THE EFFECTS OF INVOLVEMENT, TIME AND VIVIDNESS ON CONSUMERS' VALUE JUDGMENTS: A TEST OF PROSPECT THEORY

by

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A DISSERTATION SUBMITTED IN THE PARTIAL FULLFILMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

In the
Department of Marketing
University of Manitoba
Winnipeg, Manitoba

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THE EFFECTS OF INVOLVEMENT, TIME AND VIVIDNESS ON CONSUMERS' VALUE JUDGMENTS: A TEST OF PROSPECT THEORY

BY

Najam U. Saqib

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of

Manitoba in partial fulfillment of the requirement of the degree

Of

Doctor of Philosophy

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Abstract

The literature in psychology and behavioral economics offers abundant instances of anomalies to the rational choice paradigm. One of the most prominent works attempting to reconcile these is Kahneman and Tversky's Prospect Theory. Its well-known S-shaped value function accounts for some of the anomalies such as *reference dependence*, *loss aversion*, and *diminishing sensitivity.* Although Prospect Theory describes the manner in which individuals are loss averse, it does not explain *why* people show loss aversion. In this dissertation, using the three experiments, we investigate the cognitive processes behind loss aversion. We find an anomaly in the S-shaped value function. Specifically, the studies demonstrate that the degree of involvement affects the slope of the value curve for atemporal and intertemporal choices, and in varying product vividness conditions. The data show that there is a difference in the slopes of the value function for low and high involvement decisions. For low involvement conditions, the value curve has roughly the same steepness for losses as for gains close to the neutral reference point (i.e. contrary to the *diminishing sensitivity* characteristic). By contrast, in the high involvement conditions this is not the case: there is a distinct difference in the slopes of the loss and gain curves. This leads us to propose that different value functions exist for people in the low and high involvement conditions. This important finding suggests that in cases where people are not highly involved with a product, they display significantly less loss aversion than predicted by Prospect Theory.

Acknowledgement

In the successful completion of my doctoral studies and this dissertation, I was guided and helped by several people that I must acknowledge and offer them my thanks and gratitude. First, I am thankful to my program advisor and dissertation co-chair, Ed Bruning, who made a substantial contribution towards helping me develop into an ambitious scholar and, I hope will continue to be, a successful academic.

Equally important was the role of my other dissertation co-chair, Norman Frohlich, whose guidance and countless hours of mentoring made it possible for me to develop my research idea for this dissertation, and conduct rigorous and meaningful research. I shall always be thankful to him.

I would also like to thank my other committee members, Wayne Simpson, Namita Bhatnagar, and Michael Hu for spending their time in providing invaluable input to improve the quality of this dissertation. A special thanks goes to Namita for her very useful feedback with respect to reporting the results of my studies.

Finally, this dissertation and my Ph.D. could not have been completed without the enduring friendship, companionship, and sacrifice of my wife, Afsheen. She constantly extended her support and ensured a happy personal life for us making the journey much easier than it could ever have been without her.

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CHAPTER ONE

1.1. Introduction

At the core of the marketing discipline is the exchange phenomenon, a paradigm recognized as a useful framework to conceptualize marketing behaviour (Baggozi 1991). Exchanges between people or organizations may take different forms e.g., a direct exchange between two parties or indirect exchanges among more than two parties. While explaining the concept of exchange, Baggozi (1991) identifies one of the categories of exchanges as 'utilitarian exchange', which refers to an exchange where goods are given in return for money or other goods. The utilitarian exchange theory, built on the foundation of economic human being, assumes that: 1) humans are rational in their behaviour, 2) they attempt to maximize their satisfaction in exchanges, 3) they have complete information on alternatives available to them in exchanges, and 4) these exchanges are relatively free from external influence. The second assumption of the theory identifies the importance of satisfaction for the parties involved in an exchange. Maximizing consumers' satisfaction is also an important marketing objective of a firm. However, in order to achieve that objective, it is essential for marketers to understand how consumers value certain alternatives in an exchange process. Thus, the concept of 'value' holds a fundamental importance for marketing scholars in the discussion of consumer choice, judgement, and decision making.

