Wulwick, Vicki Jeanne

PERCEIVED RISK AND INDUSTRIAL VENDOR SELECTION FOR A NEW TASK BUY

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PERCEIVED RISK AND INDUSTRIAL VENDOR SELECTION FOR A NEW TASK BUY

BY

VICKI JEANNE WULWICK

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5/22/83
date

Professor Conrad Berenson
Chairman of Examining Committee

8/22/83
date

Professor Sidney Lirtzman
Executive Officer

Professor Edward Wolf

Professor Gary Soldow

Professor Valarie Sodano

Supervisory Committee

The City University of New York

ABSTRACT

PERCEIVED RISK AND INDUSTRIAL VENDOR SELECTION FOR A NEW TASK BUY

by

Vicki Jeanne Wulwick

Advisor: Professor Conrad Berenson

A modified version of the perceived risk model, orginally proposed by Bauer, was tested with respect to purchasing professionals' inherent risk evaluation of a vendor new to the firm for a new task buy. Both component parts and materials and industrial supplies were examined in terms of overall risk, the likelihoods and intensities of several types of undesirable consequences, and nine risk components including economic, performance, delivery, and social, at the individual and organizational levels where relevant. Ten moderating variables, including education, salary level, need for certainty, and organizational formalization, were also investigated.

Several problems were found with the modified perceived risk model employed in this study. They included the contention that overall perceived risk is a function of the intensity and likelihood of undesirable consequences and that that function is multiplicative. Nevertheless, the model was

able to explain approximately 40 percent of the variance in overall perceived risk for component parts and industrial supplies although not all of the investigated risk components and consequences were significant.

Of the ten moderating variables investigated, only education and salary level were found to be significantly correlated to overall perceived risk for component parts and only education level was significantly correlated for industrial supplies. The importance of "nonrational" variables such as reputation and the relative importance of economic factors, as previously discussed in the literature, were confirmed.

Finally, applications of the study for vendors of components and industrial supplies, limitations to the study, and a number of recommendations for future research were discussed.

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CHAPTER I

INTRODUCTION

It has long been recognized that it is common practice for an organization to delegate the buying function to a specialized department with a vice-president, director, or purchasing agent in charge (Clark and Clark, 1947). Although there is no single format that dictates how a firm actually purchases goods and services, there are a number of decisions in which the purchasing department is usually involved. A recent longitudinal study by Erickson and Gross (1980) concluded that the purchasing department continues to play the key role in the purchase of materials, component parts, and equipment - especially when taking advantage of new price differentials, surveying available makes, and choosing suppliers.

Several models have attempted to explain one or more facets of industrial buying behavior. One such model is the Perceived Risk Model. Originally formulated by Bauer (1960), the model suggests that a buyer's behavior involves risk in the sense that any action that a buyer takes will produce consequences he cannot anticipate with certainty. Therefore,

the buyer acts to reduce the amount of risk involved in a buying situation to an acceptable level. This might mean that the buyer purchases from large suppliers or from better known suppliers (Haas, 1982), or engages in other activities that might be perceived as reducing the risk inherent in the buying decision.

Webster and Wind (1972a) contended that the perceived risk model provides a useful framework for consideration of organizational buying behavior, including the selection of suppliers, from the point of view of the individual. Although this is not the only model that deals with individual perceptions, they concluded that it was the one most consistent with the view of organizational buying behavior as problem solving and hence, consistent with their behavioral theory of the firm. Consequently, understanding the nature and components of perceived risk allows a meaningful analysis of strategies adopted to reduce risk and thereby provides a framework within which to develop the requirements for effective marketing strategic planning. Recent complex models of organizational buying behavior (Webster and Wind, 1972b; and Sheth, 1973) have therefore emphasized the importance of the decision maker's risk perception on his decision process.

Most of the studies dealing with perceived risk published in the last 23 years have concentrated on consumer behavior. (For example see Bauer, 1960; Cox, 1967b; Cunningham, 1967b; Kogan and Wallach, 1967; Bettman, 1973; Jacoby and

Kaplan, 1972; Pras and Summers, 1978; etc.) Although there has been some research performed on the effects of perceived risk and the adoption of new products by professionals (Bauer, 1967; Bauer and Wortzel, 1967; etc.), the number of studies that have empirically investigated the effects of risk perception on industrial buying decisions is relatively small. This is surprising in light of Wilson, Mathews, and Sweeny's (1971) identification of perceived risk as the most important factor affecting industrial buyers' decision styles.

A review of the organizational behavior literature on decision making under uncertainty indicates the use of cost-gain models in the case in which both the probabilities of decision outcomes and the worth or utility of each consequence to the decision maker cannot be objectively determined (Bonoma and Johnson, 1979). These models analyze an individual's preference order on a set of gambles in terms of the expected value and perceived riskiness and then try to make inferences to decisions made in the firm. Lehner (1980) concluded that cost-gain models, including portfolio and subjective utility theories, were inadequate theories of risky decision making. He suggested that risk preference cannot be sufficiently represented by a model that proposes that preference judgments reflect a composition of outcomes and probabilities. The perceived risk model, as hypothesized by Bauer and extended by Cox and others, seem to adequately address these problems in the industrial sector.

The studies investigating perceived risk in the industrial setting (Newton, 1967; Robinson and Faris, 1967; Cardozo, 1968; Wilson, 1971; Zaltman and Bonoma, 1977; Cohn, 1978; Barton and Waldron, 1978; Choffray and Johnston, 1979; etc.) have concentrated on its importance in the adoption of new industrial products. There has been little, if any, work on the influence of perceived risk on industrial vendor selection.

The available vendor evaluation and selection literature, including several studies dealing with procedures actually used in industry, focuses on evaluating suppliers in terms of standard dimensions such has delivery and product quality. The dimensions are then developed into rating instruments or procedures for selecting vendors (Dempsey, 1978; Wieters and Ostrom, 1979, etc.).

In response to today's uncertain environment, particularly with respect to raw material shortages and spiraling costs, the purchasing department has become increasingly important in the overall strategic planning of the firm (Upah and Bird, 1979). A study by Bellizi and Walter (1980) found that purchasing agents, similar to other members of the buying center, exhert varying influences throughout the buying process. They were found to be very influential in the search for and qualification of new sources of supply.

The present research will attempt to supplement and increase the understanding of the effects of perceived risk

on industrial vendor selection. Specifically it will deal with purchasing professionals' risk perceptions of the major dimensions of vendor selection - delivery, quality, economics, service, vendor reputation, technical assistance, and technical capacity as well as social and psychological uncertainties - in the selection of vendors new to the firm for both component parts and materials and industrial supplies. The moderating effects of experience, education, NAPM certification, salary level, self-esteem, need for certainty, organizational complexity, organizational formalization, and organizational centralization will also be examined.

The project will utilize a mail survey of purchasing managers and purchasing agents in firms classified by the Federal Government as manufacturers of computer parts and materials (SIC 3573). Although the effects of buying group dynamics have been shown to be important in industrial purchasing decisions (Haas, 1982), this research will concentrate on the risk perceptions of individual purchasing professionals who are often most influential in qualifying and selecting vendors of the above mentioned product types.

This investigation will attempt to increase the understanding of purchasing professionals' industrial buying decisions. Since buying and selling are important marketing functions, this research will endeavor to provide insight to both purchasers and vendors on how new products and new vendors are viewed by those responsible for selecting them.

CHAPTER II

THEORETICAL FRAMEWORK

Purpose

This chapter will examine the perceived risk model and other models of industrial buying behavior that include the perceived risk variable. Consequently, industrial supplier selection methods and individual, organizational, and situational dimensions of vendor evaluation will be discussed. The chapter will conclude with the development of the perceived risk model formulation to be used and the hypotheses to be tested in this study.

The Perceived Risk Model

Bauer's initial proposition of perceived risk was that "consumer behavior involves risk in the sense that any action of a consumer will produce consequences which he cannot anticipate with anything approximating certainty, and some of which at least are likely to be unpleasant." (1960, p.24) The works of many authors have empirically supported the notion of perceived risk (Bauer, 1960; Cox, 1967; Cox and

Rich, 1967; Cunningham; 1967; Arndt, 1968; Choffray and Johnston, 1979; etc.). The studies have supported the expectation that consumers and others perceive risk in products, and that the perception of risk varies not only by product, but products can be rated in terms of perceived risk (Cunningham, 1967a).

Once perceived risk has been identified in a purchase situation, there seems to be some reasonable evidence that subsequent buyer behavior can be determined in accordance with such risk (Taylor, 1974). Cox (1967b) has hypothesized that consumers will act in accordance with the level and nature of perceived risk in relation to their tolerable (and desirable) levels and the kind of perceived risk. While a consumer may most commonly attempt to minimize uncertainty or risk, it is not the only mode of behavior possible.

Although the original Bauer formulation dealt with the actions of consumers, the perceived risk model is considered a useful framework for consideration of organizational buying behavior from the point of view of the individual as well (Webster and Wind, 1972a). It should be noted that the major structural dimensions of the model as proposed by Bauer are uncertainty and consequences. These two factors have been utilized in much, but not all, subsequent research on perceived risk (Ross, 1974) in both consumer and industrial applications.

Cox (1967c) was one of the first authors to elaborate on the perceived risk model. He conjectured that the amount of perceived risk in a situation was a function of:

1) the amount that would be lost (i.e., that which is at stake) if the consequences of the act are not favorable, and
2) the individual's subjective feeling of certainty that the consequences will be unfavorable. (p.37)

The amount at stake was defined as ". . . a function of the importance or magnitude of the goals to be attained, the seriousness of the penalties that might be imposed for non-attainment, and the amount of means committed to achieving the goals." (p.38) While certainty and consequences determine the amount of perceived risk, Cox hypothesized that the nature of the risk perceived should be a function of the buying goals involved.

Cunningham (1967a) and most subsequent investigators of perceived risk have utilized the uncertainty and consequences dimensions, although there have been exceptions. Kogan and Wallach (1964) suggested that risk have have two somewhat different facets: a "chance" aspect, where the focus is on probability, and a "danger" aspect, where the emphasis is on the severity of negative consequences. Uncertainty and importance (Arndt, 1967; Schiffman, 1972) have also been used. However, Bettman (1973) saw problems in

the measurement of perceived risk and concluded that most previous studies developed arbitarily defined measures of risk with little standardization across studies. Since there are differences of opinion about the conceptual definition of perceived risk, it is inevitable that different views as to its fundamental dimensional structure should arise (Ross, 1974).

Bettman conceptualized risk differently than Cox (1967a) and Cunningham (1967a), whose consequences/danger variable was replaced by importance. He hypothesized that:

> The risk inherent in a brand choice situation within a product class will depend upon the degree to which a buyer believes he can construct a reasonable decision rule for making a brand choice, and the importance to him of making a satisfactory choice within that product class. (1973, pp.184-185)

Bettman (1973) also contended that the risk being measured by perceived risk studies could be one of the two following types:

1) Inherent Risk - the latent risk a product class holds for a consumer; the innate degree of conflict the product class arouses in the consumer.
2) Handled Risk - the amount of conflict that a product class engenders when the buyer chooses a brand from the product class in his usual buying situation. (p.186)

Therefore, handled risk includes the effects of information and risk reduction processes as they have acted on inherent risk.

Bettman further noted that there has been some confusion about the type of risk being used in the research literature, Cunningham (1967a), using inherent risk and Cox and Rich (1966) and Spence, Engel, and Blackwell (1970) using handled risk, for example. According to Bettman, the distinction is important since products do not necessarily have the same relative rating for inherent and handled risks.

Bettman, however, has not been the only writer to suggest that there is more than just one single type of risk that may be perceived. Many authors including Perry and Hamm, 1969; Roselius, 1971; 1971; Jacoby and Kaplan, 1978; Choffray and Johnston, 1979; etc. have seen the need to identify a number of types of perceived risk. In general, one or more of the following types of perceived risk has been investigated in recent articles:

1) Financial Risk - the risk that the product will not be worth its cost either in time or money.
2) Performance or Functional Risk - the risk that the product will not perform as expected.
3) Physical Risk - the risk to oneself or others in terms of harm or injury that the product may pose.

4) Social Risk - the risk that the product choice will affect the opinion others hold of the individual.

5) Psychological Risk - the risk that the product choice will affect the individual's ego. (Schiffman and Kanuk, 1979 p.85)

In their multivariate examination of perceived risk, self-confidence, and information sources, Zikmund and Scott (1973) concluded that a statistically significant relationship ($p > .05$) was found between general perceived risk and the five risk components described above when investigating high and medium risk consumer products. The relationship for low risk products, on the other hand, was not strong. Their findings suggest that the consumer is possibly aware of the cognitive dimensions of risk as the product becomes more risky, and perceived risk is useful in studying consumer product selection where risk exceeds some threshold level. However, they report evidence supporting the notion that a multidimensional measure of risk has some predictive validity in terms of general perceived risk for a specific product type. Kaplan and Jacoby, in their original study (1972), as well as in their cross-validation with Szbillo (1974), also concluded that overall perceived risk can be predicted fairly well with the use of the five types of risk consequences. They found that an average of 74% of the variance in the overall perceived risk measure could be explained across

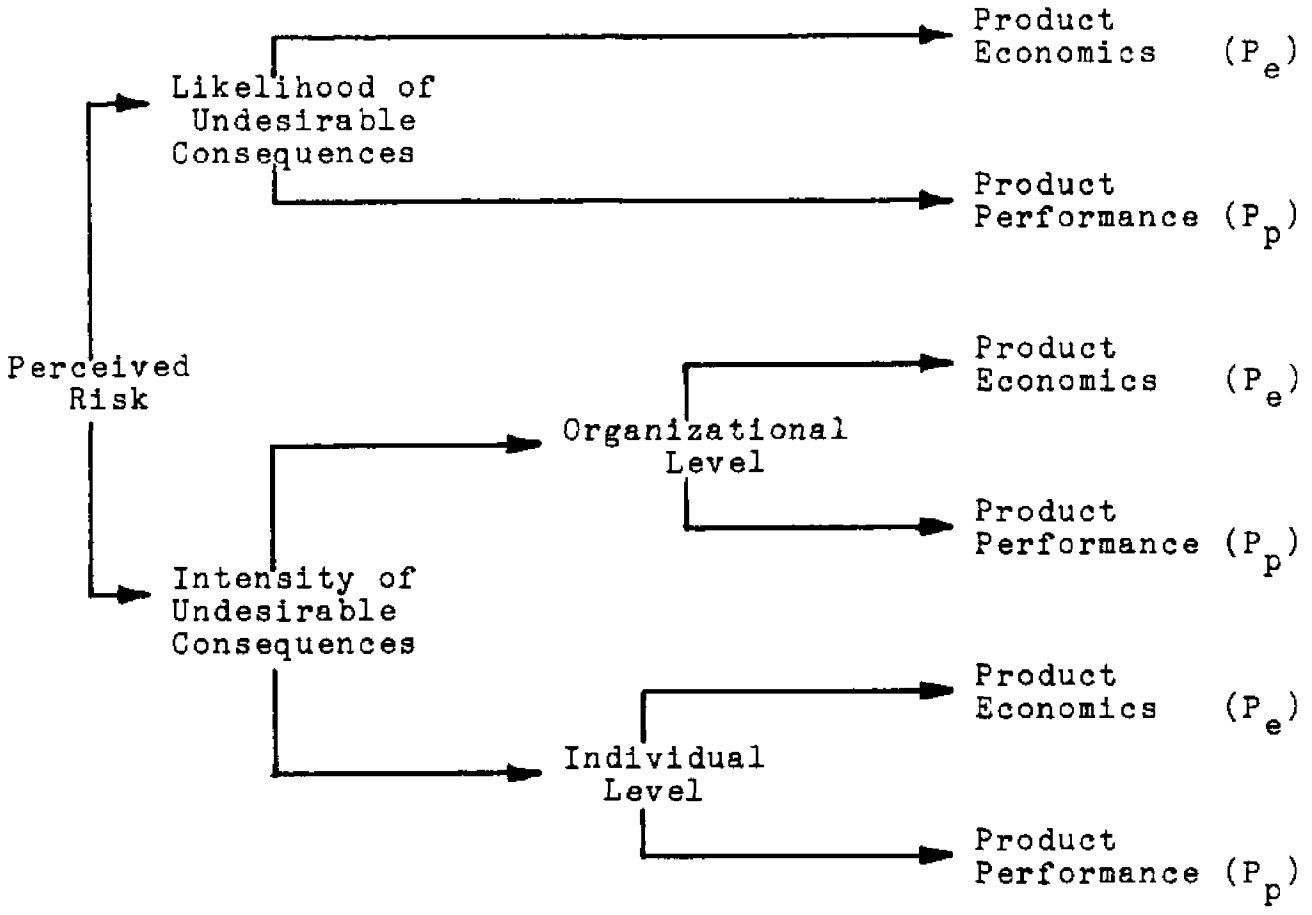
twelve products. Performance or functional risk tended to be the most important in all cases.

Regarding organizational buying behavior and perceived risk, Choffray and Johnston (1979) were able to carry one step further the hypothesis that there is more than one kind of risk that can be perceived in a situation. (See Figure 1) They utilized Cunningham's likelihood of undesirable consequences, which was broken down into economic and performance risk and intensity of undesirable consequences, which was broken down into performance and economic risk at both the organizational and individual levels. This distinction followed from the existing theories of organizational buying behavior of Webster and Wind (1972) and Sheth (1973), both of which will be discussed later. Choffray and Johnston concluded that there exists substantial differences across decision participants in the assessment of the risks associated with the adoption of a new industrial product. Moreover, the major components of risk appeared to have significantly different impact on the formation of individual preferences within each group (p.338).

Perceived Risk and Psychographic Variables

Cunningham (1967a) has suggested that some people have a generalized tendency to perceive either high or low risk across a range of products. Slovic (1962), on the other hand, found a willingness to take risks may not be a general trait,

Dimensions of Perceived Risk For a New Industrial Product



(Choffray and Johnston, 1979, p.334)

Figure 1

but one that varies from situation to situation within the same individual. Cox (1967a), however, hypothesized that a person's dominant personality needs would reflected in his major buying goals and cognitive style, thereby influencing the manner in which certainty is reduced and his risk taking style. Hence, there have been several personality dimensions that have been examined in relation to perceived risk in both general and situational investigations.

Category Width

The perceptual/cognitive construct, "category width", or "broad" vs "narrow" categorizers, has been examined in relation to perceived risk. As stated by Pettigrew (1956)

> broad categorizers seem to have a tolerance for type I errors: they risk negative instances in an effort to include maximum positive instances. By contrast, narrow categorizers are willing to make type II errors: they exclude many positive instances by restricting their category ranges in order to minimize the number of negative instances. (p.532)

Popielarz (1967) hypothesized that broad categorizers would be more willing to buy new products than narrow categorizers. His evidence tended to support this hypothesis for females, and the reverse relationship was supported for males, although in both cases correlations were low. He concluded that the strength of the relationship varied over

products and sex.

Schiffman (1972) also found that broad categorizers were apt to adopt a new product (salt substitute) than narrow categorizers, but there seemed to be some question of criterion contamination with the method used to measure category width (Ross, 1974). Therefore, although there is some evidence that category width is related to willingness to adopt new products, the construct has not been specifically related to perceived risk. In fact, Slovic (1962) has found no relationship between willingness to risk errors on a judgmental task and the scores on the probability measure of category width.

Self-Confidence/Self-Esteem

Self-confidence as a personality construct has also been studied in relation to perceived risk. Taylor (1974), in his discussion of the role of risk in consumer behavior, has assumed that self-esteem and generalized self-confidence are essentially interchangeable. According to Taylor, self-esteem is the evaluation that an individual makes and customarily maintains with regard to himself. It is usually expressed as an attitude of approval or disapproval, and it indicates the extent to which the individual believes himself to be capable, significant, successful, and worthy. (p.56) Although Hsrich, Dornoff, and Kernan (1972) found a significant inverse relationship between perceived risk and generalized self-confidence, Zikmund and Scott (1973) and Cun-

ningham (1967a) found no significant relationship between the two variables.

With regard to product specific self-confidence, Bell (1967) concluded from his research on self-confidence among automobile buyers that there is no strong association between an individual's product specific self-confidence and his persuasability. This applied to both males and females under controls for age, social class, religion, marital status, salesmen used, and the amount of shopping before purchase. Cunningham (1967a) also found that specific self-confidence appeared to vary for products on a continuum of riskiness and was relatively insignificant for a number of product types such as headache remedies.

Brand/Store Loyalty

According to Engel, Kollat, and Blackwell (1973), brand loyalty is defined as the preferential, attitudinal, and behavioral response toward one or more brands in a product category expressed over a period of time by a consumer (or buyer). (p.551-552) Brand loyalty is a product specific phenomenon rather than a general attitude, and buyer may be highly brand loyal within a product category X but not in categoroes Y or Z. With regard to brand/store loyalty, it was hypothesized that loyalty will be stronger among those perceiving high-risk in a product category since brand loyalty is a device for reducing the risks of consumer decisions (Bauer, 1960).

Arndt (1967) and Cunningham (1967b) found a strong positive relationship between perceived risk and perceived brand commitment. They concluded that the more serious the type of risk perceived in a product class, the higher the probability of brand loyalty.

Hisrich, Dornoff, and Kernan (1972), however, did not find that there was a significant relationship between store loyalty and perceived risk. Thus for both men and women at every level of perceived risk, they found fewer store-loyal buyers than non-loyal buyers for the products studied. It was suggested that repeat patronage is not seen as a viable risk-handling strategy and that not shopping at a previously patronized store may serve as a form of risk reduction.

Industrial Supplier Loyalty

It has been suggested that all purchasing can be viewed as a form of risk taking and that any change will involve risk (Brand, 1972). Brand, as did Wind (1970), speculated that to be successful, a new supplier to a company must reduce the feeling of risk associated with his selection. Brand found that when purchasing a product new to the company, a high degree of preference is given to potential suppliers either known to personnel inside the purchasing organization or to professionals employed in other firms. Bonoma and Johnston (1978) consistently found that the major factors influencing purchasing decisions included social ones such as friendships and reputations as well as "rational"-economic

one. Indeed, they concluded that social factors may be more important than the rational-economic ones in industrial purchasing decisions. (Although the literature often considers social motives to be "nonrational", one must not assume they are any less rational than economic ones.)

