was asked to turn the page and read the instructions carefully. Thus, the second page mentioned the company that produces the product and the directions about what would be asked to do. The third and forth pages contained the instructions about the stimulus and thus, the following pages contained the scale items those measures needed to test the proposed model. When the subject had formed an impression of the brand, he or she was asked to mark the evaluation on a number of 7-point scales. Measures for evaluating perceived risk (PR), perceived quality (PQ) appeared after the perceived value (PV) measures. Evaluations of perception of risk (PR) and perception of quality followed perceived product attributes (PPA). Finally, the demographic questions were given at the last page of the questionnaire. Subjects were allowed to look back upon the provided information while they filled out questionnaires. Most subjects spent between 15 and 20 minutes filling out the entire questionnaire.

6 Results

6.1 Plan for Data Analysis

The ultimate intent of this study was to test a model of consumer value perceptions and to estimate the parameters for the structural model depicted in figure 1. Thus, data were analyzed via structural equation models using AMOS (Analysis of MOment Structures) 4.01 to perform path analysis. Amos is a computer program for estimating the unknown coefficients within a system of structural equations, and is but one of several computer-based covariance structure models for conducting such analysis.

The data were analyzed in two stages. The measurement model was assessed to confirm that the scales were reliable. When the reliability of the measures had been established, the structural model was tested. The evaluation of structural equation models is more commonly based on a likelihood ratio test.The assumption is that the null hypothesis (H_0) is the observed covariance matrix (S) corresponds to the covariance matrix derived from the theoretical specification (Σ) and that the alternative hypothesis (H_1) is that the observed covariance matrix is any positive definite matrix. For these hypotheses, minus twice the natural logarithm of the likelihood ratio simplifies to:

$$N * F_0 \sim \chi^2 \left[\frac{1}{2}(p+q)(p+q+1) - Z\right] \tag{1}$$

Where:
N = the sample size
F_0 = the minimum of fitting function $F = \log|\Sigma| + tr(S\Sigma^{-1}) - log|S| - (p+q)$,
Z = the number of independent parameters estimated for the hypothesized model,
q = the number of observed independent variables (x), and
p = the number of observed dependent variables (y).

The null hypothesis ($S = \Sigma$) is rejected if $N * F_0$ is greater than the critical value for the chi-square at a selected significance level.

The linear structural equation is:

$$B\eta = \Gamma\xi + \zeta \tag{2}$$

Where:
B = An $(m \times m)$ coefficient matrix ($\beta_{ij} = 0$ means that η_j and η_i are not related),
Γ = An $(m \times n)$ coefficient matrix ($\gamma_{ij} = 0$ means that η_i is not related to ξ_j),
η = An $(m \times 1)$ column vector of constructs derived from the dependent variables (y),
ξ = An $(n \times 1)$ column vector of constructs derived from the independent variables (x),
ζ = An $(m \times 1)$ column vector of the errors in the structural equations,

m = The number of constructs (latent variables) developed from the observed dependent variables, and
n = The number of constructs (latent variables) developed from the observed independent variables.

The measurement equations are:

$$y = \Delta_y \eta + \epsilon \tag{3}$$

and,

$$x = \Delta_x \xi + \delta \tag{4}$$

Where:
y = A $(p \times 1)$ column vector of observed dependent variables,
x = A $(q \times 1)$ column vector of observed independent variables,
Δ_y = A $(p \times m)$ regression coefficient matrix of y on η,
Δ_x = A $(q \times n)$ regression coefficient matrix of x on ξ,
ϵ = A $(p \times 1)$ column vector of errors of measurement in y,
δ = A $(q \times 1)$ column vector of errors of measurement in x,
Ψ = The $(m \times m)$ covariance matrix of ζ,
Φ = The $(n \times n)$ covariance matrix of ξ,
θ_ε = The $(p \times p)$ covariance matrix of ε, and
θ_δ = The $(q \times q)$ covariance matrix of δ.