1.2. The Concept of Value

Individuals make choices based on their perceived value of the given alternatives. The basic notion of value involves a trade-off between what we part with and what we

acquire. For example, in a purchasing situation if we perceive greater value in buying a brand name product, we buy the product even if we have to pay a higher price. While the debate on 'concept of value' in the economic literature dates back many decades (Clark, 1915), marketing scholars have also proposed definitions of value and perceived value more recently. Buzzell and Gale (1987) define value as "a trade-off between or ratio of total benefits received to total sacrifices." Similarly, Monroe (1991) defined perceived value as the "ratio between perceived benefits and perceived sacrifice". To determine the value of a certain alternative or outcome, an individual first uses the available information in her choice environment (Bettman, 1979) to do a cost-benefit analysis. Based upon the analysis, then a value of the given alternative/s or outcome/s is estimated and finally a choice is made. Thus, estimating a value for an alternative has an essential role in making a choice. For marketing scholars, not only is it essential to understand consumers' valuation, but also to investigate various factors that may affect consumers' valuations. This dissertation attempts to investigate certain factors that may affect consumers' valuations in different contexts and product categories.

1.3. The scope and contribution of the research

The purpose of this research is to investigate the impact of intervening variables on consumers' valuations of various product categories. More specifically, this dissertation investigates the effect of level of involvement (high and low), temporal distance (present and future), and vividness (more and less) on people's value assessment of outcomes (i.e., gains and losses) in different consumer contexts and product categories.

In their seminal paper, Kahneman and Tversky (1979) present a critique of expected utility theory (Von Nuemann and Morganstern 1944) and proffer an alternative theory called Prospect Theory. The authors explain the importance of a reference point that consumers may use when comparing relative costs and benefits of a choice, and posit that the manner in which choice problems are coded and edited are critical factors in the decision analysis. They expect outcomes to be coded as gains or losses relative to a neutral reference point, and losses to loom larger than gains; the phenomenon is called loss aversion. The research proposed here further contributes to Prospect Theory by explaining the varying degrees of loss aversion (i.e., the relative steepness of the slope of the value curve for gains and losses) and its relationship with the level of involvement, time, and vividness. Moreover, the loss aversion phenomenon is explored in the context of intertemporal choice; an area relatively under-researched in marketing. Thus, the proposed research investigates the influence of the level of involvement in the context of atemporal and intertemporal choices, and on the degree of vividness of a given alternative. The specific research questions include:

1) What is the relative degree to which people exhibit loss aversion in the low versus high involvement condition?
2) If, and how is the relationship between involvement and loss aversion affected by time?
3) What is the role of the degree of vividness of an alternative for loss aversion in the low versus high involvement conditions?

1.4. Importance of the Research

From the point of view of research in marketing, an important reason to study the effect of involvement is that a substantial proportion of our purchases in daily life consist of low involvement rather than high involvement products. Consequently, a major portion of research in marketing to date has involved such low involvement products. The major journals of marketing have documented many models that tested data from low involvement products such as ketchup, orange juice, tissue paper, laundry detergent, coffee, and similar generally low involvement product categories. Thus, it is important that we investigate relevant factors (such as time or vividness), which may change our value assessment for such low involvement product categories versus the high involvement categories. Second, it is relevant for marketing research to investigate whether involvement alters the impact of outcomes (i.e., gains and losses) on consumers' value judgements and preferences. Only a veridical assessment of consumers' value judgments could provide an effective guideline to developing effective marketing strategies. If consumers value products and the related outcomes differently in the low versus high involvement condition, it would be important to delineate the two value functions for further theoretical developments in this area, and to formulate effective marketing strategies. Delineating different product categories, and consumer segments based upon the difference in consumer valuation can improve our understanding of consumer decision making and brand choice. Since these choices ultimately determine aggregate measures of market performance (market share), understanding consumers' valuations also has implications for understanding competition among brands.