Risk-Taking Propensity

Several studies have attempted to evaluate the relationship between risk-taking propensity or risk preference and perceived risk. As would be expected, there is evidence of an inverse relationship between risk preferences and perceived risk within a particular situation (Arndt, 1967; Cohn, 1978; Barton and Waldron, 1978). It was also found that there is a tendency among managers in the private sector to be somewhat more risk adverse than their counterparts in the public sector, although the difference was not statistically significant (Barton and Waldron, 1978).

External Control

External control is the extent to which an individual perceives events that happen to him as being beyond his control (Reck and Werther, 1979 p.27). Higbee and Lafferty (1972) investigated the relationship between external control and perceived risk. Using the Choice-Dilemma Questionaire (CDQ), they examined whether people prefer greater risk when they feel the have no control over the outcomes of their decisions to situations when they felt the outcomes are due to forces beyond their control. Higbee and Lafferty found

no relationship between risk preferences and perceived control for either sex.

Need for Certainty

Need for certainty is the extent to which individuals see ambiguous or complex situations as sources of threat (Reck and Werther, 2979 p.27). In their review of studies involving need for certainty, Reck and Werther concluded that individuals with a high need for certainty are more strongly motivated to avoid confronting risk.

Demographics

A number of studies have examined the relationship between perceived risk and the variables usually classified under the general heading of demographics. Spence, Engel, and Blackwell (1970) looked at sex, age, education, family income, and religion in regard to perceived risk. Family income was found to produce significant differences, and their data indicated a slightly inverse relationship between perceived risk and level of income. The only other significant variable was education. The risk perceived in buying products in a store increases directly with the number of years of education.

Fleming (1970) investigated the relationship between social position and perceived risk. Based on his work on welfare clients and college students, he concluded that the willingness to take risks and what one believes about others' willingness to take risks appears to be biased by social

position.

Bonoma and Johnston (1979), using a CDQ with a cost-gain approach, found that there were sex differences in making decisions under uncertainty. A problem with this method, which will be discussed in detail later, is that the choice-dilemma questionaire is a role playing methodology, and since it is not actual choice behavior, one cannot be sure how individuals will make real choices. However, it appears that men seem to be incapable of making rational decisions when exposed to female relevant dilemmas, while females are rational under both male and female dilemma situations.

With regard to the perceived risk studies involving industrial buyer behavior, there are a few interesting findings. Levitt (1967) discovered that in low risk purchasing decisions (merely seeking information about a product), technically more sophisticated personnel seemed to rely more heavily on the quality of the sales presentation and less on their own judgment than the less technically sophisticated personnel. However, in high risk decisions (whether to actually buy the product), the reverse was true. The greater the risk, the more likely the technically sophisticated personnel are to rely on their own technical judgment about a new products virtues than on the quality of the sales presentation.

Choffray and Johnston (1979) examined the differences in risk perception between three groups of decision makers -

purchasing agents, scientists, and managers. Their analysis pointed to substantial differences across decision participants in the assessment of the risk associated with the adoption of a new industrial product.

Finally Lesterand (1980) investigated the relationship between experience (defined as the number of years spent performing the purchasing function) and perceived risk. He concluded that there was a significant curvilinear relationship with buyers possessing low and high amounts of purchasing experience having significantly more perceived risk than those with a moderate level in both a new task and a modified rebuy situation. More's (1982) findings concurred.

Situational Variable

Industrial Vendor Reputation

Levitt (1967) hypothesized that vendor reputation clearly influences buyers, decision makers, and the decision making process. He found that the cultivation of a good reputation among potential customers will have some payoff in the sense that it helps the salesman get a foot in the door. However, as the riskiness of the situation increases, i.e., an actual decision whether to purchase, the importance of reputation decreases. The higher the perceived risk in responding to a sales prospect, the more persuasion is required to get the customer to switch from the product he is currently using, and once a decision is made in a high risk situation, the

seller will generally have considerable difficulty in getting a negative respondent to change his mind.

Measurement of Risk

There are a number of measures that have attempted to examine risk taking behavior. One of the earliest types used is known as an experimental gambling measure or a cost-gain model.

Cost-Gain Models

Cost-gain models, also known as weighted utility models, have used in organizational behavior and psychological studies for many years. Scodel, Minas, and Ratoosh (1959), writing before Bauer proposed his notion of perceived risk, investigated the personality correlates of risk taking where there were different probabilities of winning. It was also argued by Slovic (1962), that in addition to probability preferences, variance preferences are indicative of an individual's affinity for risk. The variance of a bet reflects the amount of deviation of its possible outcomes from the average amount of money to be won or lost by playing the bet. Other authors who have utilized a cost-gain approach in evaluating risk are Hepos and Strassman, 1965; Slovic and Litchenstein, 1968; Eliashberg and Winkler, 1978; and More, 1982. The factors investigated have been given many names, but a typical formulation is:

$SEU = S(P_w)\cdot U(\$_w) + S(P_l)\cdot U(\$_l)$ where:

SEU = the subjective expected utility
P_w = the probability of winning
$\$_w$ = the amount to win
P_l = the probability of losing
$\$_l$ = the amount to lose
S(P) and U($) are the subjective functions corresponding to the stated probabilities and payoffs. (Slovic and Litchenstein, 1968 p.3)

A similar theory is known as Portfolio Theory (Lerner 1980). According to this theory, the preference order on a set of gambles is mediated by two variables: the expected value of two or more gambles and the perceived riskiness of each of the gambles.

Lerner (1980) concluded that neither portfolio nor weighted utility models are adequate theories of risky decision making. He suggested that risk preference cannot be adequately represented by a model that proposes that preference judgments reflect a simple composition of outcomes and probabilities.

Bonoma and Johnston (1979) also say problems with weighted utility models and noted three areas of concern: (1) decision makers seemed incapable of satisfying certain necessary assumptions about their own natures as required by the subjective utility models; (2) clear implications about decision making processes have not been borne out by choice behavior of individuals; and (3) an increasingly large set

of individual or situational factors was found to bias the decision maker's choice in ways not always anticipated by cost-gain or other related models.

Choice-Dilemma Questionaire

The choice-dilemma questionaire (CDQ) as formulated by Kogan and Wallach (1967), is a measure of hypothetical decision making. Twelve situations were described in which the central person was faced with a choice between two alternative courses of action, one of which was more rewarding but also less likely to succeed. Subjects indicated for each situation the lowest probability of success they would accept before recommending the more rewarding alternative. A number of authors have modified and used a CDQ (for example Higbee and Lafferty, 1972 and Bonoma and Johnson, 1979). If a numerical analysis, as in the cost-gain models, is used with the hypothetical situations, similar problems exist, Slovic (1962) performed a convergent validation of several risk taking measures, including gambling preferences. He found no relationship between a willingness to risk errors on a judgmental task and scores on a probability preference measure. The intercorrelations among the measures examined indicated a lack of convergent validity.

Bonoma and Johnston (1979) found additional difficulties with the CDQ's role playing requirement, in that it was not actual choice behavior. They also concluded that situational parameters can exhert influences in real choice situations

that hypothetical situations cannot measure. In addition, the choice-dilemma questionaire is usually very lengthy (each hypothetical situation description requires a separate page), and it can take hours to complete and analyze.

Consequences and Uncertainty Measures

Most of the authors who have investigated perceived risk have employed a format that stems from Bauer's original formulation. The measurement was usually one or more Likert type questions such as:

> How important is it to you that a new brand of coffee you have never tried before is as good as your present brand?
>
> not important fairly important important very important
>
> How certain are you that a brand of coffee you have not tried before will be as good a value for the money as your present brand?
>
> very certain usually certain sometimes certain almost never certain
>
> (Arndt, 1967 p.293)

Choffray and Johnston (1979) used the following type of questions to measure the risk perceived by a potential adopter of a new industrial product:

1. How likely do you feel it is that an air-conditioning manufacturer can currently produce:

	Very Unlikely									Very Likely
a. a <u>cost-effective</u> solar absorption system?	1	2	3	4	5	6	7	8	9	10
b. a <u>reliable and dependable</u> solar absorption system?	1	2	3	4	5	6	7	8	9	10

2. Suppose your company chose an air-conditioning system which did not fully meet its expectations. How significant would it be for your <u>organization</u> if the system proved:

	Of Little Consequence to the Organization									Potentially Catastrophic to the Organization
a. less <u>economical</u> than projected?	1	2	3	4	5	6	7	8	9	10
b. less <u>reliable and dependable</u> than projected?	1	2	3	4	5	6	7	8	9	10

3. Suppose you <u>actively</u> supported adoption of an air-conditioning system that did not fully meet expectations. How significant would it be for <u>you personally</u> if the system proved:

	Would Not Affect My Position and Credability									Would Highly Endanger My Position and Credability
a. less <u>economical</u> than projected?	1	2	3	4	5	6	7	8	9	10

b. less reliable and dependable than projected? 1 2 3 4 5 6 7 8 9 10

This methodology and instrumentation (adopted for this study) was found to be valid and reliable (Jacoby ahd Kaplan, 1972; Zikmund and Scott, 1973; Choffray and Johnston, 1979; etc.).

General Models of Industrial Buying Behavior

Wind (1968) has asserted that there are at least three sets of variables that can be assumed to have an effect on industrial buying decisions in general. The first set consists of the traditional variables such as price, quality, delivery, and service, all of which commonly have been considered the sole determinents of the buyer's decision. The second set that is hypothesized to affect decisions is derived from the organizational setting within which the buyer makes his decision. It is felt that industrial buyer behavior, like that in any other complex organizational system, is directed toward the satisfaction of the buyer's formal organizational and social rewards. The third set of variables is made up of those factors that simplify the buyer's work such as procedures that result in less effort in selecting a new source of supply. There are two general models of industrial buying behavior that specifically emphasize the importance of the decision maker's risk perception on

his decision processes. One is Webster and Wind's model and the other is Sheth's.

Sheth's Model of Industrial Buyer Behavior

Sheth's model is shown in Figure 2. It should be noted that perceived risk is a product-specific factor. The expectation block in the model refers to the perceived potential of alternative suppliers and brands to satisfy explicit and implicit objectives in any explicit buying decision. The most common explicit objectives include product quality, delivery time, after-sale service, price, reputation, and technical expertise. Although perceived risk in Sheth's model is seen as a product-specific variable, the expectations' measurements are arrived at by obtaining a profile of each supplier or brand with regard to how satisfactory it is perceived to be enabling the decision maker to achieve his explicit and implicit objectives. (p.52) Obviously, perceived risk can play a part in this process.

Webster and Winds' General Model of Organizational Buying Behavior

This model (see Figure 3) attempts to present a comprehensive view of organizational buying behavior by enabling one to evaluate the relevance of specific variables and permitting greater insight into the basic processes of industrial buying behavior. (p.12) Webster and Wind classify the reduction of perceived risk as a non-task variable, that

An Integrative Model of Industrial Buyer Behavior

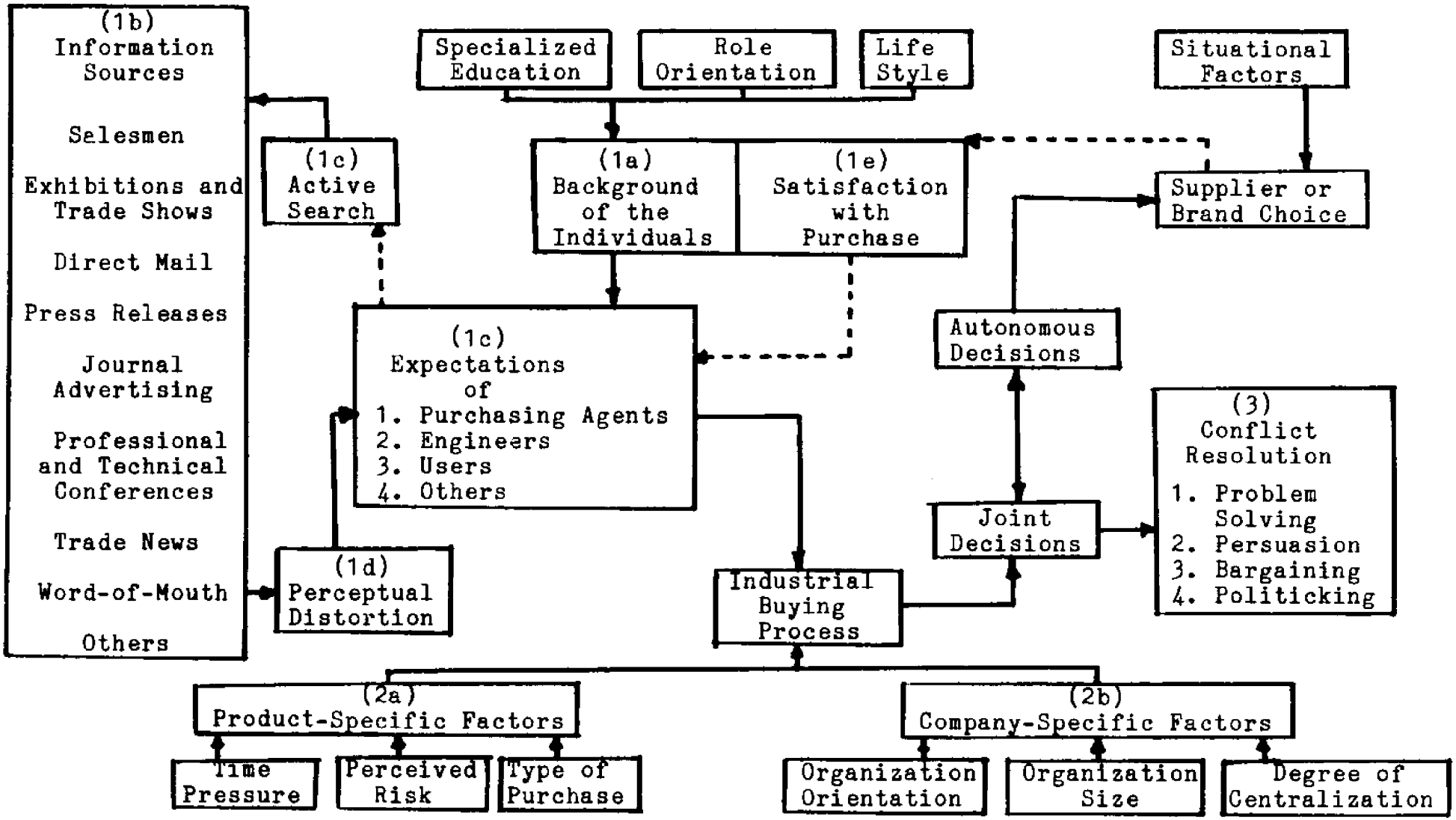


Figure 2 (Sheth, 1973 p.51)

A General Model For Understanding Organizational Buying Behavior

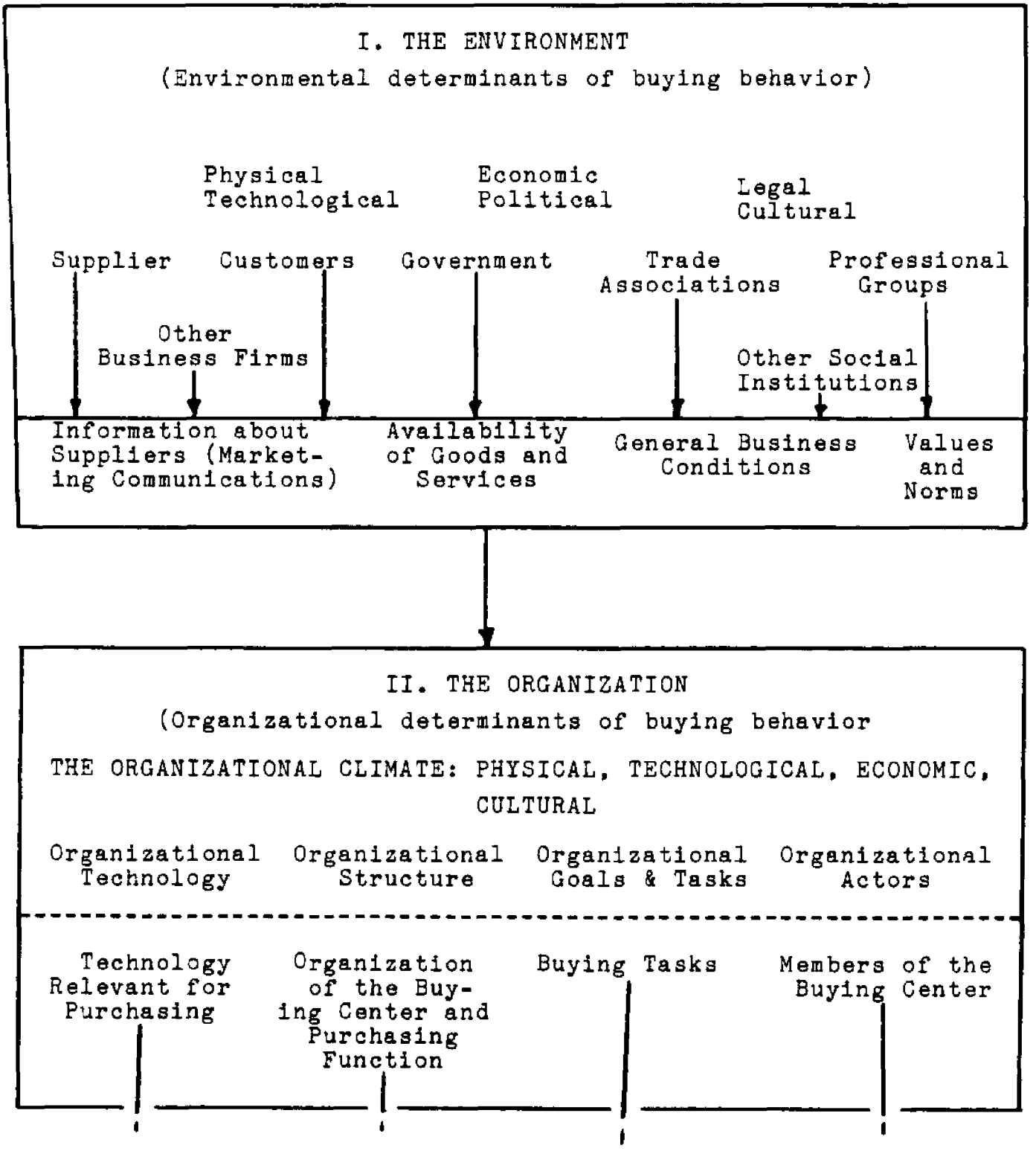


Figure 3 (Webster and Wind, 1972 p.15)

A General Model For Understanding Organizational Buying Behavior (continued)

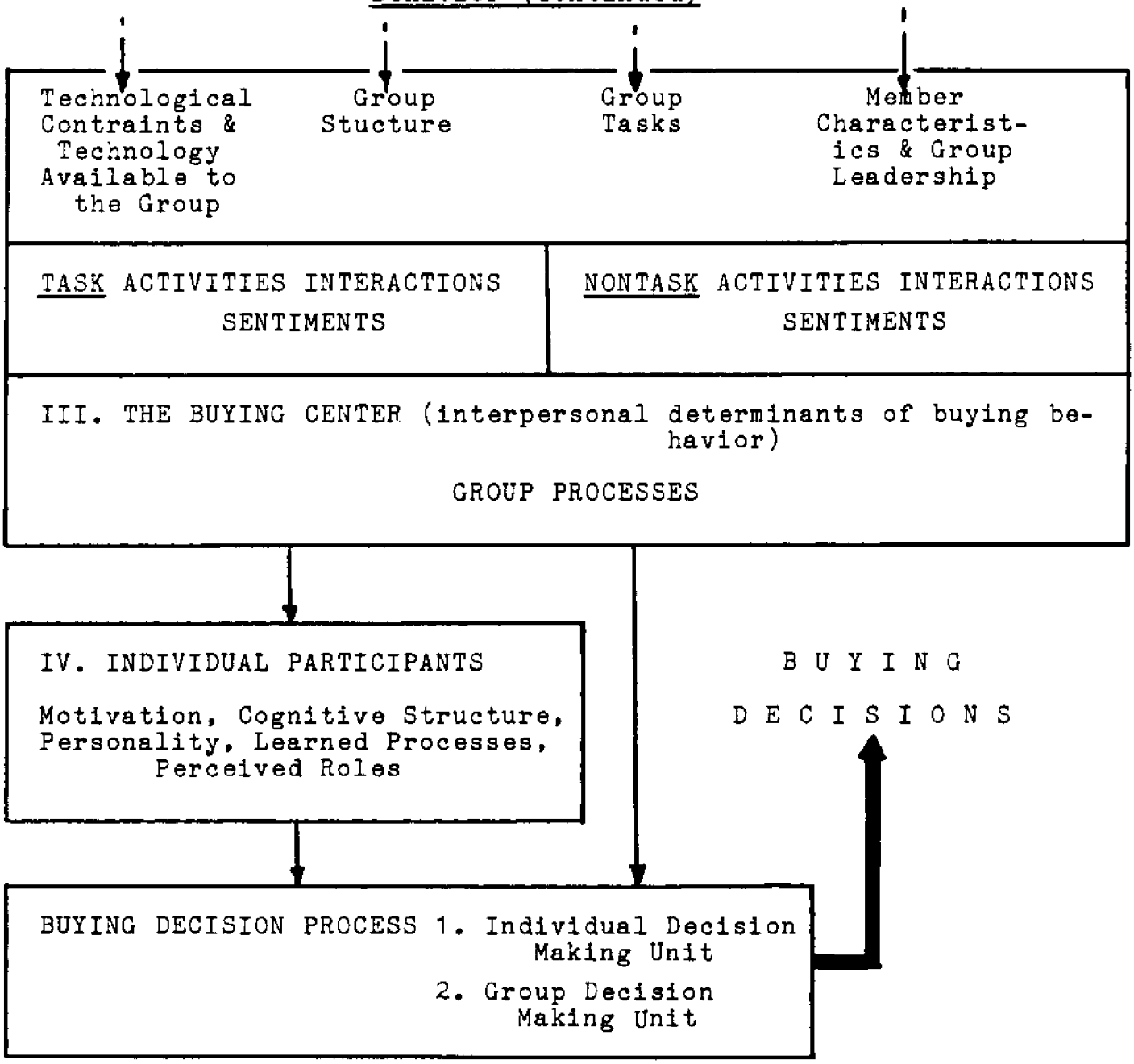


Figure 3 (Webster and Wind, 1972 p.15)

is, one that extends beyond the buying problem. However, there may be an overlap into the task classification, which are variables directly related to the buying decision. The selection of suppliers is identified as the fifth stage of the buying process:

1) Identification of need
2) Establishment of specifications
3) Establishment of alternatives
4) Evaluation of alternatives
5) Selection of suppliers (p.16)

Webster and Wind conjectured that, in the final analysis, all organizational buying behavior is individual in character, and only the individual as a member of a group can analyze buying situations, decide, and act. The individual is motivated by a complex combination of personal, organizational, social, and environmental factors. Among the psychological processes that affect a buyer's response to the buying situation and potential vendors is perceived risk. Webster and Wind contended that the individual's preception of risk in a given decision is a function of uncertainty (in the sense of a probabilistic assessment) and the value of certain outcomes. They also specified three significant types of uncertainty: uncertainty about (1) available alternatives, (2) the outcomes associated with various alternatives, and (3) the way relevant other persons will react to various outcomes. They asserted that the individual determinents of organizational buyer behavior and the tactics that buyers

are likely to use in dealing with potential vendors must be clearly understood by those who attempt to affect their behavior. (p.19)

Industrial Vendor Selection

As indicated in the models of industrial buyer behavior, one of the major task of the organization's purchasing department or buying center is the selection of vendors.