This testing determined the strength of individual relationships, the model's goodness of fit, and the various hypothesized paths. Prior to testing the model, descriptive statistics for key variables were calculated (see Table 1).

Table 1: Mean Ratings of Key Variables

	Sony $N = 199$	Gateway $N = 107$	Acer $N = 103$
PV	5.33 (0.68)	5.28 (0.63)	5.11 (0.74)
PQ	5.98 (0.56)	5.89 (0.63)	5.58 (0.64)
PR	2.83 (1.11)	3.13 (0.92)	3.28 (1.12)
PPA	4.46 (1.05)	4.48 (1.05)	3.98 (1.04)

(Standard Deviations are in the parenthesis)

The first step of the data analysis was a test of the measurement model. Objectives of this test were: (1) to contain the validity and reliability of measures developed and tested in previous phases of the study; and (2) to select the best subset of observed measure for use in testing the structural model. The data approximated a normal distribution with acceptable skewness and kurtosis values. The measurement test

proceeded in a manner identical to the procedure discussed in the previous chapter. Coefficient alpha was computed for each set of observed measures associated with a given latent variable, and a confirmatory factor analysis (CFA) was conducted. Alpha values of each item in each dimension were performed separately and were within an acceptable range (see Table 2). Because of the large number of items used to measure the dimensionality of most of the constructs, responses of these items were averaged to form a single measure for each of the dimension.

Table 2: Values of Coefficient Alpha Across

Pretests and Final Measurement Test

Constructs in the Model	Dimensions (Total Items)	Pretest (Alpha Value)	Final Test (Alpha Value)
Perceived Value (PV)	3 (9)	.74 to .90	.80 to .92
Perceived Quality (PQ)	3 (13)	.60 to .85	.65 to .89
Perceived Risk (PR)	2 (4)	.72	.72
Perceived Product attributes (PPA)	2 (9)	.79 to .83	.83 to .88

Estimation of Measurement model for the eight constructs of interest was performed using Amos 4.01. For the CFA analysis, most factor leadings were acceptable at 0.05 significance level regardless of the magnitude of their factor loadings.

6.2 Overall Model Fit

Bagozzi and Yi (1988, p. 76) have pointed out that "one of the first things that should be done before examination of the global criteria is to see if any anomalies exists in the output". Examples of anomalies exist in the output are: (1) negative estimates for the variances, (2) correlation estimates greater than 1, and (3) extremely large estimates for the parameters. None of these anomalies were present in the output of the analysis.