1.5. Organization of this dissertation

The remainder of this dissertation is divided into eight chapters. Chapter Two reviews and integrates the literatures related to anomalies to expected utility theory, and discounted utility theory, and reviews the relevant literature in marketing that investigates such anomalies. It also reviews prospect theory and its limitations. Chapter Three explains the involvement construct and scale as used in this study, and the literature related to the involvement construct in marketing and psychology. Chapter Four integrates the discussion and proposes formal hypotheses of this dissertation. Chapters five, six and seven discuss the hypotheses, methods, and results of the Studies One, Two and Three respectively. Finally, Chapter Eight concludes with a discussion of the major findings, limitations, and potential future research avenues of this dissertation.

CHAPTER TWO

In this chapter, factors affecting an individual's value judgement and choice are discussed and a general review of the literature and relevant work in the area of decision making under risk, and intertemporal choice is presented. The purpose of this literature review is to provide the background to understand how factors related to stimuli and outcomes affect consumers' valuation and at the same time to present an overview of the theories pertinent to this investigation. The chapter is divided into four major sections. The first section reviews utility theory and its anomalies, and prospect theory; the second section discusses discounted utility theory and its anomalies, the third section reviews the vividness effects, and finally the fourth section reviews research in the marketing literature relevant to this dissertation.

2.1. RATIONAL CHOICE

An individual's value function plays a vital role in the choices she makes. To understand how individuals make judgments, and decisions about choices, it is essential to understand how they value products and outcomes pertaining to those choices. In the rational choice paradigm Utility theory of Von Neumann and Morgenstern (1944) assumes that an individual has stable preferences with properties such as transitivity[1], and connectivity[2]. These properties along with some other conditions [see Luce and Raiffa (1967) or Arrow (1963) for axiomatic details] presumably enable an individual to construct a preference ordering of the given alternatives. Furthermore, the rationality

[1] Transitivity in preferences refers to the following property for alternatives x, y and z: In choice set S, if an individual prefers (is indifferent between) x to (and) y, and y to (and) z, then he must prefer (be indifferent between) x to (and) z.

[2] Connectivity in preferences refers to the property where for any pair of alternatives x and y, an individual either prefers x to y, or y to x, or is indifferent between the two.

assumption implies that the choice to be made from any set of alternatives can be determined by the choices made between pairs of alternatives in a choice set *S*. Thus, based upon her ordered and stable preferences, an individual is assumed to consider each alternative from the set *S* of the given alternatives, and then rationally choose the best alternative that maximizes her utility on some ordinal scale. This standard choice paradigm for economic decision making for individuals and organizations provides an effective guideline for analyzing a range of economic phenomena, such as market competition, firm behaviour, financial market mechanism, and consumer behaviour.

However, the increasing influence of psychology on economics for the past several decades has led to the discovery of a number of anomalies that violate the behavioural assumptions of standard economic model. Kahneman and Tversky (1979), for example, in their seminal paper, describe several choice problems (discussed in the next section), in which preferences systematically violate the axioms (e.g. 'asset integration' which implies that the domain of the utility function is final states of wealth rather than gains or losses) of expected utility theory. Similarly, Rabin (1998) provides a review of number of anomalies and biases in judgement that violate the assumptions of standard economic conception of human choice. Similar discussions about the concept of rational choice and incorporation of findings from psychology were also documented by Hogarth and Redder (1987).