Industrial buyers' decisions in general and their vendor selection decisions in particular are a function of several determinants. Wind and Robinson (1968) have proposed the following classification of variables:

1. The buyer's own characteristics, especially his psychological mechanism and behavioral characteristics, which serve as the major mediating processors between the inputs to which he is subject and his outputs (responses).
2. Interpersonal influences of other organizational members.
3. Organizational variables. The effect of these variables on the behavior of the organization members has been widely recognized by behavioral scientists but almost entirely neglected by marketing experts.
4. Inputs from various sources of supply. These inputs are generally of two types: (a) those supporting source X and (b) those contradicting inputs which attempt to negate the influence of the supporting inputs for source X.

5. Environmental variables, which are of three types: (a) general variables affecting the value system of the people of a given society, (b) general business conditions, and (c) regular business constraints. (p.30)

This section of the chapter will deal with the relevant organizational, situational, product, and individual factors, as well as the methods, that have been used and are being used by industry to select suppliers.

Organizational Factors

Four organizational dimensions have been examined in relation to the purchasing-function, decision-making structure: centralization, formalization, complexity, and size.

Centralization is the degree to which authority, responsibility, and power are concentrated within an organization or buying unit (Johnston and Bonoma, 1981). It is usually measured by examining the organization and operation of the purchasing function of a firm and classifying it as being either centralized, decentralized, or a combination of both. Studies indicate that the responsibility for selecting a vendor can vary depending on situational and product characteristics as well as the formal centralization of the firm. Klebba and Dwyer (1981) found that the more uncertain the environment, the less centralized the organization will be.

Formalization refers to the extent to which activities in an organization are formally prescribed by rules, policies,

and procedures. It is usually measured in terms of the percentage of buying process communication in written form (Johnston and Bonoma, 1981). Klebba and Dwyer (1981) concluded that the more uncertain the environment is, the less formalized the organization will be. In addition, Johnston and Bonoma (1981) found that the more formalized an organization is, the greater the number of participants (extensity) in the buying decision. They also found that when the amount of written communication was a large percentage of the total, a purchase requisition procedure was used, and there was little contact between buying center members. Accordingly, the organization tended to be more centralized.

Complexity is defined as the degree to which the organization is compartmentalized and pursues functional specialization. It is commonly described in terms of number of divisions and/or subsidaries (Johnston and Bonoma, 1981). Klebba and Dwyer (1981) concluded that the more uncertain the environment, the more highly specialized the organization is.

Finally, size is often defined in terms of annual sales dollars, number of employees, or some other similar measure. Size did not seem to affect any dimension of the buying center. The most important factors appeared to be degree of formalization and the importance of the purchasing situation (Johnston and Bonoma, 1981).

Most often, the manner in which organizational variables

are investigated with respect to their relationship to the industrial decision making process is through protocol analysis. Protocol analysis is an attempt to examine a decision maker's verbal thinking through a purchasing decision from the end (Klebba and Dwyer, 1891). There have been some problems associated with the use of protocols. These include the fact that the factoral task structure and profiles presented as the situation to be evaluated may be too simplistic, unreal, and lacking in external validity (Bettman, 1979). In addition, there can be coding problems, although there are schemes that have attempted to overcome them (Biehal and Chakravarti, 1982). Protocol analysis, however, is very time consuming, with an average of 40 hours per subject spent in collection and analysis (Crow, Olshavsky, and Summers, 1980). It has been shown on occasion, nevertheless, to be a useful tool for the study of decision making and information processing.

Situational Factors

Robinson, Faris, and Wind (1967) have developed the BUY-GRID which they have used to classify industrial buying situations into three categories. As further explained in Table 1, a new task is a requirement or problem that has not arisen before, a straight rebuy is a continuing or recurring requirement handled on a routine basis, and a modified rebuy may develop from a new task or straight rebuy situation. (p.28)

This study will concentrate on the findings dealing with the new task situation. Brand (1972) concluded that when pur-

BUYGRID - Types of Buying Situations - "Buyclasses"

I. NEW TASK

1. A requirement or problem that has not arisen before
2. Little or no relevant past buying experience to draw upon
3. A great deal of information is needed
4. Must seek out alternative ways of solving the problem and alternative suppliers
5. Occurs infrequently - but very important to marketers because the pattern for the more routine purchases that will follow
6. May be anticipated and developed by creative marketing

II. STRAIGHT REBUY

1. Continuing or recurring requirement, handled on a routine basis
2. Usually the decision on each separate transaction is made in the purchasing department
3. Formally or informally, a "list" of acceptable suppliers exists
4. No supplier not on the "list" is considered
5. Buyers have much relevant buying experience, and hence, little new information is needed
6. Appears to represent the bulk of individual purchases within the company
7. Items purchased, prices paid, delivery times, etc., may vary from transaction to transaction, so long as these variations do not cause a new source of supply to be considered

---

III. MODIFIED REBUY

1. May develop from either new task or straight rebuy situations
2. The requirement is continuing or recurring or it may be expanded to a significantly larger level of operations
3. The buying alternatives are known, but they are CHANGED
4. Some additional information is needed before the decisions are made
5. May arise because of outside events, such as an emergency or the actions of a marketer
6. May arise internally because of new buying influences, or for potential cost reductions, potential quality improvements, or potential service benefits
7. Marketers who are not active suppliers try to convert the customer's straight rebuys into modified rebuys

Table 1 (Robinson, Faris, and Wind, 1967 p.28)

chasing a product new to the company, a high degree of preference is given to potential suppliers whose reputations are known to personnel inside the purchasing firm or to professionals employed in other companies. In fact, reputation turned out to be one of the major factors motivating purchasing professionals' selection of suppliers, as outlined in Table 2. Other situational variables that have been found to be important are delivery (all authors in Table 2), service (Dickson, 1966; Wind and Robinson, 1968; Dempsey, 1978; etc.), technical assistance (Wind and Robinson, 1968; Bubb and van Rest, 1974; Bellizi and Walter, 1980; etc.), and technical capacity (Dickson, 1966; Wieters and Ostrom, 1979; Sibley, 1980; etc.).

Although one cannot assume that the purchasing agent is responsible for deciding which vendor to select, in most cases he or she is responsible for gathering the information and contacting the preferred vendor (sheth, 1974). Therefore, while the decision as to which supplier to select may be a joint one involving not only purchasing but engineering and plant management, - particularly in the new task situation - the purchasing agent has been found to be very influential in searching for new sources of supply and has a strong to moderate influence in the qualification and limiting of sources (Bellizi and Walter, 1980). In fact, Lehmann and O'Shaghnessy (1974) contended that the purchasing agent is the key figure in the purchasing decision since his or her evaluation of sup-

Major Factors Motiviating Purchasing Professionals' Selection of Suppliers

Author	Delivery	Economics	Product Quality	Reputation	Service	Technical Assistance	Technical Capacity
Dickson (1966)	x	x	x	x	x		x
Kennedy (1966)	x	x	x				
Wind & Robinson (1968)	x	x	x	x	x	x	
Wind (1970)	x	x	x		x		
Brand (1972)	x	x	x		x	x	x
Sheth (1973)	x	x	x	x	x	x	
Bubb & van Rest (1974)	x	x	x		x	x	x
Lehman & O'Shaughnessy (1974)	x	x	x	x	x	x	x
Bonoma & Johnston (1978)	x	x	x	x			
Dempsey (1978)	x	x	x	x	x		
Wieters & Ostrom (1979)	x	x	x	x		x	x

Table 2

Major Factors Motivating Purchasing Professional's Selection of Suppliers (continued)

Author	Delivery	Economics	Product Quality	Reputation	Service	Technical Assistance	Technical Capacity
Bellizi & Walter (1980)	x	x	x		x	x	x
Croell (1980)	x	x	x				
Crow, Olshavsky, & Summers (1980)	x	x	x				
Parasuraman (1980)	x	x	x				x
Sibley (1980)	x	x	x	x		x	x
Monczka, Giunpero, & Reck (1981)	x	x	x				x
Crow & Lindquist (1982)	x	x	x				
Haas (1982)	x	x	x	x	x	x	
Kennedy (1983)	x	x	x				

Table 2

pliers and products is likely to influences, if not determine the company's final choice of vendors.

Product Factors

Industrial products are defined as goods bought by an organization's purchasing agents or by middlemen in order to make other goods, resell them, or carry on some other exchange related activity (Rachman and Romano, 1980 p.248). A classification of industrial goods can be found in Table 3. The five types of industrial goods are installations, accessory equipment, raw materials, component parts and materials, and supplies. Purchasing agents are directly involved with the selection of vendors for the last four. The two product characteristics of economics or price and product quality have been identified as important by all the authors in Table 2.

Individual Factors

The buyer's own characteristics, especially his personality traits, have frequently been used in decision-making experiments (Wilson, Mathews, and Sweeny, 1971). A number of personality variables have been investigated with regard to industrial supplier selection. The two that have been found to be most significant are self-esteem or generalized self-confidence and need for certainty.

Self-esteem can be defined as the extent to which an individual perceives himself as being effective in dealing with problems that confront him (Ghiselli, 1971 pp.54-55). It is

Classification of Industrial Products

Type	Definition	Buyer
Installations	Large, expensive goods necessary for the production of final products, though they do not become part of those products, such as factory sites and major equipment.	Top company personnel
Accessory Equipment	Less expensive equipment that does not become part of the final product although it is necessary to the final product's manufacture, such as hardware and office equipment.	Specialized purchasing agents
Raw Materials	Natural resources such as crude oil, iron ore, and other minerals, or cultivated products, such as wheat, cotton, or timber.	Specialized purchasing agents or top company agents
Component Parts and Materials	Goods that have in some way been shaped or finished and incorporated into another product, such as semiconductors, piston rings, and auto lights.	Specialized purchasing agents
Supplies	Products needed for the maintenance or repair of equipment or for the operating of a business, such as paper clips, lubricating oils, and brooms.	Purchasing agents

Table 3 (Rachman and Romano, 1980 pp.249-251)

interesting to note that although self-esteem was not found to be related significantly to perceived risk, it has been found to be significant in terms of purchasing effectiveness (Reck and Werther, 1979) and in discriminating between normative and conservative decision styles (Wilson, Mathews, and Sweeny, 1971).

Using a Purchase Performance Index (PPI) as a measure of purchasing effectiveness with a reliability coefficient (Cronbach's Alpha) of 0.08, Ghiselli (1971) found that high effective purchasing managers had a higher average level of self-esteem than low effective individuals. Reck and Werther (1979) concurred, using an expected monetary value measure as a discriminator between decision styles. However, they discovered that the influence of generalized self-confidence was significantly less that the need for certainy or perceived risk.

Need for certainty in the context of industrial vendor selection is defined as the extent to which individuals see ambiguous or complex situations as a source of threat (Reck and Wether, 1979 p.27). Reck and Werther (1979) found the need for certainty was lower for the high effective group, that is, high effective people found ambiguity and uncertainty of information more acceptable than their less effective counterparts. Wilson, Mathews, and Sweeny (1971) concluded that the need for certainty was a better discriminator than generalized self-confidence, although perceived risk was the

best. Therefore, subjects categorized as having a high need for certainty tended to be classified as having a conservative decision making style. It is interesting to note, however, that purchasing effectiveness was not significantly related to differences in sourcing.

Socioeconomic Variables

In addition to the personality variables, Reck and Wether (1979) found that current salary level could be used to identify the more effective purchasing group, and that years of purchasing experience was also significant.

Two additional variables shown to affect the selection of industrial vendors are friendship and source loyalty. Wind (1968), Bonoma and Johnston (1978), and others have concluded that social factors are important influences on the industrial purchasing decision, perhaps more so than the "rational"-economic ones. Friendships within the organization can influence decision styles (Wind and Robinson, 1968), and source loyalty can help simplify a buyer's work in terms of time and effort (Wind, 1968).

Methods of Industrial Vendor Selection

Organizations began using formal supplier evaluation systems in the late 1950's, reaching a peak in the early and mid 1960's (Wieters and Ostrom, 1979). According to Wieters and Ostron (1979), the most referenced discussion of rating systems was the monograph published by the National Associa-

tion of Purchasing Agents in 1963 (Smith, Lyons, and Old, 1963) which covered the following spectrum of common approaches in the industry:

1. The categorical method is the simple classification of different buyers' opinions aggregated with regard to a given vendor.
2. Raw scoring which is when a suitable unit of measurement such as receipts, lots, or items is kept track of in terms of time and acceptable units (Purchasing, 1981c).
3. The weighted point system is a method of combining ratings on several performance criteria and their weights (scaling factors) to represent the relative importance of each criterion.
4. The cost-ratio method aggregates the cost of poor performance to arrive at an adjusted relative cost of purchase, including price.

Wieters and Ostrum's (1979) study discovered that these approaches are still the main basis for supplier evaluation in current purchasing texts and are fairly representative of the actual methods being used as of 1979. They also found that a survey of 400 firms inducated that less than 15% of those questioned went beyond some form of weighted point system with the typical system consisting of eight or less rating criteria. The criteria emphasized quality, delivery, price, product capacity, reputation, service, and technical assistance (See Table 2). Most firms used an informal weighting system although there was some indication that, particu-

larly in today's uncertain economic times, organizations were putting more effort into selecting vendors through the use of computer programs, plant visits, etc. Indeed, the tendency today seems to be in recruiting MBA's specifically for purchasing. Also, the National Association of Purchasing Managers has recently begun a national certification program requiring, among other things, at least three years of experience, formal education, and the successful completion of four exams (Upah and Bird, 1978).

There have been, however, some problems associated with vendor rating systems. A recent article in Purchasing (1981c) found that some vendors may turn down difficult jobs for fear of tarnishing their overall ratings, and buyers may cultivate premium-price sources in order to secure quality/delivery performance. In fact, the procedures might become so complicated and cumbersome that everyone may lose interest. Finally, allowing programmers, systems analysts, and EDP analysts to take over the rating projects may result in the procedures becoming an end rather than a means to an end. Hence one buyer has said that his best vendor evaluation scale is a picture in his purchasing agent's reception room featuring his ten worst suppliers (Zaltman and Bonoma, 1977).

From the above discussion and evaluation, and based on a modified Choffray and Johnston (1979) perceived risk model found in Figure 4, the next section specifies the hypotheses

Modified Model of Perceived Risk

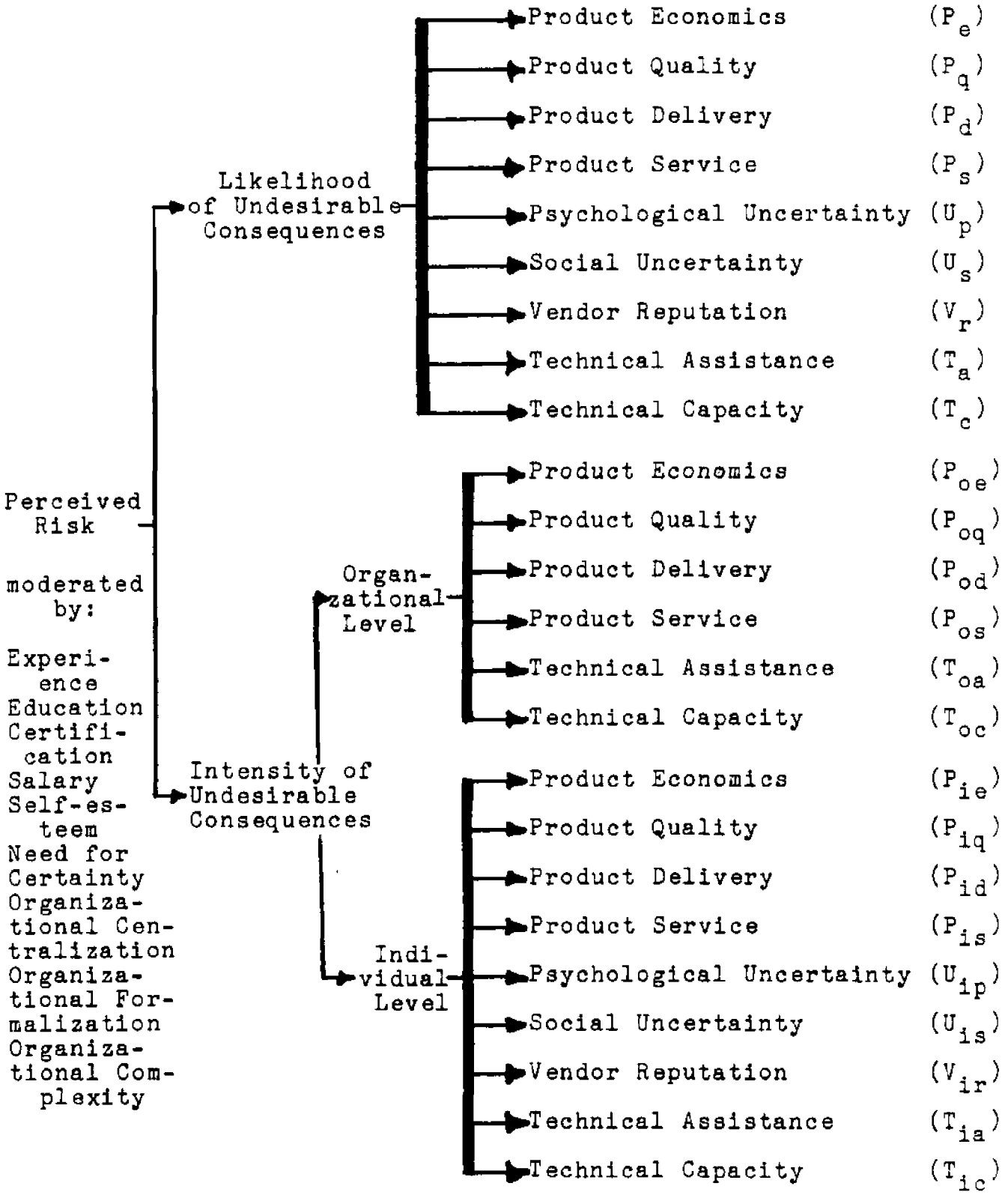


Figure 4

that have been formulated for testing in this study.

Hypotheses to be Tested

H1:

a) The percieved risk associated with industrial vendor selection will be directly related to the likelihood of undesirable consequences in terms of product economics, quality, delivery, service, psychological uncertainty, social uncertainty, vendor reputation, technical assistance, and technical capacity for a new task buy for component parts and materials.

b) The perceived risk associated with industrial vendor selection will be directly related to the likelihood of undesirable consequences in terms of product economics, quality, delivery, service, psychological uncertainty, social uncertainty, vendor reputation, technical assistance, and technical capacity for a new task buy of industrial supplies.

H2:

a) The perceived risk associated with industrial vendor selection will be directly related to the intensity of undesirable consequences at the organizational level in terms of product economics, quality, delivery, service, technical assistance, and technical capacity for a new task buy of component parts and materials.

b) The perceived risk associated with industrial vendor selection will be directly related to the intensity of undesirable consequences at the organizational level in terms of product economics, quality, delivery, service, technical assistance, and technical capacity for a new task buy of industrial supplies.

H3:

a) The perceived risk associated with industrial vendor selection will be directly related to the intensity of undesirable consequences at the individual level in terms of product economics, quality, delivery, service, vendor reputation, psychological uncertainty, social uncertainty, technical assistance, and technical capacity for a new task buy of component parts and materials.

b) The perceived risk associated with industrial vendor selection will be directly related to the intensity of undesirable consequences at the individual level in terms of product economics, quality, delivery, service, vendor reputation, psychological uncertainty, social uncertainty, technical assistance, and technical capacity for a new task buy of industrial supplies.

H4: The overall perceived risk and individual risk components associated with the selection of a vendor of component parts and materials will be greater than that associated with the selection of a vendor of industrial supplies.

H5: Groups that differ in terms of experience will have different risk components and overall levels of perceived risk for both component parts and supplies.

H6: Groups that differ in terms of education will have different risk components and overall levels of perceived risk for both component parts and supplies.

H7: Groups that differ in terms of salary level will have different risk components and overall levels of perceived risk for both component parts and supplies.

H8: Groups that differ in terms of NAPM certification will have different risk components and overall levels of perceived risk for both component parts and supplies.

H9: Groups that differ in terms of self-esteem will have different risk components and overall levels of perceived risk for both component parts and supplies.

H10: Groups that differ in terms of need for certainty will have different risk components and overall levels of perceived risk for both component parts and supplies.

H11: Groups whose organizations differ in terms of centralization will have different risk components and overall levels of perceived risk for both component parts and supplies.

H12: Groups whose organizations differ in terms of formalization will have different risk components and overall levels of percieved risk for both component parts and supplies.