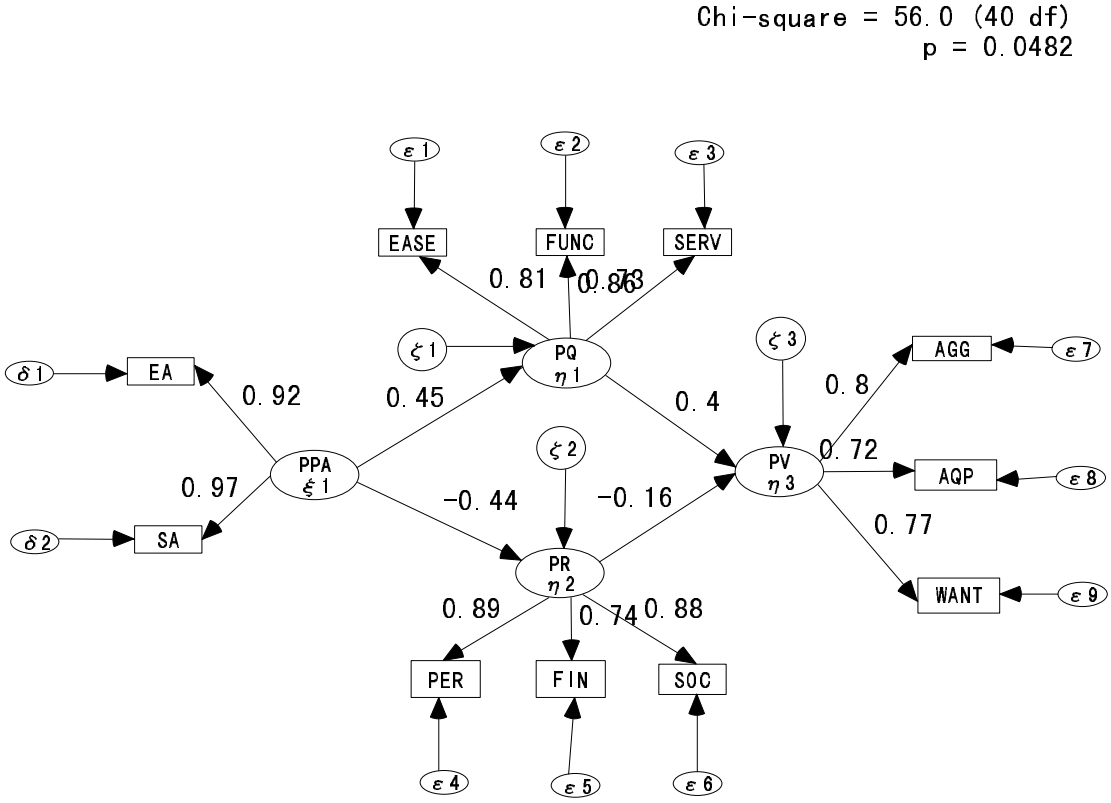
The model fit the data reasonably well producing chi-square value = 55.96; df = 40; $p = 0.0482$, a goodness-of-fit (GFI) index of 0.972, adjusted goodness-of-fit index of 0.954, Root Mean Square Residual (RMR) of 0.062 (see Table 3).

6.3 Tests of Hypotheses

Hypothesis 1a (H1a) states that the evaluation of perceived quality will be positively affected by the perception of favorable product attribute. That is, if consumers perceive an attribute of the product as unique, then it will boost up consumers' perceptions of the product's overall quality. The structural equation results support this hypothesis: the direct effect of perceived product attribute (PPA) on perceived quality is positive and significant ($\gamma = 0.45$, $p = 0.05$).

FIGURE 1

A Model of Trivial Feature Effects



Abbreviations:

PV: Perceived Value	PPA: Perceived Product Attribute(s)
PQ: Perceived Quality	AGG: Averages of Get and Give
PR: Perceived Risk	AQP: Averages of Quality and Price
EASE: Ease of Use	FUNC: Functionality
SERV: Sericeability	PER: Performance Risk
FIN: Financial Risk	SOC: Social Risk
EA: Essential Attribute(s)	SA: Supporting Attribute(s)

In hypothesis 1b (H1b), the prediction was that perception of product attribute (uniqueness perception) would be negatively associated with consumer perception of risk. Specifically, consumers, in order to escape from the possible regret, are expected to buy the product with an additional attribute. Interchangeably, products that have unique feature(s) would reduce the perception of risk in purchase decisions. This hypothesis was supported. Perception of product attribute (PPA) negatively affected perception of risk (PR) and was significant ($\gamma = -0.44$, $p = 0.06$).

Table 3: Structural Model Estimation Results

Hypotheses	Parameter (From-To)	Estimate (Significant at)	Fit Indices:
	Exogenous to Mediating:		$\chi^2 = 55.96$ $df = 40$ $P = 0.0482$ GFI: 0.972 AGFI: 0.954 RMR: 0.0546
$H1a:$	PPA to PQ	$\gamma = 0.452$ ($p = 0.05$)	
$H1b:$	PPA to PR	$\gamma = -0.438$ ($p = 0.06$)	
	Mediating to endogenous:		
$H2a:$	PQ to PV	$\beta = 0.396$ ($p = 0.05$)	
$H2b:$	PR to PV	$\beta = -0.161$ ($p = 0.07$)	

Hypothesis 2a (H2a) states that perceived quality of a product has a direct positive effect on the evaluation of perceived value. That is, as one's perceptions of quality toward the brand increases, his trust of the brand as a satisfaction supplier and thus a fulfiller of value will also increase. This hypothesis was supported that provides positive and significant values ($\beta = 0.396$, $p = 0.05$).