2.1.1. Anomalies to Rational Choice

Anomalies to the axioms of expected utility theory and standard economic models began appearing in economic journals as early as Allais' (1953) paradox. These

anomalies in the economic literature kept appearing until the later decades with a regular section on anomalous behaviour by Richard Thaler [(e.g. Richard Thaler's 'anomalies' (1987), also see Thaler (1994) for a review]. Kahneman and Tversky (1979) (K&T from here onward) point out a number of anomalies to expected utility theory with the help of certain observed phenomena, some of which they term e.g., the *certainty effect*, and the *reflection effect*. In expected utility theory, the utilities of outcomes are weighted by their probabilities. Moreover, the *substitution* axiom of expected utility theory asserts that if B is preferred to A, then any (probability) mixture (B, p) must be preferred to the mixture (A, p). K&T, however, report a series of choice problems in which people's preferences systematically violate this principle. The experiments in their study show that people inflate the weight assigned to outcomes that are considered certain, relative to outcomes that are probable (i.e., *the certainty effect*). K&T report that they asked 72 subjects to choose one of the options in problems 1 and 2 given in exhibit 2.1 below:

Exhibit 2.1

Problem 1: Choose between

A:	\$2,500 with probability .33, \$2,400 with probability .66, 0 with probability .01; [82%]	**B:**	\$2,400 with certainty.

Problem 2: Choose between

C:	\$2,500 with probability .33, 0 with probability .67; [83%]	**D:**	\$2,400 with probability .34, 0 with probability.66.

According to the data, 82 percent subjects chose B in Problem 1, and 83 percent of the subjects chose C in Problem 2, each is significant at the .01 level. As K&T point out, the interesting thing to note in the above experiment is that Problem 2 is obtained from Problem 1 by eliminating a .66 chance of winning 2400 from both prospects under consideration. This change produced a greater reduction in desirability when it altered the character of the prospect from a sure gain to a probable one, than when both the original and the reduced prospects were uncertain. In short, if have to make a choice between two gains, a sure gain and a probable gain, we tend to prefer the sure gain even if its value is lower than the probable gain. K&T posit that these problems illustrate common attitudes toward risk or chance that cannot be explained by expected utility theory.

Based upon a number of such experiments, K&T further posit that in the positive domain, *the certainty effect* contributes to a risk averse preference for a sure gain over a larger gain that is only probable. In the negative domain, the same effect leads to a risk seeking preference for a loss that is only probable over a smaller loss that is certain. So for example, if we have to make a choice between a sure loss of $1000 and a 60 percent chance of a loss $2000, we may prefer the latter option despite the fact that the value of expected loss in the latter option is higher than the former (i.e., 0.6 x 2000 = 1200 > 1000). Thus, the psychological phenomenon of overweighting certainty favours risk aversion in the domain of gains and risk seeking in the domain of losses. K&T term this phenomenon as *the reflection effect,* and report a set of problems in which preferences conform to risk aversion for positive prospects and risk seeking for negative ones. A different group of subjects was presented with the following problems in exhibit 2.2:

Exhibit 2.2

Problem 3: In addition to whatever you own, you have been given $1,000. You are now asked to choose between:

A: $1,000 with probability .50, **B:** $500 with certainty.

N = 70 [70%]

Problem 4: In addition to whatever you own, you have been given 2,000. You are now asked to choose between:

C: -$1,000 with probability .50, **D:** -$500 with certainty.

N = 68 [69%]

In Problem 3, 70% of the subjects chose B and in Problem 4, 69% of the subjects chose C. Again the interesting thing to note here is that Problem 4 is obtained from Problem 3 by adding 1,000 to the initial bonus, and subtracting 1,000 from all outcomes. The bonus apparently did not enter into the comparison of prospects because it was common to both options in each problem, which implies that the carriers of value or utility are changes of wealth, rather than final asset positions that include current wealth. This violates the 'asset integration' axiom of expected utility as mentioned above. A number of such anomalies violating the basic tenets of expected utility are reported by K&T including, *the isolation effect*, (which asserts that a pair of prospects can be decomposed into common and distinctive components in more than one way, and different decompositions sometimes lead to different preferences), and *probabilistic insurance* (which posits that two prospects that are equivalent in probabilities and outcomes could have different values depending on their formulation) [see K&T (1979) for more details on these

anomalies]. These anomalies led K&T to propose an alternative theory of choice known as Prospect Theory, which is reviewed in the next section.