H13: Groups whose organizations differ in terms of complexity will have different risk components and overall levels of perceived risk for both component parts and supplies.

Modified Model of Percieved Risk to be Used in This Study

In this study, perceived risk will be viewed in terms of the likelihood of undesirable consequences and the intensity of undesirable consequences. The format will be an extention of Choffray and Johnston's (1979) vector model of perceived risk for a new industrial product (See Figure 4). In addition to the variables they suggest, several factors relevant to industrial vendor selection will also be examined.

These include the variables found in Table 2, the risks of social and psychological uncertainty (which will tap the effects of loyalty and friendship) and the moderating effects of experience, education, NAPM certification, salary level, self-esteem, need for certainty, and organizational centralization, formalization, and complexity. It will examine the inherent risk in the new task buy situation for vendors new to the firm.

CHAPTER III

METHODOLOGY OF THE STUDY

This research project was a field study, utilizing a moment correlation technique. Although a correlation-type study cannot investigate direct cause and effect, it can, nevertheless, determine whether the variables under investigation are related to one another at a fixed point of time. Therefore, the result of this project can only tend to support the modified perceived risk model's hypothesized relationships. If, however, the relationships between the variables as predicted do not exist, the model or parts thereof can be shown to have negligible predictive power.

The choice of a correlation approach was dictated by the complexity of the study which attempted to delve into an area where there is little specific empirical data. However, once relationships that are significant, if any, are shown to exist, experimentation can be used as a second stage attempt to establish cause and effect relationships.

Research Sites

The data for this study was obtained from companies classfied by the U.S. government as having Standard Industrial

Codes (SIC) of 3573. That is, manufacturers of computer parts and materials. This industrial classification was chosen due to the relatively small size of its total population (The 1977 U.S. Census of Manufacturers found 807 such organizations), and the strong possiblity that an industry where technological change has been rapid would be exposed to the new vendor selection process on a fairly regular basis.

Test Instrument

The data for the study was obtained through the use of a questionaire containing scales that were shown to have validity and reliability. The questionaire can be found in Appendix A.

Background Information

Demographic data which permitted testing for the influences on perceived risk of experience, education, certification, job title, and salary level were obtained.

The organizational dimensions that have been found to be relevant to the purchasing decision - centralization, formalization, and complexity (Johnston and Bonoma, 1981) were also measured. In addition, data on organization size (number of employees and gross sales) were obtained independently from information contained in Dun and Bradstreet's 1982 Million Dollar Directory.

Perceived Risk

This study used the two dimensions specified by Cunning-

ham (1967a) of uncertainty and consequences that were modified by Choffray and Johnston (1979) into individual and organizational consequences. Overall risk was measured in the form utilized by Jacoby and Kaplan (1972) shown to be valid and reliable of:

	Not Risky At All									Extremely Risky
On the whole, considering all the factors combined, about how risky would you say it is to select a vendor of new supplies?	1	2	3	4	5	6	7	8	9	10

In this study, the relationship between the likelihood of undesirable consequences and the intensity of undesirable consequences was considered to be multiplicative (Choffray and Johnston, 1979; Jacoby and Kaplan, 1972; etc.), and the model used in the empirical analysis, relating the individual perceived risk components to overall perceived risk was:

$$PR_j = a_o + a_1(P_{ej}P_{oej}) + a_2(P_{pj}P_{opj}) + a_3(P_{dj}P_{odj}) + a_4(P_{sj}P_{osj}) + a_5(P_{ej}P_{iej}) + a_6(P_{pj}P_{ipj}) + a_7(P_{dj}P_{pdj}) + a_8(P_{sj}P_{isj}) + a_9(U_{pj}U_{ipj}) + a_{10}(U_{sj}U_{isj}) + a_{11}(V_{rj}V_{irj}) + a_{12}(T_{aj}T_{oaj}) + a_{13}(T_{aj}T_{iaj}) + a_{14}(T_{cj}T_{icj}) + a_{15}(T_{cj}T_{icj}) + e_j$$

where:

PR_j = individual j's measured overall perceived risk score for a particular product

a's = the weights to be calculated

X_{yj} = the likelihood of undesirable consequences

X_{oyj} = the intensity of undesirable consequences at the organizational level

X_{iyj} = the intensity of undesirable consequences at the individual level

P_e = Product Economics

P_q = Product Quality

P_d = Product Delivery

P_s = Product Service

U_p = Psychological Uncertainty

U_s = Social Uncertainty

V_r = Vendor Reputation

T_a = Technical Assistance

T_c = Technical Capacity

e_r = the error term

(See Figure 4)

Self-Esteem

Self-esteem was measured by the relevant items of the Ghiselli Self-Description Inventory (1971). The inventory has been found to be reliable (split-half) and has content and criterion validity (Ghiselli, 1971; Reck and Werther, 1979; etc.). The inventory itself consists of 64 pairs of adjectives.

Need for Certainty

Need for certainty was measured by the Budner Intolerance of Ambiguity Scale (1962). It is a 16 item Likert-type scale with anchor points of 1=strongly agree and 7=strongly dis-

agree. It has been shown to be reliable with a Cronbach's Alpha of 0.49 and a test-retest score of 0.85 (Budner, 1962). It too has content and criterion validity (Budner, 1962; Reck and Werther, 1979; etc.).

Test Sample

An initial contact letter was mailed to the purchasing managers of 225 firms classified with SIC 3573. The companies were randomly selected from the 393 listings of 3573 found in the 1982 Million Directory where the only requirement for inclusion is a net worth in excess of $500,000. The directory was a source for the companies names and addresses.

Four weeks later, two questionaires were sent to the purchasing managers who were requested to fill out one questionaire and to pass the other one along to a subordinate. The questionaires contained a cover letter, a quarter, and a stamped, self-addressed return envelope. Seven weeks after the initial contact letter was mailed, a follow-up letter was sent. (See Appendix A) Only follow-up contacts and monetary incentives have been found to be consistently effective in improving survey response rates (Furse, Stewart, and Rados, 1981), although initial contact letters also have been shown to increase the percentage of returns (Erdos and Morgan, 1970).

Of the 450 questionaires sent out, 48 of them were returned undeliverable. Of the remaining 402, 96 were returned completed, 18 were returned partially completed, and 15 were sent back blank with the quarters attached. The overall re-

response rate, therefore, for usable questionaires was 24%. This response rate is considered respectable for a survey of purchasing professionals (Choffray and Johnston, 1979) and was high enough to permit the analysis of the hypothesized relationships.

Data Analysis Methods

Frequency analyses were performed to obtain a picture of the distribution of respondents in each category as well as a mean score where applicable (See Tables 3,4, and 5 in Appendix B). A summary of the demographics of the respondents can be found in Table 6.

Reliability analyses, using both Alpha and Guttman split-half techniques, were performed for each of the scales. (See Table 7 in Appendix B) All of the scales were found to be reliable when examined by both methods.

In addition, a factor analysis, using principle iterations, was carried out on the likelihoods of undesirable consequences and the intensities of undesirable consequences for both product types to check for loading. (See Table 8 in Appendix B)

Pearson correlations were obtained in order to examine the relationships between variables. Tests of significance at the 0.05 level for the correlation coefficients were performed to test the hypothesis that $P_{12}=0$. Unless the value of r_{12} is significantly different from zero, there is little support for the judgment that the two variables are related.

Summary of the Demographic Characteristics of the Respondents

Total Number of Respondents	96
Managers	61
Buyers	35
Men	73
Women	21
Mean Age	36.5
Mean Education	Attended College
Mean Years Current Employment	3.2
Mean Years Previous Employment	6.5
Mean Salary	$27,669
Mean Organizational Formalization(% written communication)	52.4
Mean Organizational Complexity(# of departments)	11
Mean Gross Sales(millions)	$107.6
Mean Number of Employees	1,954

Table 7

Stepwise regression analyses were run for both of the product types with overall perceived risk as the dependent variable. Both the intensity and likelihood components as well as the calculated perceived risk measures were used as independent variables in separate runs.

Oneway analyses of variance were performed for each of the moderating variables of experience, certification, salary level, self-esteem, need for certainty, organizational centralization, organizational formalization, and organizational complexity to check for homogeneity within groups with respect to overall perceived risk. Variables whose F statistics were significant at the 0.05 level, indicating that the differences between groups are greater than the differences within groups, were examined further through the use of stepwise regression analyses. Since the regression analysis includes the F statistics, it was possible to determine whether or not the regression coefficients were significantly different from zero at the 0.05 level. The associated independent variable whose coefficient was not significantly different from zero was eliminated from the final regression equation.

High correlations between independent variables reduce the reliability of the net regression coefficients, and therefore, they were carefully checked for co-linearity before their introduction into the regression program.

The above analyses were performed with the aid of the

SPSS programs available in the Baruch College WYLBUR System.

Summary

This chapter attempts to explain the methodology used in the study. It describes the rationale of the research techniques, the choice of the research sites, a description of the test population, the test instruments used, and the data analysis methods employed in evaluating the test data.

CHAPTER IV

THE RESULTS

The results of the study are presented for each of the hypotheses tested. In addition, a summary of the results can be found at the end of the chapter.

Hypothesis 1

This hypothesis stated that the overall perceived risk associated with industrial vendor selection of a new task buy would be directly related to the likelihood of undesirable consequences for product economics, quality, delivery, service, psychological uncertainty, social uncertainty, vendor reputation, technical capacity, and technical assistance for (a) component parts and materials (C's) and (b) supplies (S's).

(a)

Table 9 contains the Pearson correlation coefficients calculated for component parts and materials. The likelihood components of C02 (quality), C03(delivery), C04(service), C07 (reputation), C08 (social uncertainty), and C09 (psychological uncertainty) were directly correlated to over-

Pearson Correlations-Component Parts and Materials-Likelihood C's

COMPONENT	CORRELATION	# OF CASES	P
C01(LE)	-0.0413[a]	91	0.349
C02(LQ)	0.0627[a]	90	0.279
C03(LD)	0.0819[a]	90	0.224
C04(LS)	0.0193[a]	90	0.428
C05(LTC)	-0.0494[a]	90	0.322
C06(LTA)	-0.1062[a]	89	0.161
C07(LR)	0.0688[a]	91	0.274
C08(LSU)	0.2819[c]	91	0.003
C09(LPU)	0.2463[b]	91	0.009

a = not significant at 0.05 level

b = significant at the 0.05 level

c = significant at the 0.005 level

Table 9

all perceived risk for component parts and materials (CPR). C01 (economics), C05 (technical capacity), and C06 (technical assistance) were negatively correlated with overall perceived risk. However only social uncertainty and psychological uncertainty were significantly correlated to CPR. Psychological uncertainty was significantly correlated at the 0.05 level and social uncertainty was significantly correlated at the 0.005 level to overall perceived risk for component parts and materials. Therefore, part (a) of the first hypothesis was generally not supported.

(b)

Table 10 shows the Pearson correlations for the likelihood components for industrial supplies. S05 (technical capacity), S06 (technical assistance), S07 (reputation), S08 (social uncertainty), and S09 (psychological uncertainty) were directly correlated to overall perceived risk for supplies (SPR). S01 (economics), S02 (quality), S03 (delivery), and S04 (service) were inversely correlated to SPR. However, only vendor reputation, social uncertainty, and psychological uncertainty were significantly correlated to SPR. Reputation was significantly correlated at the 0.05 level while social uncertainty and psychological uncertainty were significantly correlated at the 0.001 level for industrial supplies. Therefore, part (b) was also generally not supported.

Pearson Correlations-Supplies-Likelihood S's

COMPONENT	CORRELATION	# OF CASES	P
S01(LE)	-0.0086[a]	92	0.467
S02(LQ)	-0.0884[a]	93	0.200
S03(LD)	-0.0691[a]	93	0.255
S04(LS)	-0.0911[a]	93	0.193
S05(LTC)	0.1389[a]	93	0.092
S06(LTA)	0.0999[a]	93	0.170
S07(LR)	0.2322[b]	93	0.013
S08(LSU)	0.4122[d]	93	0.000
S09(LPU)	0.3717[d]	93	0.000

a = not significant at the 0.05 level

b = significant at the 0.05 level

d = significant at the 0.001 level

Table 10

Hypothesis 2

The second hypothesis stated that the overall perceived risk associated with industrial vendor selection of a new task buy would be directly related to the intensity of undesirable consequences at the organizational level in terms of product economics, quality, delivery, service, technical assistance, and technical capacity for both component parts and materials (a) and industrial supplies (b).

(a)

Table 11 contains the Pearson correlation coefficients calculated for the intensities of undesirable consequences at the organizational level for component parts and materials. C10 (economics), C11 (quality), C12 (delivery), C13 (service), C14 (technical capacity), and C15 (technical assistance) were directly correlated to overall perceived risk at the organizational level. Economics, service, technical capacity, and technical assistance were all significantly correlated to CPR at the 0.005 level. Quality and delivery were significantly correlated at the 0.001 level to overall perceived risk for component parts and materials at the organizational level. Hence it can be concluded that part (a) of the second hypothesis was supported.

(b)

Table 12 shows the Pearson correlation coefficients

Pearson Correlations-Component Parts and Materials-Intensity C's
(Organizational)

COMPONENT	CORRELATION	# OF CASES	P
C10(OE)	0.03152[d]	93	0.001
C11(OQ)	0.3557 [d]	93	0.000
C12(OD)	0.4834 [d]	93	0.000
C13(OS)	0.3005 [c]	93	0.002
C14(OTC)	0.2760 [c]	93	0.004
C15(OTA)	0.2982 [c]	93	0.002

c = significant at the 0.005 level

d = significant at the 0.001 level

Table 11

Pearson Correlations-Supplies-Intensity S's (Organizational)

COMPONENT	CORRELATION	# OF CASES	P
S10(OE)	0.4471[d]	92	0.000
S11(OQ)	0.4186[d]	93	0.000
S12(OD)	0.4617[d]	93	0.000
S13(OS)	0.4961[d]	93	0.000
S14(OTC)	0.5175[d]	93	0.000
S15(OTA)	0.4304[d]	93	0.000

d = significantly correlated at the 0.001 level

Table 12

calculated for the intensities of undesirable consequences at the organizational level for industrial supplies. S10 (economics), S13 (service), S14 (technical capacity), and S15 (technical assistance) were all directly correlated to overall perceived risk for supplies at the organizational level. Economics, quality, delivery, service, technical capacity, and technical assistance were significantly correlated to SPR at the 0.001 level. Therefore, it can be concluded that part (b) of this hypothesis was also supported.

Hypothesis 3

The third hypothesis stated that overall perceived risk associated with industrial vendor selection of a new task buy would be directly related to the intensity of undesirable consequences at the individual level in terms of product economics, quality, delivery, service, psychological uncertainty, social uncertainty, vendor reputation, technical assistance, and technical capacity for both component parts and materials (a) and industrial supplies (b).

(a)

Table 13 contains the Pearson correlation coefficients calculated for components and materials' intensities of undesirable consequences at the individual level. C16 (economics), C17 (quality), C18 (delivery), C19 (service), C20 (technical capacity), C22 (technical assistance), C23 (social uncertainty), and C24 (psychological uncertainty) were

Pearson Correlations-Component Parts and Materials-Intensity C's
(Individual)

COMPONENT	CORRELATION	# OF CASES	P
C16(IE)	0.2610[b]	93	0.006
C17(IQ)	0.3337[d]	93	0.000
C18(ID)	0.3815[d]	93	0.000
C19(IS)	0.3658[d]	93	0.000
C20(ITC)	0.3991[d]	92	0.000
C21(ITA)	0.3079[d]	93	0.001
C22(IR)	0.4388[d]	92	0.000
C23(ISU)	0.2986[c]	92	0.002
C24(IPU)	0.2069[b]	92	0.024

b = significant at the 0.05 level

c = significant at the 0.005 level

d = significant at the 0.001 level

Table 13

directly correlated to overall risk for component parts and materials. Economics, quality, technical assistance, and social uncertainty were significantly correlated to CPR at the 0.005 level. Psychological uncertainty was significantly correlated to CPR at the 0.05 level, and delivery, service, technical capacity, and reputation were significantly correlated at the 0.001 level to the overall perceived risk at the individual level for component parts and materials. Therefore, part (a) of this hypothesis was supported.

Table 14 in Appendix B contains a factor analysis of all the likelihood and intensity components for component parts and materials. Although five factors were identified, only the first two contained components that loaded at the 0.500 level or higher. The two factors displayed in Table 14 had significant eigenvalues (greater than 1.000). The first factor accounted for 50.1 percent of the variance and was made up of the likelihoods of undesirable consequences in terms of social uncertainty and psychological uncertainty, the intensities of undesirable consequences at the organizational level in terms of economics, quality, delivery, service, technical capacity, and technical assistance, and the intensities of undesirable consequences at the individual level in terms of economics, quality, delivery, service, technical capacity, technical assistance, vendor reputation, social uncertainty, and psychological uncertainty, all of which loaded at 0.400 or above.

The second factor accounted for 22.4 percent of the variance and was made up of the likelihoods of undesirable consequences in terms of quality, delivery, service, technical capacity, technical assistance, and reputation, all loading at 0.400 or above. The only component that did not load in either factor was the likelihood of undesirable consequences in terms of economics.

(b)

Table 15 contains the Pearson correlation coefficients for the intensities of undesirable consequences at the individual level for industrial supplies. S16 (economics), S17 (quality), S18 (delivery), S19 (service), S20 (technical capacity), S21 (technical assistance), S22 (reputation), S23 (social uncertainty), and S24 (psychological uncertainty) were directly correlated to overall risk for industrial supplies. Economics, quality, delivery, service, technical capacity, technical assistance, vendor reputation, social uncertainty, and psychological uncertainty was all correlated to SPR at the 0.001 level. Hence, part (b) of the third hypothesis was supported.

Table 16 contains the factor analysis for all the likelihood and intensity components for industrial supplies. Once again, although five factors were identified, only the first two contained components that loaded at the 0.500 level or above. The two factors in Table 16 had eigenvalues greater

Pearson Correlations-Supplies-Intensity S's (Individual)

COMPONENT	CORRELATION	# OF CASES	P
S16(IE)	0.5278[d]	93	0.000
S17(IQ)	0.5434[d]	94	0.000
S18(ID)	0.5470[d]	94	0.000
S19(IS)	0.6296[d]	94	0.000
S20(ITC)	0.6370[d]	94	0.000
S21(ITA)	0.6305[d]	94	0.000
S22(IR)	0.6065[d]	94	0.000
S23(ISU)	0.5673[d]	94	0.000
S24(IPU)	0.4627[d]	91	0.000

d = significantly correlated at the 0.001 level

Table 15

than 1.000 and together explained 81.2 percent of the variance. Table 16 can be found in Appendix B.

Factor one accounted for 61.2 percent of the variance and was made up of the likelihoods of undesirable consequences in terms of social uncertainty and psychological uncertainty, the intensities of undesirable consequences at the organizational level in terms of economics, quality, delivery, service, technical capacity, and technical capacity, and the intensities of undesirable consequences at the individual level in terms of economics, quality, delivery, service, technical capacity, technical assistance, vendor reputation, social uncertainty, and psychological uncertainty, all loading at the 0.400 level or higher.

The second factor accounted for 22.4 percent of the variance and was made up of the likelihoods of undesirable consequences in terms of economics, quality, delivery, service, technical capacity, technical assistance, vendor reputation, social uncertainty, and psychological uncertainty, all loading at the 0.400 level or higher.

Hypothesis 4

The fourth hypothesis stated that the overall perceived risk and the individual risks associated with the selection of a vendor of component parts and materials will be greater than that associated with the selection of a vendor of supplies. A comparison of mean values can be found in Table 6

in Appendix B. The overall perceived risk mean value for component parts and materials was 5.925 while that for industrial supplies was 5.032. In fact, all of the likelihood and intensity components' mean values were larger for component parts and materials than for supplies except for the likelihoods of undesirable consequences relating to delivery and service. This implies that purchasing professionals in a new task buy situation had higher levels of economic, quality, technical capacity, technical assistance, reputation, social uncertainty, and psychological uncertainty related likelihoods and intensities of undesirable consequences and service and delivery related intensities of undesirable consequences with respect to components parts than industrial supplies. The likelihoods of undesirable consequences in terms of service and delivery, on the other hand, were higher for supplies.

Table 6 in Appendix B contains the mean values for the calculated perceived risks. The perceived risk at the organizational level associated with economics, quality, delivery, service, technical capacity, and technical assistance all had mean values higher for component parts than industrial supplies. At the individual level, the mean values were higher for component parts and materials than for supplies for the perceived risks associated with economics, delivery, service, technical capacity, technical assistance, reputation, social uncertainty, and psychological uncertainty.

Quality at the individual level had a slightly higher mean value for supplies than component parts and materials.

Table 17 contains the Pearson correlations for the likelihoods and intensities of undesirable consequences for component parts and materials, summarizing the findings in Tables 9, 11, and 13. Table 18 contains the Pearson correlations for the calculated perceived risks (X's) for component parts and materials.