In hypothesis 2b (H2b), we hypothesized that perception of risk of purchasing a product would have direct negative effect on the evaluation of perceived value. It means that the greater the risk associated with a product, the less the consumers will perceive the value of that product. The results do support this hypothesis as the path between perceived risk (PR) and perceived value (PV) is negative and significant ($\beta = -0.161$, $p = 0.07$).

7 Discussion and Conclusion

7.1 General Discussion

Results of the structural analysis of this study provide a basis for making inferences about theoretical relationships among the study constructs. The design of the experiment allowed analysis of both direct influence of PPA, PQ, and PR cues on perceived value.

Furthermore, the results of this study have generated some interesting findings. First, consistent with the previous studies it has been argued in this study that price

can be both an indicator of the amount of sacrifice needed to purchase a product and an indicator of perceived quality, that is, the higher prices lead to higher perceived quality. Some of the previous studies provide evidence that when price is the only extrinsic cue available, the subjects clearly perceived quality to be related positively to price (Dodds and Monroe 1985; Dodds et al. 1991). While the others demonstrate that price continues to be a significant quality cue in the presence of other extrinsic cues as brand and store (Teas and Agarwal 2000). Findings of this study however show no such effect.

Second, Zeithaml (1988) argued that research on how consumers evaluate product alternatives should be expanded beyond the price-perceived quality relationship. Thus in this research PPA, PQ, and PR cues were brought into the same research setting. Based on a simple model of the linkages between the constructs, the overall research results partially fit the conceptual model.

7.2 Limitations and Future Research

There are some limitations in this study and thus future research should continue to test and to refine relationships investigated in the present study and variables that moderate them. More specifically, this study suggests several fertile directions for future research. First, it is clear that future research is required to yield a more complete understanding of the phenomena surrounding perceived value. This study has attempted to outline major variables that logically and theoretically should impact the linkages in perceived value scenarios. However, there certainly exist additional variables, yet to be identified, that may play important roles in understanding consumer value formation process. Brand image, price information should also be examined in a same research setting in addition to the constructs considered in this study. Although the constructs considered in this study are certainly very important elements in forming perceived value, other constructs also may or may not have significant effects. Hence, will the newly organized model work the same way as the model has found in this study?

Finally, with regard to perceived product attributes, the degree to which consumers perceive a product with additional attribute or feature as unique also may influence consumer product responses in increasing perceived quality and decreasing perceived risk. For the products with which consumers are somewhat familiar, consumers may summarize what they know about the product in the category. A company that manages to establish its uniqueness relative to its competitors may have an advantage because its associations may be more accessible in consumers' minds. Consequently, it would be interesting to investigate when and how additional attribute or features are more likely to influence consumers' uniqueness perception of a product.

References

[1] Alba, Joseph W. and J. Wesley Hutchinson (1987), "Dimensions of Consumer Expertise,"*Journal of Consumer Research*, 13 (March), 411-454.

[2] Bagozzi, Richard P. and Youjae Yi (1988), "On the Evaluation of Structural Equation Models," Journal of The Academy of Marketing Science, 16 (Spring), 74-94.

[3] Barringer, Bruce, S. Thomas Foster, Jr., and Granger Macy (1999), "The Role of Quality in Determining Export Success," *Quality Management Journal*, 6 (4), 55-70.

[4] Beltramini, R. F. (1983), "Student Surrogates in Consumer Research," . *Journal of the Academy of Marketing Science*, 11 (Fall), 438-443.

[5] Bloch, Peter H. and Marsha L. Richins (1983), "A Theoretical Model for the Study of Product Importance Perceptions,"*Journal of Marketing*, 47 (Summer), 69-81.

[6] Calder, J. Bobby, Lynn W. Philips and Alice M. Tybout (1982), "The Concept of External Validity," *Journal of Consumer Research*, 9 (December), 240-243.