2.1.2. Prospect Theory

K&T (1979) proposed prospect theory as an alternative to expected utility theory after showing empirical results with several experiments that invalidated expected utility theory as a descriptive model. A core feature of prospect theory is a psychological value function proposed by the authors. The first characteristic of the value function they propose posits that people normally perceive outcomes as gains and losses relative to a reference point, rather than as final states of wealth or welfare as in the standard theory. They define gains (positive changes in magnitude) and losses (negative changes in magnitude) with respect to some neutral reference point that corresponds to current asset position. This feature points out that people are reference dependent (i.e., they are more responsive to perceived changes in magnitudes than they are to absolute levels of magnitudes). The second characteristic of the value function posits that the function is convex below the reference point (i.e., in the negative domain or for losses) and concave above the reference point (i.e., in the positive domain or for gains), i.e., [$v''(x) > 0$, $x < 0$; $v''(x) < 0$, $x > 0$], where $v''(x)$ stands for the second derivative. The value function is proposed to be steeper for losses than for gains. (Figure-2.1 shows an illustration of the value function). These characteristics of the value function explain the loss aversion phenomenon (i.e., losses loom larger than equal size corresponding gains). In other words, loss aversion implies that the impact of a change from the references point is greater when the change is evaluated as a loss (i.e., below the reference point in the

negative domain) than if the same change is evaluated as a gain (i.e., above the reference point in the positive domain). The third characteristic, diminishing sensitivity, of the value function, posits that marginal value of both gains and losses decreases with their size. Diminishing sensitivity implies that the impact of difference between a gain and a loss is attenuated when losses and gains are remote from the reference point for the relevant dimension. The hypothesis of diminishing sensitivity is also supported by Herne (1998) in a study involving reference dependent choice model.

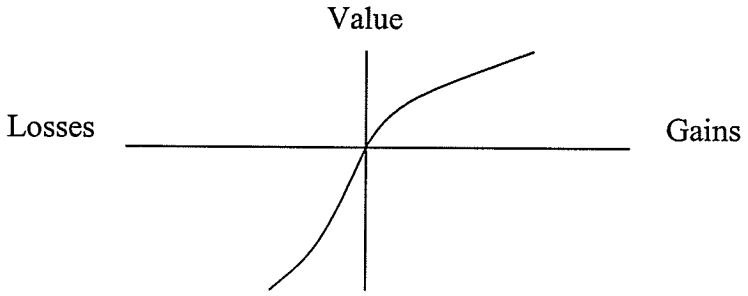


Figure 2.1
An Illustration of Value Function
Tversky and Kahneman (1991)

Tversky and Kahneman (1991) note:

> " This simple scheme serves to organize a large set of observations. Although isolated findings may be subject to alternative interpretations, the entire body of evidence provides strong support for the phenomenon of loss aversion." (p. 1041)

Thus, characteristics of the value function explain the gain-loss anomaly, or the loss aversion phenomenon, which was also called 'the endowment effect' by Richard Thaler (1980). The endowment effect implies that people would generally like to demand more money to sell a product than they would normally be willing to pay for the same product (Knetsch and Sniden 1984). Knetsch, Tang, and Thaler (2002) reconfirm the robustness of such an endowment effect in the context of a vickery auctions.

2.1.3. Risky and Riskless Choices

K&T propose characteristics of value function both for riskless (Tversky and Kahneman 1991) and risky choices (K&T 1979). This dissertation mainly concerns riskless choices (i.e., sure prospects with only one outcome), however, a brief review of risky choices for a subsequent discussion of advances in prospect theory is in order.