X5 (Perceived Risk in terms of technical capacity at the organizational level) and X6 (PR in terms of technical assistance at the organizational level) were not significantly related to overall perceived risk for component parts at the 0.05 level. X1 (PR in terms of economics at the organizational level), X4 (PR in terms of service at the organizational level), X7 (PR in terms of economics at the individual level), X11 (PR in terms of technical capacity at the individual level), X12 (PR in terms of technical assistance at the individual level, X14 (PR in terms of social uncertainty), and X15 (PR in terms of psychological uncertainty) were significantly correlated to CPR at the 0.05 level. X2 (PR in terms of quality at the organizational level), X3 (PR in terms of delivery at the organizational level), X8 (PR in terms of quality at the individual level), X9 (PR in terms of delivery at the individual level), X10 (PR in terms of service at the individual level), and X13 (PR in terms of reputation at the individual level were correlated significantly to CPR at the

Summary Table of Pearson Correlations for Component Parts

C's

VARIABLE	SIG. AT .05 LEVEL	SIG. AT .005 LEVEL	SIG. AT .001 LEVEL	NOT SIG. AT .05 LEVEL
CPR	9,24,16	8,10,13,14,15, 21,23	11,12,17,18, 19,20,22	1,2,3,4,5,6, 7
JOB	-5,-6,10	13		1,2,3,4,7,8, 9,11,12,14,15, 16,17,18,19, 20,21,22,23, 24
EDU	-3,-7,-10, -15,-16, -17,-18, -21	-9,-11,-12, -13,-24		1,2,4,6,8,11, 12,14,19,20, 22,23
CER	3			1,2,4,5,6,7,8, 9,10,11,12,13, 14,15,16,17, 18,19,20,21, 22,23,24
CEM	13	11		1,2,3,4,5,6,7, 8,9,10,12,14, 15,16,17,18, 19,20,21,22, 23,24
PEM	12,14,16, 22	8,17,20,21,23, 24		1,2,3,4,5,6,7, 9,10,11,13,15, 18,19
SAL	5	-13		1,2,3,4,6,7,8, 9,10,11,12,14, 15,16,17,18, 19,20,21,22, 23,24
FOR				1,2,3,4,5,6,7, 8,9,10,11,12, 13,14,15,16, 17,18,19,20, 21,22,23,24

Table 17

Summary Table of Pearson Correlations for Component Parts-continued

C's

VARIABLE	SIG. AT .05 LEVEL	SIG. AT .005 LEVEL	SIG. AT .001 LEVEL	NOT SIG. AT .05 LEVEL
CEN	-8,-23,-24			1,2,3,4,5,6,7,9,10,11,12,13,14,15,16,17,18,19,20,21,22
COM	-8,17,-18,-20,-21,-22	-23,-24		1,2,3,4,5,6,7,10,11,12,13,14,15,16,19
TSA	-12,-14			1,2,3,4,5,6,7,8,9,10,11,13,15,16,17,18,19,20,21,22,23,24
TAM	-13			1,2,3,4,5,6,7,8,9,10,11,12,14,15,16,17,18,19,20,21,22,23,24

Table 17

Summary Table of Pearson Correlations for Component Parts

X's

VARIABLE	SIG. AT .05 LEVEL	SIG. AT .005 LEVEL	SIG. AT .001 LEVEL	NOT SIG. AT .05 LEVEL
CPR	1,4,7,11,12, 14,15	2,3,8,9,10,13		5,6
JOB	4	1		2,3,5,6,7,8,9, 10,11,12,13, 14,15
EDU	-1,-2,-4,-9	-3		5,6,7,8,10, 11,12,13,14, 15
CER	3,9,13			1,2,4,5,7,8, 9,10,11,12, 14,15
CEM	3			1,2,4,5,6,7,8, 9,10,11,12,13, 14,15
PEM	9,11,15	8,12,14		1,2,3,4,5,6,7, 10,13
SAL				1,2,3,4,5,6,7, 8,9,10,11,12, 13,14,15
FOR				1,2,3,4,5,6,7, 8.9.10,11,12, 13,14,15
CEN	-8,-15	-14		1,2,3,4,5,6,7, 9,10,11,12,13
COM	-8,-14			1,2,3,4,5,6,7, 9,10,11,12,13, 15
TSA	1			2,3,4,5,6,7,8, 9,10,11,12,13, 14,15
TAM				1,2,3,4,5,6,7, 8,9,10,11,12, 13,14,15

Table 18

0.005 level.

Table 19 in Appendix B contains the results of the stepwise regression analyses for the entire sample with CPR as the dependent variable. In terms of the individual likelihood and intensity of undesirable consequences components, six variables were significantly entered and resulted in an R^2 of 0.404.

In order of inclusion they were: the intensities of undesirable consequences in terms of delivery at the organizational level (C12), reputation at the individual level (C22), economics at the organizational level (C10), service at the organizational level (C13), economics at the individual level (C13), and service at the individual level (C19). The resulting equation was:

$$CPR = 0.396 + 0.621(C12) + 0.271(C22) + 0.302\ (C10) - 0.386(C13) - 0.335(C16) + 0.359(C19) + e$$

Of the six variables significantly entered into the regression equation, three were at the organizational level and three were at the individual level. Although five out of the six variables were "rational" ones, the second one entered was reputation at the individual level. All of the factors except for the intensities of undesirable consequences in terms of service at the organizational level (C13) and economics at the individual level (C16) were directly entered into the equation indicating that even a product that economically would not affect the individual's position adverse-

ly or whose service level would be of little consequence to the organization could still increase the overall risk perceived in the selection of a new vendor of component parts and materials in the new task buy situation. Perhaps, as the seriousness of the consequences of these two variables increases, other methods or other people will become involved and thereby lessen the risk perceived by the individual purchasing professional.

Refering back to Table 5 in Appendix B, it is interesting to note that in terms of a ranking of the intensity and likelihood components mean values, the five largest variables, in order of magnitude, were: the intensity of undesirable consequences in terms of quality at the organizational level (C11), the likelihood of undesirable consequences in terms of quality (C02), the intensity of undesirable consequences in terms of delivery at the organizational level (C12), the likelihood of undesirable consequences in terms of reputation (C07), and the likelihood of undesirable consequences in terms of technical assistance (C06).

For the calculated perceived risk related to component parts and materials, seven were significantly entered into the regression equation with CPR as the dependent variable. They were, in order of inclusion: perceived risk in terms of reputation at the individual level (X13), delivery at the organizational level (X3), quality at the individual level (X8), psychological uncertainty (X14), technical cap-

acity at the organizational level (X5), delivery at the individual level (X9), and technical capacity at the individual level (X11). The resulting regression equation, with an R^2 of 0.330, was:

$$CPR = 3.708 + 0.0328(X13) + 0.0399(X3) + 0.0432(X8) - 0.0295(X14) - 0.0393(X5) - 0.0314(X9) + 0.0319(X11) + e$$

Five of the seven variables entered into the above equation were at the individual level, and the perceived risk associated with reputation at the individual level was entered first. The only other "nonrational" perceived risk was that of social uncertainty. All the variables except for the perceived risks in terms of social uncertainty, technical capacity at the organizational level, and delivery at the indvidual level were entered into the regression equation directly. It appears that products with low perceived risk in these areas can still increase the overall perceived risk associated with component parts and materials. Once again, as the risk associated with social uncertainty, technical capacity at the organizational level, and delivery at the individual level increases, other methods or people may become involved, thereby lowering the overall perceived risk involved with the selection of a new vendor of component parts and materials in the new task buy situation.

Table 6 indicates that the five variables with the highest means were, in order of magnitude: the perceived risk

associated with quality at the organizational level (X2), delivery at the organizational level (X3), service at the organizational level (X4), technical capacity at the organizational level (X5), and delivery at the individual level (X9).

Table 20 contains the Pearson correlation coefficients for the likelihood and intensity components for industrial supplies, thereby summarizing Tables 10, 12, and 15. Table 21 shows the Pearson correlations for the calculated perceived risks (Y's) for supplies. Y1 (PR in terms of economics at the organizational level), Y2 (PR in terms of quality at the organizational level), and Y6 (PR in terms of technical assitance) were significantly correlated to SPR at the 0.005 level. Y3 (PR in terms of delivery at the organizational level), Y4 (PR in terms of service at the organizational level), Y5 (PR in terms of technical capacity at the organizational level), Y8 (PR in terms of economics at the individual level), Y10 (PR in terms of delivery at the individual level), Y11 (PR in terms of service at the individual level), Y12 (PR in terms of technical capacity at the individual level), Y13 (PR in terms of reputation at the individual level), Y14 (PR in terms of social uncertainty), and Y15 (PR in terms of psychological uncertainty) were all significantly correlated to SPR at the 0.001 level.

Table 22 in Appendix B contains the results of the stepwise regression analyses for the entire sample with SPR as

Summary Table of Pearson Correlations for Supplies

S's

VARIABLE	SIG. AT .05 LEVEL	SIG. AT .005 LEVEL	SIG. AT .001 LEVEL	NOT SIG. AT .05 LEVEL
CPR	7		8,9,10,11,12, 13,14,15,16, 17,18,19,20, 21,22,23,24	1,2,3,4,5
JOB	16,19,20			1,2,3,4,5,6,7, 8,9,10,11,12, 13,14,15,17, 18,21,22,23, 24
EDU	2,-8,-10, -22,-23	-13,20,21	-9,-24	1,3,4,5,6,7,8, 9,10,11,12,14, 15,16,17,18, 19
CER				1,2,3,4,5,6,7, 8,9,10,11,12, 13,14,15,16, 17,18,19,20, 21,22,23,24
CEM	8,9			1,2,3,4,5,6,7, 10,11,12,13, 14,15,16,17, 18,19,20,21, 22,23,24
PEM	1,3,22,24			2,4,5,6,7,8,9, 10,11,12,13, 14,15,16,17, 18,19,20,21, 23
SAL	3,4,-9,-10, -14,-15,-19, -20,-21	-13		1,2,5,6,7,8, 11,12,17,18, 22,23,24
FOR	7,-13,24	-2		1,3,4,5,6,8,9, 10,11,12,14, 15,16,17,18, 19,20,21,22, 23

Table 20

Summary Table of Pearson Correlations for Supplies-continued

S's

VARIABLE	SIG. AT .05 LEVEL	SIG. AT .005 LEVEL	SIG. AT .001 LEVEL	NOT SIG. AT .05 LEVEL
CEN	4			1,2,3,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24
COM	-6,-7,-13,-18,-20,-21			1,2,3,4,5,8,9,10,11,12,14,15,16,17,19,23,24
TSA	6,17,19,21			1,2,3,4,5,7,8,9,10,11,12,13,14,15,16,18,20,22,23,24
TAM	-23			1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,24

Table 20

Summary Table of Pearson Correlations for Supplies

Y's

VARIABLE	SIG. AT .05 LEVEL	SIG. AT .005 LEVEL	SIG. AT .001 LEVEL	NOT SIG. AT .05 LEVEL
SPR		1,2,6	3,4,7,8,9,10, 11,12,13,14, 15	
JOB	11,12			1,2,3,4,5,6,7, 8,9,10,13,14, 15
EDU	-4,-10,-11, -12,-13,-14		-15	1,2,3,5,6,7,8, 9
CER	4,8,9,10, 11,13,15			1,2,3,5,6,7, 12,14
CEM	14			1,2,3,4,5,6,7, 8,9,10,11,12, 13,15
PEM	13			1,2,3,4,5,6,7, 8,9,10,11,12, 14,15
SAL	-4			1,2,3,5,6,7,8, 9,10,11,12,13, 14,15
FOR	-5,15	-1		2,3,4,6,7,8,9, 10,11,12,13, 14
CEN				1,2,3,4,5,6,7, 8,9,10,11,12, 13,14,15
COM	-6,-9,-12, -13,-14			1,2,3,4,5,7,8, 10,11,15
TSA	6,7,8,9, 11	10,12		1,2,3,4,5,13, 14,15
TAM	-11,-12, -14			1,2,3,4,5,6,7, 8,9,10,13,15

Table 21

as the dependent variable. In terms of individual likelihood and intensity of undesirable consequences components, three variables were signficantly entered into the regression equation with an R^2 of 0.458. They were, in order of inclusion: the intensity of undesirable consequences in terms of reputation at the individual level (S22), technical assistance at the individual level (S21), and the likelihood of undesriable consequences in terms of social uncertainty (LSU). The resulting regression equation was:

$$SPR = 1.878 + 0.321(S22) + 0.223(S21) + 0.113(S08) + e$$

Both intensity components were at the individual level, and two out of the three variables were "nonrational". All three factors were directly entered into the regression equation.

Referring back to Table 5 in Appendix B, the five components with the largest mean values were, in order of magnitude: the likelihood of undesirable consequences in terms of delivery (S03), quality (S02), reputation (S07), service (S04), and economics (S01).

For the calculated perceived risk variables, three were significantly entered into the regression equation with an R^2 of 0.371. They were, in order of inclusion: the perceived risk associated with reputation at the individual level (Y13), the perceived risk associated with technical capacity at the individual level (Y11), and the perceived risk associated with psychological uncertainty (Y14). The resulting regression equation was:

$$SPR = 3.051 + 0.0272(Y13) + 0.0201(Y11) + 0.0150(Y14) + e$$

All three of the perceived risk components were at the individual level, and two of the three were "nonrational". All three variables were directly entered into the equation.

Table 6 in Appendix B indicates that the five calculated perceived risks with the largest mean values were, in order of magnitude: the perceived risk associated with quality at the organizational level (Y2), delivery at the organizational level (Y3), quality at the individual level (Y8), delivery at the individual level (Y9), and reputation at the individual level (Y13).

The remaining hypotheses deal with the effects of the proposed moderating variables. Summaries of the Pearson correlation coefficients of these variables can be found in Table 17 for the intensities and likelihoods for component parts and materials, Table 20 for the intensities and likelihoods for industrial supplies, Table 17 for the calculated perceived risks for component parts and materials, Table 21 for the calculated perceived risks for industrial supplies, and Table 23 for CPR and SPR.

Hypothesis 5

This hypothesis stated that groups that differ in terms of experience will have different risk components and overall levels of risk for both component parts and materials and industrial supplies. Two measures of experience were employ-

Summary Table of Pearson Correlations for CPR and SPR

VARIABLE	CPR	SPR
CPR	1.0000 ******	0.5611** P=0.000
JOB	0.0912 P=0.192	0.1082 P=0.150
EDU	-0.2118* P=0.021	-0.3066** P=0.001
CER	0.0121 P=0.454	0.0421 P=0.344
CEM	0.0537 P=0.305	0.1498 P=0.075
PEM	-0.0394 P=0.354	0.0453 P=0.332
SAL	0.0191 P=0.428	-0.1341 P=0.099
FOR	-0.0905 P=0.194	-0.1199 P=0.125
CEN	0.0026 P=0.490	-0.0843 P=0.213
COM	-0.0084 P=0.471	-0.1880 P=0.057
TSA	-0.0675 P=0.459	0.0613 P=0.279
TAM	0.0675 P=o.250	-0.1001 P=0.169

* significant at the 0.05 level
**significant at the 0.001 level

Table 23

ed: CEM (years of experience with current employer) and PEM (years of total purchasing experience). In addition, JOB (job title) was also examined.

With regard to CPR and SPR, Table 23 indicates that neither had a significant correlation at the 0.05 level with CEM, PEM, or JOB. The summary of the results of the oneway analyses of variance in Table 24 shows that, with regard to CPR and SPR, groups having different levels of current experience, total purchasing experience, and job title were not homogeneous.

For component parts and supplies, Table 17 indicates that CEM was significantly correlated at the 0.05 level with the intensity of undesirable consequences in terms of service at the organizational level (C13), and it was correlated at the 0.005 level with the intensity of undesirable consequences in terms of quality at the organizational level (C11). PEM was significantly correlated at the 0.05 level with the intensities of delivery at the organizational level (C12), technical capacity at the organizational level (C14), economics at the individual level (C16), and reputation at the individual level (C22). It was significantly correlated at the 0.005 level with the likelihood of undesirable consequences in terms of social uncertainty (C08) and the intensities of undesirable consequences in terms of quality at the individual level (C17), technical capacity at the individual level (C20), technical assistance at the individual level (C21), social uncertainty

Summary Table of the Oneway Analysis of Variance-CPR and SPR

VARIABLE	# OF GROUPS	CPR		SPR	
		F	P	F	P
JOB	2	0.763	0.385	1.090	0.299
EDU	2	4.230*	0.043	4.928*	0.029
CER	3	0.084	0.919	0.261	0.771
SAL	3	4.590*	0.013	1.768	0.177
FOR	2	0.260	0.619	0.016	0.902
CEN	2	0.751	0.387	1.645	0.203
COM	2	1.661	0.201	0.173	0.678
CEM	3	0.841	0.437	0.992	0.375
PEM	3	0.173	0.842	1.442	0.242
TSA	2	0.135	0.714	2.101	0.151
TAM	2	0.303	0.583	0.003	0.958

*significant at the 0.05 level

Table 24

(C23), and psychological uncertainty (C24). JOB was significantly correlated at the 0.05 level with the intensity of undesirable consequences in terms of economics at the organizational level (C10), and it was correlated at the 0.005 level with the likelihood of undesirable consequences in terms of economics (C10) directly and inversely with the likelihood of undesirable consequences in terms of technical capacity and the intensity of undesirable consequences in terms of technical assistance at the individual level. It was significantly correlated at the 0.005 level with the intensity of undesirable consequences in terms of service at the organizational level.

Table 18 indicates that CEM was significantly correlated at the 0.05 level with the perceived risk associated with delivery at the organizational level (X3), and PEM was correlated at the 0.05 level with the perceived risk associated with delivery at the individual level (X9), technical capacity at the individual level (X11), and psychological uncertainty (X15). It was significantly correlated at the 0.005 level with the perceived risk associated with quality at the individual level (X8), technical assistance at the individual level (X12), and social uncertainty (X15). JOB had a significant correlation at the 0.05 level with the perceived risk associated with service at the organizational level and a correlation at the 0.005 level with the perceived risk associated with economics at the organizational level (X1).

Table 20 indicates that for industrial supplies, CEM was significantly correlated at the 0.05 level with the intensities of undesirable consequences in terms of delivery at the organizational level (S08) and service at the organizational level (S09). PEM was significantly correlated at the 0.05 level with the likelihoods of undesirable consequences in terms of economics (S01) and delivery (S03) and the intensities of undesirable consequences at the individual level in terms of reputation (S22) and psychological uncertainty (S24). JOB had a significant correlation at the 0.05 level with the intensities of undesirable consequences at the individual level in terms of economics (S16), service (S19), and technical capacity (S20).

Table 21 indicates that CEM was significantly correlated at the 0.05 level to the perceived risk associated with psychological uncertainty, PEM was significantly correlated at the 0.05 level with the perceived risk associated with reputation at the individual level, and JOB had a significant correlation at the 0.05 level with the perceived risks associated with technical capacity at the individual level (Y11) and technical assistance at the individual level (Y12).

Therefore, although the part of the hypothesis relating to differences in overall perceived risk cannot be supported since the groups were not homogeneous with respect to CEM, PEM, or JOB, experience and job title were found to be significantly correlated to a number of C's, X's, S's, and Y's. Hence

it can be concluded that this hypothesis was partially supported.

Hypothesis 6

The sixth hypothesis stated that groups that differ in terms of education will have different risk components and overall levels of perceived risk for both component parts and supplies.

Table 23 indicates that for component parts and materials, overall perceived risk was significantly correlated at the 0.05 level with EDU (years of education). Table 24 shows that the oneway analysis of variance supports the notion of homogeneity within groups in terms of education with regard to CPR. Table 17 suggests that EDU had a significant correlation at the 0.05 level in the inverse direction to the likelihoods of undesirable consequences in terms of delivery (C03) and reputation (C07) and the intensities of undesirable consequences in terms of economics at the organizational level (C10), technical assistance at the organizational level (C15), economics at the individual level (C16), quality at the individual level (C17), delivery at the individual level (C18), and technical assistance at the individual level (C21). It had a significant correlation at the 0.005 level inversely with the likelihood of undesirable consequences in terms of psychological uncertainty (C09) and the intensities of undesirable consequences in terms of quality at the organiza-

tional level (C11), delivery at the organizational level (C12), service at the organizational level (C13), and psychological uncertainty (C24).

With respect to the calculated perceived risks, EDU had a significant inverse correlation at the 0.05 level with the perceived risks associated with economics at the organization level (X1), quality at the organizational level (X2), service at the organizational level (X4), and delivery at the individual level (X9). It had a significant correlation at the 0.005 level inversely with the perceived risk associated with delivery at the organizational level (X3).

Respondents were divided up into two groups: those who had either attended high school, graduated high school, or attended college (EDU LE 3) and those who had graduated from college and/or had a master's degree (EDU GT 3). There were no respondents in the Other classification (EDU EQ 6). A step-wise regression analysis was performed for the two groups and can be found in Table 25 in Appendix B.

For the group EDU LE 3, a regression analysis with the intensities and likelihoods of undesirable consequences as the independent variables and CPR as the dependent variable was performed. The resulting equation had an R^2 of 0.400 and entered, in order of inclusion, the intensity of undesirable consequences with respect to delivery at the organizational level (C12), the likelihood of undesirable consequences with respect to delivery (C03), and the intensity of undesirable

consequences with respect to service at the individual level (C19). The equation was:

$$CPR = -0.236 + 0.400(C12) + 0.266(C03) + 0.250(C19) + e$$

All of the variables were entered directly and all of them were "rational".

Table 26 indicates that the components with the three largest mean values were, in order or magnitude, the intensity of undesirable consequences in terms of quality at the organizational level, the likelihood of undesirable consequences in terms of quality, and the likelihood of undesirable consequences in terms of reputation.

The regression analysis in Table 25 for the calculated perceived risks entered only the perceived risk associated with delivery at the organizational level (X3). The resulting equation, with an R^2 of 0.317 was:

$$CPR = 3.472 + 0.0485(X3) + e$$

The only variable significantly entered was "rational" and at the organizational level.

The three calculated perceived risks with the highest mean values were, in order of magnitude: the perceived risks associated with quality at the organizational level (X2), delivery at the organizational level (X3), and technical assistance at the organizational level (X6).

For the group EDU GT 3, Table 25 indicates that with respect to the likelihoods and intensities of undesirable con-

Minimum and Maximum Mean Values for the EDU Groups

EDU LE 3 (39 cases)

CPR	SPR	MIN.	MAX.	3 LARGEST
6.384	5.385	C23(ISU) 6.154	C11(OQ) 8.828	C11(OQ),C02(LQ),C07(LR)
		S15(OTA) 4.795	S04(LS) 7.359	S04(LS),S03(LD),S07(LR)
		X14(PSU) 39.000	X2(POQ) 65.814	X2(POQ),X3(POD),X6(POTA)
		Y11(PITC) 29.074	Y8(PIS) 41.683	Y8(PIS),Y2(POQ),Y6(POTA)

EDU GT 3 (42 cases)

CPR	SPR	MIN	MAX.	3 LARGEST
5.381	4.523	C21(ITA) 4.952	C11(OQ) 7.691	C11(OQ),C02(LQ),C05(LTC)
		S21(ITA) 3.928	S02(LQ) 7.619	S02(LQ).S03(LD),S01(LE)
		X14(PSU) 35.071	X2(POQ) 57.952	X2(POQ),X3(POD),X6(POTA)
		Y15(PPU) 21.023	Y2(POQ) 44.571	Y2(POQ),Y3(POD),Y7(PIE)

Table 26

sequences, three variables significantly entered into the regression equation with an R^2 of 0.462. They were, in order of inclusion, the intensity of undesirable consequences in terms of quality at the individual level (C17), the intensity of undesirable consequences in terms of delivery at the organizational level (C12), and the likelihood of undesirable consequences in terms of economics (C01). The resulting equation was:

$$CPR = 1.649 + 0.411(C17) + 0.414(C12) - 0.287(C01) + e$$

All three variables were "rational", and except for the likelihood of undesirable consequences in terms of economics, they were entered directly. This finding implies that purchasing professionals relatively high in education perceive a product that is unlikely to be economical as increasing their overall perceived risk. Once again, as the likelihood of an economonical product increases, the overall perceived risk decreases.