[7] Carpenter, Gregory S., Rashi Glazer, and Kent Nakamoto (1994), "Meaningful Brands from meaningless Differentiation: The Dependence on Irrelevant Attributes,"*Journal of Marketing Research*, 31 (August), 339-350.

[8] Chowdhury, Md. Humayun Kabir and Abe, Shuzo (2002), "Consumer Perceptions of Value: A Multi-Item Scale for Measuring Consumer Perceptions of Value," Asia-Pacific Advances in Consumer Research, 5 (May), 160-168.

[9] Churchill, Gilbert A. (1979), "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, 16 (February), 64-73.

[10] Cook, Thomas D. and Donald D. Campbell (1975), "The Design and Conduct of Experiments and Quasi-Experiments in Field Settings," in *Handbook of Industrial and Organizational Research*, Martin Dunette, ed., Chicago, Rand McNally Dissertation, University of North Texas, Denton, Texas.

[11] Cunningham, William H., Thomas Anderson Jr. and John H. Murphy (1974), "Are Students Real People?" *Journal of Business*, 47 (July), 399-409.

[12] Curry, David J. (1985), "Measuring Price and Quality Competition," *Journal of Marketing*, 49 (Spring), 106-117.

[13] Dodds, William B. and Kent B. Monroe (1985), "The Effect of Brand and Price Information on Subjective Product Evaluation," in *Advances in Consumer Research*, 12, Elizabeth Hirschman and Morris Holbrook, eds., UT: Association for Consumer Research, 85-90.

[14] Dodds, William B. and Kent B. Monroe, and Dhruv Grewal (1991), "Effects of Price, Brand, and Store Information on Buyers' Product Evaluation," *Journal of Marketing Research*, 28 (August) 307-319.

[15] Hauser, John R. and Glen Urban (1986), "The Value Priority Hypotheses For Consumer Budget Plan," *Journal Of Consumer Research*, 12(March), 446-462.

[16] Jacoby, Jacob and Leon Kaplan (1972), "The Components of Perceived Risk," M. Venkatesan, editor, Preceedings, *third annual conference of the Association of Consumer Research*, 283-293, Ann Arbor, MI: Association for Consumer Research.

[17] Laurent, Gilles and Jean-Noel Kapferer (1985), "Measuring Consumer Involvement Profiles," *Journal of Marketing Research*, 22 (February), 41-53.

[18] Lee, Dongdae (1994), "Effects of Perceived Quality, Product Category Similarity, and Brand Breadth on Consumers' Perceptions of Brand Extensions: Tests of Categorization Theory and Cognitive Response Theory," *Unpublished Doctoral Dissertation*, University of North Texas, Denton, Texas.

[19] Mackenzie, Scitt B. and Richard A. Spreng (1992), "How Does Motivation Moderate the Impact of Central and Peripheral Processing on Brand Attitudes and Intentions?" *Journal of Consumer Research*, 18 (March), 519-529.

[20] Oakes, W. (1972), "External Validity and the Use of Real People as Subjects," *Americal Psychologist*, 27, 959-962.

[21] Simonson, Itmar and Amos Tversky (1992), "Choice in Context: Tradeoff Contrast and Extremeness Aversion," *Journal of Marketing Research*, 29(August), 281-295.

[22] Snelders, Dirk and Jan P. L. Schoormans (2000), "Are Abstract Product Qualifications More Subjective? A test of the relation between abstraction level and opposite naming," in *Advances in Consumer Research*, 26 (June), 584-587.

[23] Teas, R. Kenneth and Sanjeev Agarwal (2000), "The Efeects of Extrinsic Product Cues on Consumers' Perceptions of Quality, Sacrifice, and Value," *Psychology and Marketing*, 28 (2), 278-290.

[24] Zaichkowshy, J. L. (1985), "Measuring the Involvement Construct," *Journal of Consumer Research*, 12, 341-352.

[25] Zeithaml A. Valarie (1988), "Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence," *Journal of Marketing*, 52 (July), 2-22.