One of the main features of prospect theory is the proposition that the choice process has two distinct stages: an editing stage and an evaluation stage. In the editing stage a decision maker simplifies alternative prospects[3] separately by *combination* (i.e., prospects can be simplified by combining the probabilities associated with identical outcomes), or *segregation* (i.e., if they contain risky and riskless components, prospects are segregated). The operations of *cancellation* - discarding of components that are shared by the alternative prospects- and *simplification* - of prospects by rounding probabilities or outcomes- are applied to a set of two or more prospects jointly. Thus, in the editing stage the decision maker uses these operations to simplify the prospects. In the evaluation stage, the decision maker is assumed to assign values to each of the edited prospects and choose the one with the highest value. Values to different prospects are assigned by the decision maker according to two functions: a value function, v (described above), and a probability weighting function, π, which modifies objective probabilities by associating with each probability p a decision weight $\pi(p)$. The resulting probability weights do not conform necessarily to the strict rules of mathematical probability [e.g.,

[3] A prospect in a risky or probabilistic choice refers to either receiving outcome x with probability p or outcome y with probability $(1-p)$.

they need not sum to one (K&T 1979)]. Thus, the value, V, of a prospect according to the basic equation of prospect theory given the prospect $(x, p; y,q)$ (where p and q are probabilities of occurring x and y respectively, and $q = 1- p$) is:

$$V(x,p\ ;\ y,p) = \pi(p)v(x) + \pi(q)v(y) \qquad (2.1)$$

where x is the outcome associated with alternative x, and y is the outcome associated with alternative y, v is defined on outcomes such that at the reference point (i.e., no change from the status quo) $v(0) = 0$, and $\pi(0) = 0$. The scales defining prospect V, and v coincide for sure prospects such that $V(x, 1.0) = v(x)$, as for sure prospects $\pi(1) = 1$. Thus, for riskless choices [i.e., when alternative prospects are sure (with only one outcome)], probability weighting function, $\pi(p)$, does not play a role in the valuation of prospects (i.e., V and v coincide), whereas for risky choices decision weights, π, modify rather than coincide with stated (objective) probabilities. [(see appendix of K&T (1979) for axiomatic analysis of equation (2.1)].

K&T (1979) note that the introduction of decisions weights, $\pi(p)$, in prospect theory makes the actual scaling in derivation of the value function between prospects more complicated than in utility theory. Decision weights, for example, could produce risk aversion and risk seeking even with linear value function. Furthermore, K&T propose that very low probabilities are generally overweighted i.e., $\pi(p) > p$ for small p. Alternatively, the simplification process in the editing phase can lead an individual to discard events of extremely low probability and to treat events of extremely high probability as if they were certain. In general, due to people's limited ability to comprehend and evaluate extreme probabilities, highly likely events are either ignored or overweighted, and the difference between high probability and certainty is either

neglected or exaggerated. Thus, prospect theory proposes a nonlinear transformation of the probability scale, which overweights small probabilities, and underweights moderate and high probabilities, with π not well-behaved near the end-points. Figure 2.2 shows the hypothetical weighting function with stated probability, p, as illustrated by K&T (1979):

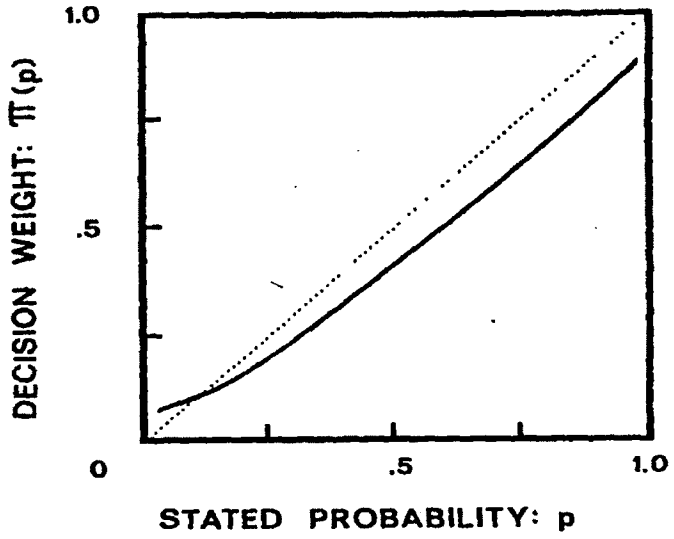


Figure 2.2
A hypothetical Weighting Function
Kahneman and Tversky (1979)