The three components with the largest mean values were, in order of magnitude: the intensity of undesirable consequences in terms of quality at the organizational level (C11), the likelihood of undesirable consequences in terms of quality (C02), and the likelihood of undesirable consequences in terms of technical capacity (C05).

With respect to the calculated perceived risks, two variables were significantly entered into the regression equation.

They were the perceived risks associated with reputation at the individual level (X13) and technical capacity at the organizational level (X5). The resulting equation, with an R^2 of 0.296, was:

$$CPR = 4.153 + 0.0630(X13) - 0.0319(X5) + e$$

One of the variables was "rational" and the other was "non-rational". The perceived risk associated with technical capacity at the organizational level was entered inversely, thereby implying that products that are not perceived to be risky in terms of technical capacity can still increase the overall perception of risk. As the risk associated with technical capacity increases, it is likely that other methods and people will become involved in the vendor selection process.

The three perceived risks with the highest mean values were, in order of magnitude: the perceived risks associated with quality at the organizational level (X2), delivery at the organizational level (X3), and technical assistance at the organizational level (X6).

In regard to industrial supplies, Table 25 indicates that overall perceived risk was significantly correlated to EDU at the 0.005 level. The oneway analysis of variance in Table 24 supports the notion of homogeneity within groups in terms of education with regard to SPR. Table 20 shows that EDU was significantly correlated at the 0.05 level directly with the

likelihood of undesirable consequences in terms of quality (S02) and indirectly to the likelihood of undesirable consequences in terms of social uncertainty (S08), and the intensties of undesirable consequences in terms of economics at the organizational level (S10), reputation at the individual level (S22), and social uncertainty (S24). EDU was significantly correlated at the 0.005 level inversely to the intensity of undesirable consequences in terms of service at the organizational level and directly to the intensities of undesirable consequences at the individual level in terms of technical capacity (S20) and technical assistance (S21). It had a significant inverse correlation at the 0.001 level to the likelihood of undesirable consequences in terms of psychological uncertainty (S09) and the intensity of undesirable consequences in terms of pyschological uncertainty (S24).

Table 21 indicates that EDU had a significant inverse correlation at the 0.05 level to the perceived risks associated with service at the organizational level (Y4), service at the individual level (Y10), technical capacity at the individual level (Y12), reputation at the individual level (Y13), and social uncertainty (Y14). It had a significant inverse correlation at the 0.001 level with the perceived risk associated with psychological uncertainty.

The regression analyses for the two education groups can be found in Table 27 in Appendix B. For the group EDU LE 3, only the intensity of undesirable consequences in terms of

technical capacity at the individual level (S20). The resulting equation, with an R^2 of 0.468, was:

$$SPR = 2.189 + 0.597(S20) + e$$

The significant variable was "rational", at the individual level, and entered directly.

The three likelihood and intensity components with the highest mean values were, in order of magnitude: the likelihoods of undesirable consequences in terms of service (S04), delivery (S03), and reputation (S07).

The two significantly entered calculated perceived risks were: the perceived risks associated with social uncertainty (Y14) and economics at the organizational level. The resulting equation had an R^2 of 0.367 and was:

$$SPR = 2.862 + 0.0466(Y14) + 0.0373(Y1) + e$$

Both of the variables were entered directly, and one was both "nonrational" and at the individual level.

For the group EDU GT 3, three intensity and likelihood components significantly entered the regression equation, They were, in order of inclusion: the intensity of undesirable consequences in terms of reputation at the individual level (S22), the intensity of undesirable consequences in terms of psychological uncertainty (S23), and the likelihood of undesirable consequences in terms of reputation (S07). The regression equation, with an R^2 of 0.466, was:

$$SPR = 0.411 + 0.245(S22) + 0.228(S23) + 0.270(S07) + e$$

All three variables were entered directly and were "nonrational".

The three components with the highest mean values were, in order of magnitude: the likelihoods of undesirable consequences in terms of quality (S02), delivery (S03), and economics (S01).

With regard to the calculated perceived risks, the two that significantly entered the regression equation were: the perceived risks associated with reputation at the individual level (Y13) and technical capacity at the individual level (Y11). The resulting regression equation had an R^2 of 0.440 and was:

$$SPR = 2.594 + 0.0406(Y13) + 0.0240(Y11) + e$$

Both of the variables were entered directly and were at the individual level. The first entered was "nonrational".

The three calculated perceived risks with the highest mean values were, in order of magnitude: the perceived risks associated with quality at the organizational level (Y2), delivery at the organizational level (Y3), and economics at the individual level (Y7).

The overall perceived risk for component parts and materials was larger than that for supplies for both the EDU LE 3 and the EDU GT 3 groups. The EDU LE 3 had higher overall perceived risks for both product types than the EDU GT 3

group. With respect to the mean values found in Table 26, the EDU GT 3 had the lower minimum values for all the independent variables examined. The EDU LE 3 group had the highest maximum values for both component parts and materials variables (C's and X's) while the EDU GT 3 group had the highest maximum values for the industrial supplies variables (S's and Y's). Therefore, it can be concluded that the sixth hypothesis was supported.

Hypothesis 7

The seventh hypothesis stated that groups that differ in terms of salary level will have different risk components and overall levels of perceived risk for both component parts and industrial supplies.

Table 23 indicates that for component parts and materials, overall perceived risk was not significantly correlated to SAL (salary level) at the 0.05 level. However, the oneway analysis of variance found in Table 24 supported the notion of homogeneity within groups of salary level with regard to CPR.

Table 17 indicates that SAL had a significant direct correlation at the 0.05 level to the likelihood of undesirable consequences in terms of technical capacity (C05) and a significant inverse correlation at the 0.005 level to the intensity of undesirable consequences in terms of service at the organizational level (C13). Table 18, however, shows that

SAL was not correlated significantly at the 0.05 level with any of the calculated perceived risks.

Salary levels were divided into three groups: SAL LE 3 (current salary less than $25,000), SAL GE 4 and LE 5 (current salary between $25,000 and $45,000), and SAL GE 6 (current salary greater than $45,000). The stepwise regression analyses for the three groups can be found in Table 28 in Appendix B.

For the group SAL LE 3, two intensity components significantly entered the regression equation. They were, in order of inclusion: the intensities of undesirable consequences in terms of technical assistance at the individual level (C21) and technical assistance at the organizational level (C15). The resulting equation, with an R^2 of 0.544 was:

$$CPR = 1.377 + 0.412(C21) + 0.352(C15) + e$$

Both variables were entered directly and were "rational".

The mean values can be found in Table 29. The three largest intensity and likelihood components for the EDU LE 3 group were, in order of magnitude: the likelihood of undesirable consequences in terms of quality, the intensity of undesirable consequences in terms of delivery at the organizational level, and the likelihood of undesirable consequences in terms of delivery (C02,C12, and C03 respectfully).

Two calculated perceived risks significantly entered the regression equation and they were: the perceived risk

Minimum and Maximum Mean Values for the SAL Groups

SAL LE 3 (19 cases)

CPR	MIN.	MAX.	3 LARGEST
5.526	C21(ITA) 4.947	C02(LQ) 7.421	C02(LQ),C12(OD),C03(LD)
	X12(PITA)	X2(POQ)	X2(POQ),X3(POD),X9(PID)

SAL GE 4 and LE 5 (52 cases)

CPR	MIN.	MAX.	3 LARGEST
6.289	C21(ITA) 5.385	C11(OQ) 8.462	C11(OQ),C12(OD),C02(LQ)
	X14(PSU) 38.789	X2(POQ) 66.173	X2(POQ),X3(POD),X5(POTC)

SAL GE 6 (15 cases)

CPR	MIN.	MAX.	3 LARGEST
4.933	C19(IS) 5.067	C11(OQ) 7.800	C11(OQ),C05(LTC),C02(LQ)
	X8(PIQ) 31.867	X2(POQ) 60.467	X2(POQ),X3(POD),X5(POTC)

Table 29

associated with service at the individual level (X10) and the perceived risk associated with social uncertainty. The regression equation, with an R^2 of 0.257, was:

$$CPR = 4.320 + 0.0333(X10) + 0.0163(X14) + e$$

Both variables were directly entered and at the individual level.

The three calculated perceived risks with the highest mean values were, in order of magnitude: the perceived risks associated with quality at the organizational level (X2), delivery at the organizational level (X3), and delivery at the individual level (X9).

For the SAL GE 4 and LE 5 group, the intensity and likelihood components that significantly entered the regression equation, in order of inclusion were: the intensity of undeisrable consequences in terms of delivery at the organizational level (C12), the intensity of undesirable consequences in terms of service at the individual level (C19), the likelihood of undesirable consequences in terms of economics (C01), the intensity of undesirable consequences in terms of technical capacity at the individual level (C20), and the likelihood of undesirable consequences in terms of social uncertainty (C08). The equation had an R^2 of 0.652 and was:

$$CPR = 1.340 + 0.556(C12) + 0.621(C19) - 0.232(C01) - 0.420(C20) + 0.138(C08) + e$$

Three of the five variables were at the individual level,

and the likelihood of undesirable consequences in terms of economics and the intensity of undesirable consequences in terms of technical capacity at the individual level were entered into the regression equation inversely. It appears that the less likely a vendor is to offer an economical product, the greater the overall perceived risk associated with it. Also, a product vendor with a high intensity of undesriable consequences in terms of technical capacity at the individual level may be evaluated by other methods or involve the opinions of others and thereby lower the overall individual perceived risk associated with his selection.

The three intensity and likelihood components with the highest mean values were, in order of magnitude: the intensity of undesirable consequences in terms of quality at the organizational level (C11), the intensity of undesirable consequences in terms of delivery at the organizational level (C12), and the likelihood of undesirable consequences in terms of quality (C02).

The two perceived risks that entered into the regression equation significantly were the preceived risks associated with service at the individual level (X10) and social uncertainty (X14). The regression equation, with an R^2 of 0.257, was:

$$CPR = 4.230 + 0.0333(X10) + 0.0163(X14) + e$$

Both of the variables were directly entered into the equation,

both were at the individual level.

The three calculated perceived risks with the highest mean values were, in order of magnitude: the perceived risks associated with quality at the organizational level (X2), delivery at the organizational level (X3), and technical capacity at the organizational level (X5).

For the SAL GE 6 group, only the intensity of undesirable consequences in terms of delivery at the organizational level (C12) significantly entered into the regression equation. The equation had an R^2 of 0.153 and was:

$$CPR = 1.862 + 0.431(C21) + e$$

The variable was entered directly, is "rational", and at the organizational level.

The three components with the highest mean values were, in order of magnitude: the intensity of undesirable consequences in terms of quality at the organizational level (C11), the likelihood of undesirable consequences in terms of technical capacity (C05), and the likelihood of undesirable consequences in terms of quality.

For the calculated perceived risks, the three variables that significantly entered the equation were, in order of inclusion: the perceived risk associated with the technical capacity at the individual levels (X11), social uncertainty (X14), and economics at the organizational level. The regression equation had an R^2 of 0.598 and was:

$$CPR = 4.945 + 0.113(X11) - 0.0411(X14) - 0.0828(X1) + e$$

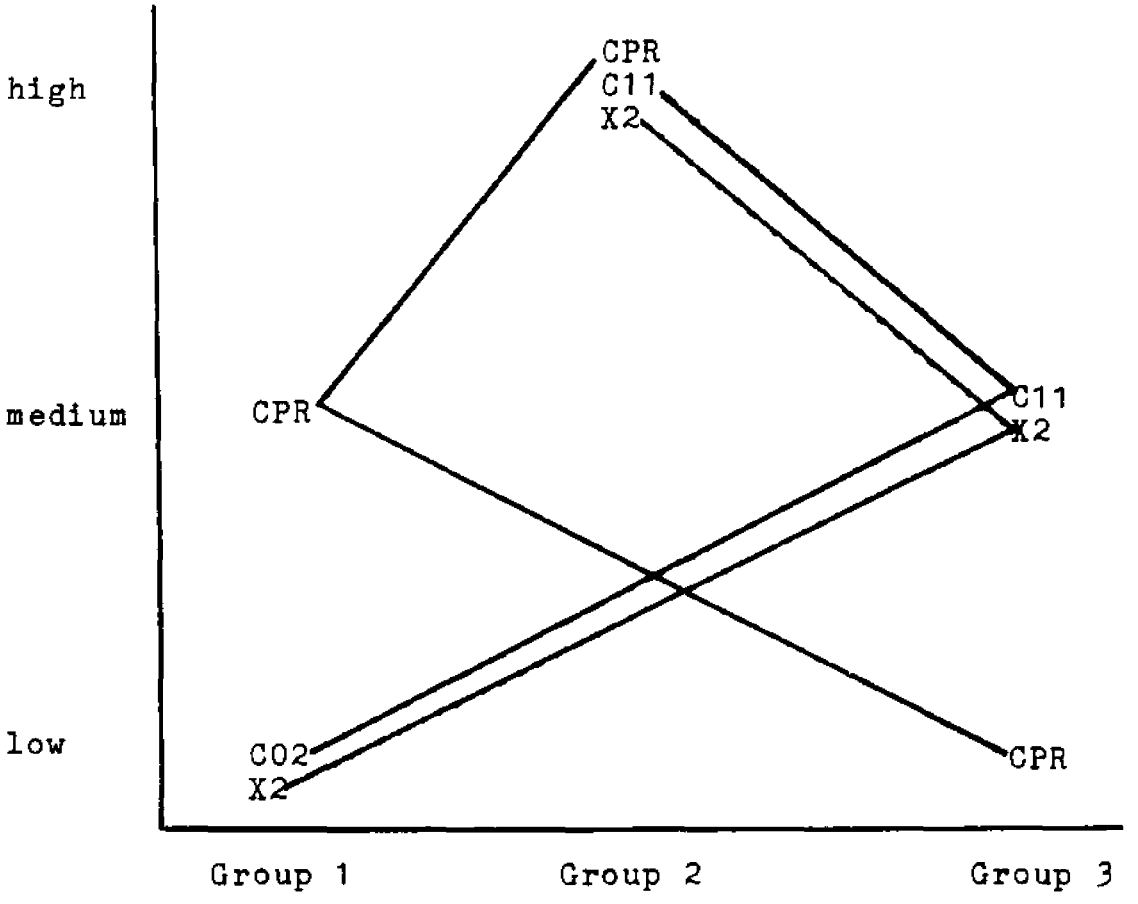
Two of the three variables were at the individual level, and the perceived risks associated with social uncertainty and economics at the organizational level were entered inversely. This implies that a product that economically or socially would not affect the individual's position adversely, the overall perceived risk associated with the selection of the product's vendor could be increased. It is probable that when the seriousness of the consequences of these two variables increases, other methods or people will become involved and thereby lessen the risk perceived by the individual purchasing professional.

The three calculated perceived risks with the highest mean values were, in order of magnitude: the perceived risks at the organizational level associated with quality (X2), delivery (X3), and technical capacity (X5).

The group with the highest salary (SAL GE 6) had the lowest mean value of CPR, followed by the lowest salaried group (SAL LE 3). The middle group (SAL GE 4 and LE 5) had the highest mean CPR. The middle group also had the highest maximum C and X. The highest paid group was next with both C and X, and the lowest salaried group had the lowest maximum C and X. These results are summaried in Figure 5. Therefore, this part of the seventh hypothesis was supported.

With regard to industrial supplies, Table 23 shows no correlation between SAL and SPR. Table 24 also indicates

Graphical Representation of Groups Differing in Terms of Salary



Group 1 (SAL LE 3) (Salary less than $25,000)

Group 2 (SAL GE 4 and GE 5) (Salary between $25,000 and $45,000)

Group 3 (SAL GE 6) (Salary greater than $45,000)

Figure 5

that, with regard to SPR, groups differing in terms of salary were homogeneous. Table 20 indicates that SAL had a significant correlation at the 0.05 level inversely with the likelihood of undesirable consequences in terms of psychological uncertainty (S09) and the intensities of undesirable consequences in terms of economics at the organizational level (S10), technical capacity at the organizational level (S14), technical assistance at the organizational level (S15), service at the individual level (S19), technical capacity at the individual level (S20), and technical assistance at the individual level (S21). It had a direct significant correlation at the 0.05 level with the likelihoods of undesirable consequences in terms of delivery (S03) and service (S04). It has an inverse correlation at the 0.005 level with the intensity of undesirable consequences in terms of service at the organizational level.

Table 21 indicates that SAL had a significant correlation with only one calculated perceived risk. SAL had an inverse significant correlation at the 0.05 level to the perceived risk associated with service at the organizational level. Therefore, this part of the hypothesis was generally not supported. The seventh hypothesis was partially supported.

Hypothesis 8

The eighth hypothesis stated that groups that differ in terms of NAPM certification will have different risk components

and overall levels of perceived risk for both components and industrial supplies.

Table 23 suggests that there was no significant correlation between overall perceived risk for component parts (CPR) and industrial supplies (SPR) to CER (NAPM certification). Table 24 indicates that, with respect to CPR and SPR, groups differing in terms of NAPM certification were not themselves homogeneous. Therefore, no conclusions can be drawn about this part of the hypothesis.

Table 16 indicates, however, that CER had a significant correlation at the 0.05 level with the likelihood of undesirable consequences in terms of delivery and the perceived risks associated with delivery at the organizational level (X3), delivery at the individual level (X9), and reputation at the individual level (X13) for component parts and materials.

For industrial supplies CER was not significantly correlated to any of the intensity or likelihood components. CER did have a significant correlation at the 0.05 level to the perceived risks associated with service at the organizational level (Y4), quality at the individual level (Y8), delivery at the individual level (Y9), service at the individual level (Y10), technical capacity at the individual level (Y11), reputation at the individual level (Y13), and psychological uncertainty (Y15). Therefore, hypothesis 8 was partially supported.

Hypothesis 9

This hypothesis stated that groups that differ in terms of self-esteem will have different risk components and overall levels of perceived risk for both component parts and supplies.

There was no significant correlation at the 0.05 level for TSA (self-esteem) and CPR or SPR as indicated in Table 23. Table 24 demonstrates no homogeneity within groups in terms of CPR or SPR for different levels of self-esteem.

For component parts and materials, Table 17 shows that TSA had a significant inverse correlation at the 0.05 level to the intensities of undesirable consequences in terms of delivery at the organizational level (C12) and reputation at the individual level (C22), and it had a direct correlation at the 0.05 level to the perceived risk associated with economics at the organizational level (X1).

For industrial supplies, Table 18 and Table 21 indicates that TSA was significantly correlated at the 0.05 level to the likelihood of undesirable consequences in terms of technical assistance (S06), intensity of undesirable consequences in terms of quality at the individual level (S17), intensity of undesirable consequences in terms of service at the individual level (S19), intensity of undesirable consequences in terms of technical assistance at the individual level (S21), and the perceived risks associated with technical assistance at the organizational level (Y6), eco-

nomics at the individual level (Y7), quality at the individual level (Y8), delivery at the individual level (Y9), and technical capacity at the individual level (Y11). It was also significantly correlated at the 0.005 level to the perceived risk associated with service at the individual level (Y10) and technical assistance at the individual level (Y12). Therefore, this hypothesis was partially supported.

Hypothesis 10

This hypothesis stated that groups that differ in terms of need for certainty will have different risk components and overall levels of perceived risk for both component parts and industrial supplies.

Table 23 suggests that there was no significant correlation between overall perceived risk for component parts and materials (CPR) or industrial supplies (SPR) and TAM (need for certainty). The summarized oneway analyses of variance, found in Table 24, indicates that, with respect to CPR and SPR, groups differing in terms of need for certainty were not themselves homogeneous.

Table 17 shows that for component parts and materials TAM had a significant inverse correlation to the intensity of undesirable consequences with respect to service at the organizational level. None of the calculated perceived risks were significantly correlated to TAM.

For industrial supplies TAM was significantly correlated inversely to the intensity of undesirable consequences in

terms of social uncertainty (S23) and to the perceived risks associated at the individual level to technical capacity (Y11), technical assistance (Y12), and social uncertainty (Y14). Therefore, the tenth hypothesis was generally not supported.

Hypothesis 11

This hypothesis stated that groups whose organizations differ in terms of centralization will have different risk components and overall levels of perceived risk for both component parts and supplies.

There was no significant correlation at the 0.05 level for CEN (centralization) and CPR or SPR as indicated in Table 23. Table 24 demonstrates no homogeneity within groups in terms of CPR or SPR for different levels of organizational centralization.

For component parts and materials CEN had a significant inverse correlation at the 0.05 level with the likelihood of undesirable consequences in terms of social uncertainty (C08) and the intensities of undesirable consequences at the individual level in terms of quality (C17), delivery (C18), technical capacity (C20), technical assistance (C21), and reputation (C22). It had a significant inverse correlation at the 0.005 level with the intensities of undesirable consequences in terms of social uncertainty (C23) and psychological uncertainty (C24). CEN was significantly correlated inversely to the perceived risks associated with quality at the individual level (X8) and psychological uncertainty (X15), and it

had a significant inverse correlation at the 0.005 level to the intensities of undesirable consequences in terms of social uncertainty (C23) and psychological uncertainty (C24).

For the calculated component part perceived risks, CEN was significantly correlated inversely at the 0.05 level to the perceived risks associated with quality at the individual level (X8) and psychological uncertainty (X15). It had a significant inverse correlation at the 0.005 level with the perceived risk associated with social uncertainty (X14).

With respect to industrial supplies, Table 20 indicates that CEN had a significant correlation at the 0.05 level to the likelihood of undesirable consequences in terms of service (S04). However, none of the industrial supply calculated perceived risks were significantly correlated to CEN. Therefore, this hypothesis was generally not supported.

Hypothesis 12

This hypothesis stated that groups whose organizations differ in terms of formalization will have different risk components and overall levels of perceived risk for both component parts and supplies.

Table 23 suggests that there was no significant correlation between overall perceived risk for component parts and materials (CPR) or industrial supplies (SPR) with FOR (formalization). Table 24 finds no homogeneity within groups with different levels of formalization in terms of both CPR and SPR.

For component parts and materials, Tables 17 and 18 show no significant correlation of FOR with any intensity, likelihood, or calculated perceived risk at the 0.05 level.

For industrial supplies, however, FOR was significantly correlated at the 0.05 level to the likelihood of undesirable consequences in terms of reputation (S07) and the intensity of undesirable consequences in terms of psychological uncertainty (S13) and inversely to the likelihood of undesirable consequences with respect to quality (S02). Table 21 indicates no significant correlation between CEN and any of the calculated perceived risks. Therefore, this hypothesis was generally not supported.

Hypothesis 13

The final hypothesis stated that groups whose organizations differ in terms of complexity will have different risk components and overall levels of perceived risk for both component parts and supplies.

Once again, Table 23 suggests that there was no significant correlation between COM (complexity) and SPR or CPR. Table 24 indicates that with respect to SPR and CPR, groups differing in terms of complexity were not themselves homogenous.

In terms of component parts and materials, COM had a significant inverse correlation at the 0.05 level to the likelihood of undesirable consequences in terms of social

uncertainty (C08) and the intensities of undesirable consequences at the individual level in terms of quality (C17), delivery (C18), technical capacity (C20), technical assistance (C21), and reputation (C22). It had a significant inverse correlation at the 0.005 level with the intensities of undesirable consequences in terms of social uncertainty and psychological uncertainty.

For the calculated perceived risks, COM was significantly correlated inversely at the 0.05 level with the perceived risk associated with quality at the individual level (X8) and the perceived risk associated with psychological uncertainty (X14).

For industrial supplies, Table 20 indicates that COM had a significant inverse correlation at the 0.05 level to the likelihood of undesirable consequences in terms of technical assistance (S06), the likelihood of undesirable consequences in terms of reputation (S07), and the intensities of undesirable consequences in terms of service at the organizational level (S13), delivery at the individual level (S18), technical capacity at the individual level (S20), and technical assistance at the individual level (S21).

For the calculated perceived risks. COM had a significant inverse correlation at the 0.05 level with the perceived risks associated with technical assistance at the organizational level (Y6), delivery at the individual level (Y9), technical assistance at the individual level (Y12), reputation at the individual level (Y13), and social uncertainty. (Y14). There-

fore, the last hypothesis was partially supported.

Summary

A summary of the results with regard to the thirteen hypotheses can be found in Table 30.

Summary of Research Hypothesis Findings

Hypothesis	Supported	Generally Supported	Partially Supported	Generally Not Supported	Not Supported
1a				x	
1b				x	
2a	x				
2b	x				
3a	x				
3b	x				
4		x			
5			x		
6	x				
7			x		
8			x		
9			x		
10				x	
11				x	
12				x	
13			x		

Table 30

CHAPTER V

CONCLUSIONS

The Perceived Risk Model

There appear to be a number of problems associated with the proposed perceived risk model which limit its ability to predict the overall perceived risk associated with the selection of a new vendor of component parts and materials or supplies in the new task buy situation. It did, however, provide a starting point and an excellent tool with which to design this study.

The first problem dealt with the fact that the overall measures of perceived risk (CPR and SPR) were not significantly correlated with any of the measures of the likelihood of undesirable consequences with a few notable exceptions. CPR was significantly correlated to the likelihoods of undesirable consequences in terms of social and psychological uncertainties, while SPR was significantly correlated to those for reputation, social uncertainty, and psychological uncertainty. Since all of the the intensities of undesirable consequences were significantly correlated to both SPR and CPR, this leads one to conclude that the overall measure of

perceived risk is rather a measure of the intensity of undesirable consequences, except for the above mentioned "non-economic" likelihoods. This findings supports the notion that social factors are important influences on industrial purchasing decisions, perhaps more so than "rational-economic" ones (Wind and Robinson, 1968; Brand, 1972; etc.).

A second problem involved the assumed multiplicative nature of the calculated perceived risk variables. Although the intensity of undesirable consequences and the likelihood of undesirable consequences are usually multiplied, probably as an application of probability theory, Bettman (1973), Peter and Ryan (1976), and others have indicated that the relationship may not be multiplicative. This might help explain why the individual intensity and likelihood components did a better job explaining the variance in the overall perceived risk measures for both component parts and industrial supplies over the total sample than the calculated perceived risks.

It is interesting to note that the variance in SPR was slightly better explained than that in CPR, and SPR's variance required fewer variables to obtain a larger R^2. This may be due to the fact that there was less overall perceived risk associated with the selection of a vendor of industrial supplies, and they also tend to be less expensive and less visable than component parts and materials.

Nevertheless, 40.4 percent of the variance in the overall perceived risk associated with component parts and materials

was explained by six intensity components, three at the organizational level and three at the individual level. Although five of the six variables were "rational", the second entered was reputation at the individual level. It took seven calculated perceived risks to account for 33.0 percent of the variance in CPR. Five of the seven were at the individual level, and the perceived risk associated with reputation at the individual level was the first variable entered into the regression equation. The only other "nonrational" variable was that associated with social uncertainty.

While all the variables associated with SPR entered into the regression equations directly, some of the intensity and perceived risk components were entered inversely. This also seems to indicate that the decision to select a vendor of industrial supplies is more straight forward than that involved in the selection of a vendor of component parts. It would appear that when the risks associated with delivery, social uncertainty, etc. reach a certain point, other methods or people will become involved in the selection process, thereby decreasing the overall risk perceived by the individual purchasing professional.

As would be expected the calculated perceived risks and intensity and likelihood components with the largest mean values were at the organizational level and consisted of the rational factors of quality, delivery, and service. Ecomonics related perceived risk at the organizational level

ranked 10th and at the individual level it ranked 12th. This finding supports the contention that the economics of a product are often less of a factor in selecting a vendor than quality, delivery, etc.

With regard to industrial supplies, three intensity and likelihood components explained 45.8 percent of the variance in SPR. Two of the three were nonrational with the first variable entered being the intensity of undesirable consequences in terms of reputation at the individual level and, accounted for 40.0 percent of the variance in SPR by itself. All three variables were at the individual level.

It took three industrial supply calculated percieved risks to explain for 37.1 percent of the variance in SPR. All were at the individual level, and once again reputation entered first. Social uncertainty was the second of the two nonrational variables significantly entered.

The components and calculated perceived risks with the highest mean values dealt with delivery, quality, and reputation, and the perceived risk associated with economics at the individual level ranked seventh while at the organizational level it ranked 10th. This finding seems to indicate that while quality, delivery, etc. is also more important that economics for the selection of a vendor of industrial supplies, economics is more important for supplies than for component parts, particularly at the individual level.

It appears than that the overall perceived risk associated with the selection of a new vendor of industrial supplies in the new task situation depends heavily on the reputation of the vendor, the opinions of relevant others, and the ability to supply the product in the quantities required and with the technical assistance needed.

The selection of a new vendor of component parts and materials appears to be more more dependent on rational factors although reputation and social uncertainty are also very important.

A third area of concern with the perceived risk model was the effects of the moderating variables. Of the ten proposed moderating variables, only education and salary were relevant for CPR and only education was relevant for SPR. These conclusions are reinforced by the literature discussed previously and by the results of the regression analyses summarized in Tales 19 and 21 in Appendix B. For CPR, only EDU and SAL entered the equation significantly, although weakly (6.0 percent of the variance). For SPR, only EDU was entered (6.2 percent of the variance). In both cases EDU was inversely entered into the equations indicating that the overall perceived risk associated with component parts and industrial supplies decreases with increasing levels of education.

With respect to the analyses performed on the groups differing in terms of education level, it appears that both

SPR and CPR were higher for the group lower in education. For the group as a whole, quality, delivery, reputation, and technical assistance, primarily at the organizational level, were important.

For the group higher in education, reputation, social uncertainty, quality, delivery, economics, and technical capacity were important. The greatest contrast between the two groups appears to be in the selection of a new vendor of industrial supplies. For the lower education group, social uncertainty and the rational variables of technical capacity and economics contributed to the overall perceived risk, while the higher group was more concerned with psychological uncertainty, technical capacity, and reputation. For component parts and materials, delivery and technical capacity were important to both education groups, but the higher group was also concerned with economics and technical capacity at the individual rather than the organizational level as it was for the lower group.

Once again the model was able to explain the variance in SPR better than that in CPR, and the intensity and likelihood components did a better job than the calculated perceived risks.

For component parts and materials, salary level appeared to affect the manner in which overall risk is perceived. The model was able to explain as much as 65.2 percent of the var-

iance in CPR. In this instance, the calculated perceived risks explained more of the variance in the lowest and highest salary groups than the intensity and likelihood components. It appears that of the three salary levels, the middle group had the highest overall perceived risk associated with the selection of a new vendor of component parts and materials, followed by the lowest group, and finally the highest group. This may be due to the fact the middle group may have the most responsibility and the least authority.

The low group was mainly concerned at the individual level with quality, service, and technical capacity (also at the organizational level). The middle group was concerned also with rational factors all at the individual level, although they were also concerned with psychological uncertainty and delivery at the organizational level. The highest salaried group was also concerned about rational factors, except for psychological uncertainty, but the rational factors were all at the organizational level except for technical capacity. All three groups were concerned mainly with quality and delivery.

Although none of the other moderating variables were significantly correlated to either SPR or CPR, many did correlated significantly with the calculated perceived risk variables. Most of these correlations were weak, although there were exceptions.

For component parts and materials, correlations at the

0.005 level resulted in a number of conclusions. The first is that purchasing agents had a higher economics related perceived risk than managers at the organizational level due to the fact, perhaps, that the purchasing agents are more involved in the every day purchasing of component parts and industrial supplies. Delivery related perceived risk at the organizational level increased with education, and the perceived risk at the individual level associated with quality, technical assistance, and psychological uncertainty all increased with years of total purchasing experience. This may be due to the fact that the more education and/or experience you have, the more aware you are of the possibility of things going wrong. It can also be concluded that psychological uncertainty decreased with an increase in organizational formalization due to the fact that a highly formalized organization tends to spell out exactly what is expected from each individual in the organization.

For industrial supplies, an 0.05 level correlation suggests that the perceived risks at the individual level associated with service and technical assistance increased with increasing self esteem. This may be due to the fact that both service and technical assistance must be gotten from other individuals outside the purchaser's own organization. Finally, a correlation at the 0.001 level implies that psychological uncertainty decreases with years of education.

In conclusion, although the model of the perceived risk associated with the selection of a new vendor of component parts and materials or industrial supplies in the new task situation had problems, it was still able to account for a respectable amount of the variance in the overall percieved risks for the total sample and for CPR controlled for education and salary and SPR controlled for education. This research study was able to provide insight into the selection of a new vendor by purchasing professionals. The findings should prove of particular interest to the vendors of new component parts and materials and industrial supplies. Specifically, it should be noted that different factors are important to individuals differing in education, salary, self-esteem, and organizational formalization levels. Also, that component parts and industrial supplies are perceived differently. The vendor of either type of product should realize, however, that quality, delivery, etc. are often more important than economics, and that a good reputation can be one of their most valuable tools. The knowledge and application of the above findings should enable vendors to present their products as solutions to the problems faced or opportunities required by purchasing professionals and their organizations.

Research Limitations of the Study

The following limitations should be realized with respect to this study:

1. All of the measurements in this study, except for the independent measurements of size taken from the 1982 Million Dollar Directory were self-reported. It is possible that the relationships obtained occurred as a result of the desire of the respondent to achieve balance in his or her answers to the questions.
2. Because of the relatively small size of the sample, it may be necessary to repeat the research in order to validate the findings.
3. The findings of this study cannot be generalized to any specific type or vendor of component parts and materials or industrial supplies.
4. The findings of this study cannot be generalized to any type of industrial product except component parts and materials or industrial supplies.
5. The findings of this study cannot be generalized to any other industry other than computer parts and materials or to purchasing professionals as a group.
6. The results obtained in this study are based upon a single point in time.

Areas for Future Research

Areas for future research include an investigation of other methods of calculating perceived risk other than multiplying the likelihood of undesirable consequences by the intensity of undesirable consequences. The effects of group dynamics and desirable consequences on perceived risk and industrial buying behavior could also be examined. Different industries with different levels of technology or environ-

mental uncertainty could also be studied, particularly longitudinally. Other subjects that could be examined with respect to the perceived risk associated with purchasing professionals are the effects of bidding procedures, reciprocal purchasing, and nonmonetary incentives.

Finally, one hopes that this study has increased the general knowledge of perceived risk in an industrial setting from a theoretical point of view. Also, it is hoped that the issues and questions raised in this study will be an impetus for future research.

APPENDIX A

TEST INSTRUMENT

Baruch College
The City University of New York
17 Lexington Avenue
New York
N.Y. 10010

Dear Purchasing Professional:

I am asking for your help in a nationwide research project on purchasing professionals.

In a few days you will be receiving a pair of questionaires in the mail on this subject. Please select a purchasing professional at random within your organization to complete one of the questionaires, and complete the other one yourself. It will only take a few minutes of your time to fill out the form.

All replies will be kept in the strictest confidence. Because the individual reply of each purchasing professional is important, I would greatly appreciate it if you would ensure that the questionaires receive prompt attention when they arrive.

Cordially yours,

V.J. Wulwick
Department of Marketing

Baruch College
The City University of New York
17 Lexington Avenue
New York
N.Y. 10010

Dear Purchasing Professional:

This is the questionaire about which I wrote in my earlier correspondence.

As a member of the faculty at Baruch College, I am conducting a nationwide survey of purchasing professionals as part of my doctoral dissertation requirements.

All information collected will be held in the strictest confidence, and no individual will or can be identified in any report of the results. Therefore, please take a few minutes to answer the questionaire as fully and honestly as you can, and return it in the enclosed stamped reply envelope.

If you are interested in receiving a report on the findings of this research, just drop me a note at the above address. I will be glad to send you a complimentary summary of the results as soon as it is ready.

Please return the completed form at your earliest convenience. Thank you for your time and consideration.

Sincerely,

V.J. Wulwick
Department of Marketing

P.S. The enclosed coin is just a token of my appreciation. Please have a cup of coffee on me.

NATIONAL SURVEY OF PURCHASING PROFESSIONALS

V. J. WULWICK
Department of Marketing
Baruch College
17 Lexington Avenue
New York, New York 10010

The purpose of this questionaire is to gather information on the selection of new vendors by purchasing professionals. Thank you for taking the time to help me with this project.

BACKGROUND INFORMATION

(1)

1. Sex.....Male___(1) Female___(2) 10-

2. Age.....Under 25___(1) 35 to 44___(3) 55 to 64___(5) 11-
25 to 34___(2) 45 to 54___(4) over 64 ___(6)

3. What is the highest level of school you reached?

Attended high school	___(1)	Graduated college	___(4)	12-
Graduated high school	___(2)	Master's degree	___(5)	
Attended college.....	___(3)	Other_____	___(6)	

4. Have you received NAPM certification?
Yes___(1) No___(2) Currently in process___(3) 13-

5. How long have you been employed by your current employer?

Less than six months	___(1)	6 to 10 years.....	___(5)	14-
6 months to 1 year	___(2)	11 to 15 years....	___(6)	
1 to 2 years.....	___(3)	More than 15 years	___(7)	
3 to 5 years.....	___(4)			

6. How long have you worked in a purchasing capacity?

1 year or less	___(1)	6 to 10 years.....	___(4)	15-
1 to 2 years	___(2)	11 to 15 years....	___(5)	
3 to 5 years	___(3)	More than 15 years	___(6)	

7. Please check the range in which your current salary lies.

Less than $5,000	___(1)	$35,000 to $45,000	___(5)	16-
$ 5,000 to $15,000	___(2)	$45,000 to $55,000	___(6)	
$15,000 to $25,000	___(3)	$55,000 to $65,000	___(7)	
$25,000 to $35,000	___(4)	More than $65,000	___(8)	

8. Would you say that authority, responsibility, and power within your organization are:

highly concentrated	somewhat concentrated	not very concentrated	not concentrated	
___(1)	___(2)	___(3)	___(4)	17-

9. What percentage of the buying process communication in your purchasing is written?

0% to 20%	20% to 40%	40% to 60%	60% to 80%	80% to 100%	
___(1)	___(2)	___(3)	___(4)	___(5)	18-

10. How many departments are there in your organization? ___ 19-

11. What is your job title?_____ 8-

PURCHASING SITUATIONS

A. When considering a new vendor of component parts such as semiconductors you have <u>never</u> purchased before:

1. How likely is it that:	Very unlikely									Very likely	
a) a vendor would offer an economical product?	1	2	3	4	5	6	7	8	9	10	21-22
b) a vendor would offer a quality product?	1	2	3	4	5	6	7	8	9	10	23-24
c) a vendor would offer dependable delivery?	1	2	3	4	5	6	7	8	9	10	25-26
d) a vendor would offer required services?	1	2	3	4	5	6	7	8	9	10	27-28
e) a vendor would offer technical assistence?	1	2	3	4	5	6	7	8	9	10	29-30
f) a vendor would have adequate technical capacity?	1	2	3	4	5	6	7	8	9	10	31-32
g) a vendor would have a good reputation?	1	2	3	4	5	6	7	8	9	10	33-34
h) vendor selection will affect the way others think of you?	1	2	3	4	5	6	7	8	9	10	35-36
i) vendor selection will affect the way you think about yourself?	1	2	3	4	5	6	7	8	9	10	37-38

2. Suppose your company selected a vendor that did not meet its expectations. How significant would it be for your <u>organization</u> if:

	Of Little Consequence to the Organization									Potentially Catastrophic to the Organization	
a) the product proved less economical than projected?	1	2	3	4	5	6	7	8	9	10	39-40
b) the product was of a lower quality than projected?	1	2	3	4	5	6	7	8	9	10	41-42
c) the delivery was less dependable than projected?	1	2	3	4	5	6	7	8	9	10	43-44
d) the level of service was less than projected?	1	2	3	4	5	6	7	8	9	10	45-46
e) the technical capacity was less than projected?	1	2	3	4	5	6	7	8	9	10	47-48
f) the technical assistence was less than projected?	1	2	3	4	5	6	7	8	9	10	49-50

3. Suppose you actively supported the selection of a vendor that did not meet expectations. How significant would it be for you <u>personally</u> if:

	Would Not Affect my Position and Credibility									Would Highly Endanger my Position and Credibility	
a) the product proved less economical than projected?	1	2	3	4	5	6	7	8	9	10	51-52
b) the product was of a lower quality than projected?	1	2	3	4	5	6	7	8	9	10	53-54
c) the delivery was less dependable than projected?	1	2	3	4	5	6	7	8	9	10	55-56

d) the level of service was less than projected? 1 2 3 4 5 6 7 8 9 10 57-58

e) the technical capacity was less than projected? 1 2 3 4 5 6 7 8 9 10 59-60

f) the technical assistence was less than projected? 1 2 3 4 5 6 7 8 9 10 61-62

g) the vendor's reputation was less dependable than projected? 1 2 3 4 5 6 7 8 9 10 63-64

h) the vendor selection affected the way others think about you? 1 2 3 4 5 6 7 8 9 10 65-66

i) the vendor selection affected the way you think about yourself? 1 2 3 4 5 6 7 8 9 10 67-68

4. On the whole, considering all the factors combined, about how risky would you say it is to select a new vendor of a component part you have <u>never</u> purchased before? Not risky at all — Extremely risky

(2) 1 2 3 4 5 6 7 8 9 10 69-70

B. When considering a new vendor of supplies such as paperclips and lubricating oil you have <u>never</u> bought before:

1. How likley is it that: Very unlikely — Very likely

a) a vendor would offer an economical product? 1 2 3 4 5 6 7 8 9 10 10-11

b) a vendor would offer a quality product? 1 2 3 4 5 6 7 8 9 10 12-13

c) a vendor would offer dependable delivery? 1 2 3 4 5 6 7 8 9 10 14-15

d) a vendor would offer required services? 1 2 3 4 5 6 7 8 9 10 16-17

e) a vendor would offer technical assistence? 1 2 3 4 5 6 7 8 9 10 18-19

f) a vendor would have adequate technical capacity? 1 2 3 4 5 6 7 8 9 10 20-21

g) a vendor would have a good reputation? 1 2 3 4 5 6 7 8 9 10 22-23

h) vendor selection will affect the way others think about you? 1 2 3 4 5 6 7 8 9 10 24-25

i) vendor selection will affect the way you think about yourself? 1 2 3 4 5 6 7 8 9 10 26-27

2. Suppose your company selected a vendor that did not meet its expectations. How significant would it be for your organization if: Of Little Consequence to the Organization — Potentially Catastrophic to the Organization

a) the product proved less economical than projected? 1 2 3 4 5 6 7 8 9 10 28-29

b) the product was of a lower quality than projected? 1 2 3 4 5 6 7 8 9 10 30-31

c) the delivery was less dependable than projected? 1 2 3 4 5 6 7 8 9 10 32-33

d) the level of service was less than projected? 1 2 3 4 5 6 7 8 9 10 34-35

e) the technical capacity was less than projected? 1 2 3 4 5 6 7 8 9 10 36-37

f) the technical assistence was less than projected? 1 2 3 4 5 6 7 8 9 10 38-39

3. Suppose you actively supported the selection of a vendor that did not meet expectations. How significant would it be for you <u>personally</u> if:

	Would Not Affect my Position and Credibility									Would Highly Endanger my Position and Credibility	
a) the product proved less economical than projected?	1	2	3	4	5	6	7	8	9	10	40-41
b) the product was of a lower quality than projected?	1	2	3	4	5	6	7	8	9	10	42-43
c) the delivery was less dependable than projected?	1	2	3	4	5	6	7	8	9	10	44-45
d) the level of service was less than projected?	1	2	3	4	5	6	7	8	9	10	46-47
e) the technical capacity was less than projected?	1	2	3	4	5	6	7	8	9	10	48-49
f) the technical assistence was less than projected?	1	2	3	4	5	6	7	8	9	10	50-51
g) the vendor's reputation was less dependable than projected?	1	2	3	4	5	6	7	8	9	10	52-53
h) the vendor selection affected the way others think about you?	1	2	3	4	5	6	7	8	9	10	54-55
i) the vendor selection affected the way you think about yourself?	1	2	3	4	5	6	7	8	9	10	56-57

4. On the whole, considering all the factors combined, about how risky would you say it is to select a new vendor of a supply you have <u>never</u> bought before?