The reference dependence assumption of prospect theory also holds for risky choices to account for anomalies in expected utility theory. That is, values are attached to changes rather than final states and decision weights do not coincide with stated probabilities. The concave value function in the domain of gains indicates that people would be generally risk averse regarding gains, and convex function in the loss domain indicates that people would be risk taking to avoid losses. Thus, when choices are evaluated as gains people tend to choose less risky choices, and in the case of losses they choose more risky choices. K&T (1979) posit that these anomalies of preferences are

normally corrected by the decision maker when she realizes that her preferences are inconsistent, or intransitive. However, the authors further argue that anomalies are expected to occur because in many cases the decision maker does not have the opportunity to discover that her preferences could violate the decision rules she wishes to obey.

2.1.4. Advances in Prospect Theory: Cumulative Prospect Theory

Tversky and Kahneman (1992) developed a new version of prospect theory that employs cumulative rather than separable decision weights and extends the theory in several ways. The new version, called cumulative prospect theory (CPT), applies to uncertain as well as to risky prospects with any number of outcomes, and allows different decision weights for gains and for losses. The new representation transforms cumulative rather than the individual probabilities. If all outcomes are losses, the cumulative prospect preference function applies a weighting function first to the probability of the lowest outcome (Neilson and Stowe 2002). If all outcomes are gains the preference function applies the weighting function first to the probability of the highest outcome. In general, CPT weights extreme outcomes first, thus it is rank-dependent. In a rank-dependent model, weights attached to any outcome/consequence of a prospect depend not only on the true probability of that outcome but also on its ranking relative to the other outcomes of the prospect (Starmer 2000). Tversky and Kahneman (1992) explain the curvature of the value function and the weighting function in CPT with the help of two principles of the original prospect theory: diminishing sensitivity and loss aversion.

2.1.5. The scope of this research

The scope of the current research mainly concerns riskless choices. In this dissertation, prospects formulated in the empirical research involve sure outcomes; therefore, the discussion of probability weights does not directly relate to the proposed investigation. The main aspect of prospect theory that concerns this dissertation is the gain-loss anomaly or the loss aversion phenomenon pointed out by Kahneman and Tversky (1979). The loss aversion characteristic (i.e., loss loom larger than gains) of the value function was supported by a number of subsequent studies in different contexts such as monetary outcomes (Hershey and Shoemaker 1980; Payne, Laughhunn, and Crum 1980) or in the marketing literature for consumer packaged goods (Kalwani et al.1990; Hardie et al.1993). Nevertheless, a number of studies do not support the notion of loss aversion (e.g., Krishnamurthi, Mazumdar, and Raj 1992). Levy and Levy (2002) report a list of eleven articles that reject prospect theory or some of its elements. More recently List (2004) also demonstrates that the endowment effect anomaly is not universal. The data in his study provide evidence that consumers with significant market experience do not exhibit behaviour consistent with prospect theory; rather, their behaviour is in line with neoclassical predictions (i.e., expected utility theory). List (2004), however, finds prospect theory to have strong predictive power for inexperienced consumers. The author concludes that this result is consistent with the notion that via previous market interaction and arbitrage opportunities, agents learn to treat goods leaving their endowment as an opportunity cost rather than a loss. List (2004) further posits that while psychological effects have been extremely popular in explaining the

endowment effect anomaly, the data in his study suggest that psychological effects may also help to explain the attenuation of the anomaly.