(3)

Not risky at all									Extremely risky	
1	2	3	4	5	6	7	8	9	10	58-59

ABOUT YOU

The purpose of this section is to obtain a picture of the traits you believe you possess and to see how you describe yourself. There is no right or wrong answers so try to describe yourself as accurately and honestly as possible.

A. In each pair of words below, check the one you think <u>most</u> describes you.

1.	___understanding ___thorough	10-	6.	___enterprising ___intelligent	15-	11.	___responsible ___reliable	20-
2.	___loyal ___dependable	11-	7.	___progessive ___thrifty	16-	12.	___dignified ___civilized	21-
3.	___unaffected ___alert	12-	8.	___thorough ___fair-minded	17-	13.	___imaginative ___self-controlled	22-
4.	___sharp-witted ___deliberate	13-	9.	___sociable ___steady	18-	14.	___sympathetic ___patient	23-
5.	___jolly ___kind	14-	10.	___pleasant ___modest	19-	15.	___stable ___foresighted	24-

B. In each pair of words below, check the one you think least describes you.

16.	___shy ___lazy	25-	22.	___apathetic ___egotistical	31-	27.	___shiftless ___bitter	35-
17.	___immature ___quarrelsome	26-	23.	___despondent ___evasive	32-	28.	___hard-hearted ___self-pitying	36-
18.	___conceited ___infantile	27-	24.	___weak ___selfish	33-	29.	___cynical ___aggressive	37-
19.	___shallow ___stingy	28-	25.	___fussy ___submissive	34-	30.	___undependable ___resentful	38-
20.	___unstable ___frivolous	29-	26.	___opinionated ___pessimistic	35-	31.	___unfriendly ___self-seeking	39-
21.	___dreamy ___dependent	30-						

C. After each statement, indicate how much you agree or disagree.

		Strongly Agree						Strongly Disagree	
1.	An expert who doesn't come up with a definite answer probably doesn't know too much.	1	2	3	4	5	6	7	40-
2.	There is really no such thing as a problem that can't be solved.	1	2	3	4	5	6	7	41-
3.	A good job is one where what is to be done and how it is to be done are always clear.	1	2	3	4	5	6	7	42-
4.	In the long run it is possible to get more done by tackling small, simple problems rather than large and complicated ones.	1	2	3	4	5	6	7	43-
5.	What we are used to is always preferable to what is unfamiliar.	1	2	3	4	5	6	7	44-
6.	A person who leads an even, regular life in which few supirses or unexpected happenings arise, really has a lot to be grateful for.	1	2	3	4	5	6	7	45-
7.	I like parties where I know most of the people more than ones where all or most of the people are complete strangers.	1	2	3	4	5	6	7	46-
8.	The sooner we all acquire similar values and ideals the better.	1	2	3	4	5	6	7	47-
9.	I would like to live in a foreign country for a while.	1	2	3	4	5	6	7	48-
10.	People who fit their lives to a schedule probably miss most of the joy of living.	1	2	3	4	5	6	7	49-
11.	It is more fun to tackle a complicated problem than to solve a simple one.	1	2	3	4	5	6	7	50-
12.	Often the most interesting and stimulating people are those who don't mind being different and original.	1	2	3	4	5	6	7	51-
13.	People who insist upon a yes or no answer just don't know how complicated things really are.	1	2	3	4	5	6	7	52-
14.	Many of our important decisions are based upon insufficient information.	1	2	3	4	5	6	7	53-
15.	Teachers or supervisors who hand out vague assignments give a chance for one to show initiative and orginality.	1	2	3	4	5	6	7	54-
16.	A good teacher is one who makes you wonder about your way of looking at things.	1	2	3	4	5	6	7	55-

D.

1. Suppose you were asked to purchase a component which was considered to be potentially dangerous or risky to the safety or health of workers in your company who would have to come in contact with it in the production process. You wish to get as much information as possible about the safety of this component. How much trust would you put in the information if it came from each of the following sources: (rank order the sources from 1 to 5 with 1 going to the source you consider the most trustworthy)

	Rank
The Manufacturer of the Component Involved	( )
A U.S. Government Agency	( )
A Labor Union	( )
Consumers Testing Laboratories	( )
University Researchers	( )

2. If you could get information about danger or risk associated with the component <u>from only one source</u>, which one source would you prefer?

	Pick One
The Manufacturer of the Component Involved	( )
A U.S. Government Agency	( )
A Labor Union	( )
Consumers Testinging Laboratories	( )
University Researchers	( )

3. Is there an information source <u>not listed above which you would consider most trustworthy</u>? If so please write in the source on the line below.

_____

Thank you for your time and consideration.

Baruch College
The City University of New York
17 Lexington Avenue
New York
N.Y. 10010

February 7, 1983

Dear Purchasing Manager:

I writing to thank you for your help with my research on marketing professionals. If you and your purchasing agent have already returned the questionaire, I want to thank you again. If not, please return them as soon as possible since all responses are vital to my research.

Thank you for your time and consideration.

Sincerely,

Victoria J. Wulwick

Department of Marketing

APPENDIX B

ADDITIONAL TABLES

Mean Values and Percentages of Demographic Variables

VARIABLE	VALUE	# OF CASES	PERCENT	MEAN	MEDIAN
JOB(Job Title)		96	100		
	1(Manager)	61	63.5		
	2(Buyer)	35	36.5		
SEX(Sex)		96	100		
	1(Male)	73	78.1		
	2(Female)	21	21.9		
AGE(Age)		96	100	3.125	3.076
	1(LT 25)	4	4.2		
	2(25-34)	25	26.0		
	3(35-44)	33	34.0		
	4(45-54)	24	25.0		
	5(55-64)	9	9.4		
	6(GE 65)	1	1.0		
EDU(Education)		96	100	3.406	3.470
	1(Attended H.S.)	2	2.1		
	2(Graduated H.S.)	14	14.6		
	3(Attended College)	33	33.4		
	4(Graduated College)	37	38.5		
	5(Master's)	10	10.4		
	6(Other)	0	0.0		
CER(NAPM Certification)		96	100		
	1(Yes)	11	11.5		
	2(No)	73	76.0		
	3(In Process)	12	12.5		
CEM(Years Current Employment)		96	100	4.323	4.308
	1(LT 6 mos.)	5	5.2		
	2(6mos.-1yr.)	11	11.5		
	3(1-2yrs.)	15	15.6		
	4(3-5yrs.)	23	24.0		
	5(6-10yrs.)	16	16.7		
	6(11-15yrs.)	14	14.6		
	7(MT 15yrs.)	12	12.5		

Table 4

Mean Values and Percentages of Demographic Variables-continued

VARIABLE	VALUE	# OF CASES	PERCENT	MEAN	MEDIAN
PEM(Years Previous Emploment)		96	100	4.232	4.308
	1(LT 1yr.)	5	5.2		
	2(1-2yrs.)	2	2.1		
	3(3-5yrs.)	20	20.8		
	4(6-10yrs.)	26	27.1		
	5(11-15yrs.)	16	16.7		
	6(MT 15 yrs.)	27	28.1		
SAL(Current Salary-thousands)		94	100	4.427	4.462
	1(LT $5)	4	4.3		
	2($5-15)	18	19.1		
	3($15-25)	26	27.7		
	4($25-35)	31	33.0		
	5($35-45)	12	12.8		
	6($45-55)	1	1.1		
	7(MT $55)	2	2.1		
CEN(Org. Centralization)		96	100		
	1(Highly)	32	33.3		
	2(Somewhat)	56	58.3		
	3(Not Very)	5	5.2		
	4(Not)	3	3.1		
FOR(Org. Formalization) (% written communication)		96	100	3.927	4.300
	1(0-20)	4	4.2		
	2(20-40)	11	11.5		
	3(40-60)	17	17.7		
	4(60-80)	20	20.8		
	5(80-100)	44	45.8		
COM(Org. Complexity) (# of depts)	Min. 1 Max. 98	81	100	10.951	5.313

Table 4

Mean Values and Percentages of Demographic Variables-continued

VARIABLE	VALUE	# OF CASES	PERCENT	MEAN	MEDIAN
TSA(Self-Esteem)	Min. 11 Max. 35	84	100	24.964	25.333
TAM(Need For Certainty)	Min. 48 Max. 96	96	100	72.573	75.000
SLS(Gross Sales-1981 -millions)	Min.$ 2 Max.$996	88	100	107.614	25.500
NEM(# of Employees 1981)	Min. 5 Max.20,300	90	100	1954	501

Table 4

Mean Values and Standard Deviations of Consequences Components

VARIABLE		MEAN	#	STD	VARIABLE		MEAN	#	STD	CONSEQUENCES
*11	C01	6.628	94	.201	*5	Y01	6.809	94	.232	LE
2	C02	7.667	93	.168	2	Y02	7.305	95	.194	LQ
8	C03	6.892	93	.209	1	Y03	7.389	95	.181	LD
7	C04	6.892	93	.219	4	Y04	7.524	95	.216	LS
6	C05	6.924	92	.223	10	Y05	5.525	95	.267	LTC
5	C06	7.226	93	.232	6	Y06	6.000	95	.254	LTA
4	C07	7.489	94	.189	3	Y07	7.322	95	.176	LR
21	C08	5.713	94	.320	19	Y08	4.779	95	.283	LSU
17	C09	6.021	94	.328	13	Y09	5.137	95	.201	LPU
14	C10	6.177	96	.204	20	Y10	4.734	94	.218	OE
1	C11	8.010	96	.195	7	Y11	5.853	95	.258	OQ
3	C12	7.563	96	.187	8	Y12	5.800	95	.241	OD
10	C13	6.719	96	.208	14	Y13	5.137	95	.237	OS
13	C14	6.479	96	.209	21	Y14	4.705	95	.228	OTC
16	C15	6.042	96	.226	23	Y15	4.495	95	.215	OTA
20	C16	5.760	96	.226	16	Y16	5.000	95	.254	IE
9	C17	6.719	96	.233	9	Y17	5.656	96	.268	IQ
12	C18	6.531	96	.211	11	Y18	5.542	96	.257	ID
22	C19	5.594	96	.224	17	Y19	4.875	96	.229	IS
23	C20	5.337	95	.224	22	Y20	4.600	96	.234	ITC
24	C21	5.198	96	.240	24	Y21	4.490	96	.242	ITA
19	C22	5.896	96	.240	18	Y22	4.875	96	.252	IR
18	C23	5.989	95	.248	15	Y23	5.000	96	.254	SU
15	C24	6.158	95	.280	12	Y24	5.194	93	.299	PU
	CPR	5.925	93	.218		SPR	5.032	94	.210	

*rank order by size

C = Component Parts
S = Supplies

L = Likelihood of Undesirable Consequences
O = Intensity of Undesirable Consequences to the Organization
I = Intensity of Undesirable Consequences to the Individual

E = Economics
Q = Quality
D = Delivery
S = Service
TC= Technical Capacity
TA= Technical Assistance
R = Reputation
SU= Social Uncertainty
PU= Psychological Uncertainty

CPR = Overall Perceived Risk for Cpomponent Parts
SPR = Overall Perceived Risk for Supplies

Table 5

Mean Values and Standard Deviations of Calculated Perceived Risks

VARIABLE		MEAN	#	STD	VARIABLE		MEAN	#	STD	PER. RISK
*					*					
10	X1	41.064	94	18.089	10	Y1	32.426	94	18.952	POE
1	X2	62.065	93	21.086	1	Y2	43.064	94	22.447	POQ
2	X3	53.032	93	22.024	2	Y3	42.479	94	20.439	POD
3	X4	47.409	93	22.522	6	Y4	35.604	94	18.676	POS
4	X5	47.033	92	22.893	14	Y5	27.801	94	19.334	POTC
6	X6	45.409	93	23.502	12	Y6	28.181	94	18.363	POTA
12	X7	39.128	94	20.914	7	Y7	34.720	93	22.273	PIE
9	X8	41.362	94	29.203	3	Y8	41.979	95	23.213	PIQ
5	X9	46.129	93	23.622	4	Y9	40.811	95	20.684	PID
11	X10	39.581	93	20.901	8	Y10	34.389	95	18.746	PIS
14	X11	38.120	92	21.211	13	Y11	28.022	95	21.225	PITC
13	X12	38.258	93	22.538	11	Y12	28.474	95	20.815	PITA
7	X13	44.319	94	21.766	5	Y13	36.789	95	23.165	PIR
15	X14	37.624	93	29.524	15	Y14	27.705	95	24.513	PSU
8	X15	42.053	94	32.141	9	Y15	33.394	94	29.968	PPU

*rank order by size

X = Component Parts
S = Supplies

PO = Organizational Perceived Risk
PI = Individual Perceived Risk

E = Economics
Q = Quality
D = Delivery
S = Service
TC= Technical Capacity
TA= Technical Assistance
R = Reputation
SU= Social Uncertainty
PU= Pyschological Uncertainty

$X_i = C_i \cdot C_{i+9}$ for X1 to X6 $\quad Y_i = S_i \cdot S_{i+9}$ for Y1 to Y6

$X_j = C_{j+9} \cdot C_{j-6}$ for X7 to X15 $\quad Y_j = S_{j+9} \cdot S_{j-6}$ for Y7 to Y15

Table 6

Reliability Analysis of Scales

SCALE	ALPHA	GUTTMAN SPLIT-HALF
C01 to C24	0.909	0.974
S01 to S24	0.927	0.965
X1 to X15	0.923	0.911
Y1 to Y15	0.942	0.887
Q01 to Q16	0.803	0.868
R01 to R31	0.993	0.968

$$TAM = \sum_{i=1}^{16} Q_i$$

TSA = R01+.5R02+.5R03+2R04+R05+R06+2R07+R08+.5R09+2R10+2R11+
R12+.5R13+.5R14+R15+R16+R17+.5R18+R19+.5R20+R21+R22+
R23+R24+R25+.5R26+R27+R28+R29+2R30+R31

Table 8

Factor Analysis-C's

FACTOR	EIGENVALUE	PCT OF VAR.	CUM PCT
1	8.033	50.1	50.1
2	3.592	22.4	72.1

VARIABLE	FACTOR 1	FACTOR 2
C01	0.181	0.294
C02	0.297	0.698
C03	0.350	0.488
C04	0.254	0.598
C05	0.143	0.807
C06	0.151	0.824
C07	0.194	0.770
C08	0.565	-0.103
C09	0.477	-0.019
C10	0.441	0.082
C11	0.571	0.039
C12	0.584	0.135
C13	0.626	0.017
C14	0.588	0.220
C15	0.613	0.202
C16	0.742	0.229
C17	0.741	-0.286
C18	0.765	-0.213
C19	0.760	-0.238
C20	0.837	-0.152
C21	0.849	-0.102
C22	0.725	-0.155
C23	0.714	-0.261
C24	0.633	-0.108

Table 14

Factor Analysis-S's

FACTOR	EIGENVALUE	PCT OF VAR.	CUM PCT
1	10.716	61.2	61.2
2	3.520	20.1	81.2

VARIABLE	FACTOR 1	FACTOR 2
S01	-0.061	0.633
S02	0.005	0.802
S03	-0.112	0.765
S04	-0.023	0.693
S05	0.230	0.701
S06	0.222	0.708
S07	0.205	0.555
S08	0.511	0.035
S09	0.450	0.085
S10	0.714	0.054
S11	0.738	0.141
S12	0.803	0.172
S13	0.786	0.169
S14	0.817	0.060
S15	0.760	0.032
S16	0.838	0.008
S17	0.886	0.002
S18	0.885	0.041
S19	0.923	0.011
S20	0.874	0.043
S21	0.875	0.036
S22	0.841	0.096
S23	0.822	0.011
S24	0.703	0.047

Table 16

Results of Stepwise Regression Analysis-Component Parts

DEP. VAR.	IND. VAR.	B	BETA	F	MR	R^2
CPR	C12 (OD)	0.621	0.490	14.413	0.440	0.194
	C22 (IR)	0.271	0.292	4.896	0.512	0.263
	C10 (OE)	0.302	0.301	5.991	0.549	0.301
	C13 (OS)	-0.386	-0.366	6.582	0.582	0.338
	C16 (IE)	-0.335	-0.368	5.534	0.600	0.360
	C19 (IS)	0.359	0.349	4.461	0.636	0.404
	Constant	0.396				
CPR	X13 (PIR)	0.0328	0.344	7.065	0.416	0.173
	X3 (POD)	0.0399	0.424	8.308	0.463	0.216
	X8 (PIQ)	0.0431	0.614	7.132	0.492	0.242
	X14 (PSU)	-0.0295	-0.425	3.162	0.513	0.263
	X5 (PITC)	-0.0393	-0.427	6.656	0.538	0.290
	X9 (PID)	-0.0314	-0.357	3.633	0.553	0.306
	X11 (PITC)	0.0319	0.311	2.829	0.575	0.330
	Constant	3.709				
CPR	EDU	-0.482	-0.212	3.272	0.212	0.044
	SAL	0.411	0.285	2.675	0.244	0.060
	Constant	7.178				

Table 19

Results of Stepwise Regression Analysis-Materials

DEP. VAR.	IND. VAR.	B	BETA	F	MR	R^2
SPR	S22 (IR)	0.321	0.388	7.373	0.632	0.400
	S21 (ITA)	0.223	0.261	3.218	0.662	0.438
	S08 (LSU)	0.113	0.152	2.445	0.677	0.458
	Constant	1.878				
SPR	Y13 (PIR)	0.0272	0.312	6.525	0.560	0.313
	Y11(PITC)	0.0201	0.218	3.603	0.593	0.352
	Y14 (PSU)	0.0150	0.179	2.719	0.610	0.371
	Constant	3.0510				
SPR	EDU	-0.398	-0.180	3.175	0.254	0.062
	Constant	0.780				

Table 22

Stepwise Regression-CPR with EDU

EDU LE 3 (39 cases) Dependent Variable - CPR

VARIABLE	B	BETA	F	MR	R^2
C12 (OD)	0.400	0.327	4.599	0.517	0.268
C03 (LD)	0.266	0.279	4.214	0.589	0.347
C19 (IS)	0.250	0.250	2.803	0.630	0.400
Constant	-0.236				
X3 (POD)	0.0485	0.563	17.184	0.563	0.317
Constant	3.372				

EDU GT 3 (42 cases) Dependent Variable - CPR

VARIABLE	B	BETA	F	MR	R^2
C17 (IQ)	0.411	0.447	11.318	0.559	0.312
C12 (OD)	0.414	0.383	7.924	0.626	0.392
C01 (LE)	-0.287	-0.278	4.977	0.680	0.462
Constant	1.649				
X13 (PIR)	0.0630	0.650	16.240	0.482	0.232
X5 (POTC)	-0.0319	-0.303	3.540	0.544	0.296
Constant	4.153				

Table 25

Stepwise Regression-SPR with EDU

EDU LE 3 (39 cases) Dependent Variable - SPR

VARIABLE	B	BETA	F	MR	R^2
S20 (ITC)	0.597	0.684	32.553	0.684	0.468
Constant	2.189				
Y14 (PSU)	0.0466	0.513	15.009	0.515	0.265
Y1 (POE)	0.0373	0.319	4.802	0.606	0.367
Constant	2.862				

EDU GT 3 (42 cases) Dependent Variable - SPR

VARIABLE	B	BETA	F	MR	R^2
S22 (IR)	0.245	0.318	2.963	0.623	0.389
S23 (IPU)	0.228	0.333	3.523	0.647	0.418
S07 (LR)	0.270	0.236	3.436	0.683	0.466
Constant	0.411				
Y13 (PIR)	0.0406	0.483	10.273	0.634	0.402
Y11 (PITC)	0.0240	0.248	2.701	0.664	0.440
Constant	2.594				

Table 27

Stepwise Regression-CPR with SAL

SAL LE 3 (19 cases) Dependent Variable - CPR

VARIABLE	B	BETA	F	MR	R^2
C21 (ITA)	0.412	0.466	5.391	0.668	0.446
C15 (OTA)	0.352	0.372	3.442	0.738	0.544
Constant	1.377				
X8 (PIQ)	0.0920	1.210	29.733	0.596	0.356
X10 (PIS)	-0.0831	-0.820	13.675	).808	0.652
Constant	5.136				

SAL GE 4 and LE 5 (52 cases) Dependent Variable - CPR

VARIABLE	B	BETA	F	MR	R^2
C12 (OD)	0.556	0.489	16.384	0.560	0.314
C19 (IS)	0.621	0.651	25.200	0.634	0.402
C01 (LE)	-0.232	-0.223	4.552	0.671	0.450
C20 (ITC)	-0.420	-0.473	6.900	0.710	0.504
C08 (LSU)	0.138	0.211	3.647	0.735	0.540
Constant	1.340				
X10 (PIS)	0.0333	0.362	7.389	0.455	0.201
X14 (PSU)	0.0163	0.243	3.335	0.507	0.257
Constant	4.230				

SAL GE 6 (15 cases) Dependent Variable - CPR

VARIABLE	B	BETA	F	MR	R^2
C12 (OD)	0.431	0.404	2.540	0.404	0.153
Constant	1.862				
X11(PITC)	0.1130	1.020	14.952	0.423	0.179
X14 (PSU)	-0.0411	-0.633	8.359	0.611	0.373
X1 (POE)	-0.0828	-0.593	6.124	0.773	0.598
Constant	4.945				

Table 28

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