Cognitive Processes

Although the behavioural model proposed by prospect theory accounts for a number of observed anomalies, it does not provide any explanation of the underlying cognitive processes for an individual making a decision or making judgements about gains and losses. For example, in their work on choice and decision making, Payne, Bettman, and Johnson (1993) develop a model which assumes that decision makers have a range of possible choice heuristics at their disposal that may be applied in making a decision. These heuristics may include expected utility calculations, conjunctive and disjunctive choice rules, compensatory (Fishbein 1963) and noncompensatory rules, satificing rules (Simon 1955,1979) and lexicographic rules[4] etc. In Payne et al.' (1993) adaptive model, a decision maker chooses a strategy for making a decision in which she trades off the desire to make a 'good' decision against the cognitive effort involved in applying different rules in a given situation. The decision maker is considered *boundedly rational* (i.e., with limited computational ability and albeit imperfectly defined objectives) in attempting to cope with often complex decision environment). The authors posit that selection of a choice procedure is " adaptive and intelligent"; and though the decision may not be optimal in the conventional sense, the selection of decision rules still involves optimization, but with some constraints (e.g., information processing capacity)

[4] See Lilien, Kotler, and Moorthy (1992), chapter 2, for a review of choice models involving different decision rules.

and/or objectives (e.g., the choice of strategy might be affected by considerations such as a desire to justify a choice to a third party).

Bounded Rationality

The notion of bounded rationality, proposed by Simon (1955), posits that the decision maker should be viewed as boundedly rational (i.e., a model in which utility maximization was replaced with satisficing). Based upon this idea, more recently Kahneman (2003) explains that their (D. Kahneman and A. Tversky) research attempted to obtain a map of bounded rationality by exploring the systematic biases that separate the beliefs people have and the choices they make from the optimal beliefs and choices made in rational-agent models. Kahneman (2003) points out a distinction between two generic modes of cognitive function: corresponding to intuition and reasoning. Conslisk (1996) also argues that bounded rationality is not a departure from economic reasoning, but a needed extension of it. Based upon his review (of bounded rationality), Conslisk (1996) suggests that a sensible rationality assumption will vary by context, depending upon such conditions as deliberation cost, complexity, incentive, experience, and market discipline. Thus, there could be a number of factors, choice or decision rules, that influence a decision maker to choose a strategy for making a decision, or to behave rationally, or with bounded rationality. Prospect theory does not cover all of them.

While making forecasts about future of economics, Richard Thaler also proposes that the study of human cognition by economists will increase. Thaler (2000) notes:

> "A more interesting agenda is to attempt richer characterizations of economic agents via a better understanding of human cognition. This, I predict, will be a major area of effort over the next two decades.....There are an enormous number of exciting ways in which a better understanding of human cognition

> could help us do better economics..... there is a problem with prospect theory that cognitive psychology might help us fix; namely, the theory is incomplete. Prospect theory tells us that choices depend on the framing of a problem, but does not tell us how people will spontaneously create their own frames. By directly studying how people attack decision-making problems, we may learn more about this problem-editing process."(p. 137).

This dissertation also investigates the underlying cognitive processes and different factors that influence those processes and makes an individual form certain value judgments leading to varying degrees of loss aversion in different product categories.

Level of Involvement

Among several factors leading an individual to choose a strategy, one factor could be an individual's level of involvement. As highlighted in the previous section discussing bounded rationality, an individual's lower level of involvement with a prospect may be one of the reasons for her to act with bounded rationality. Although not mentioned directly by Conslisk (1996), one of the contextual elements determining sensible rationality for a decision could be an individual's level of involvement with the decision to be made. Thus, one of the main questions investigated in this dissertation concerns an individual's involvement level of a prospect and how it affects the value function. For example, if gains and losses are evaluated with high involvement versus low involvement products, does the value function of an individual change in any way or does it remain the same? The level of involvement with a product or issue is an important aspect for consumers in making their decisions about products and issues (Petty, Cacioppo, and Schumann 1983). Prospect theory, however, does not predict a difference in the value function used in high and low involvement conditions. The gain-loss anomaly explained by prospect theory presumably occurs due to a psychological

value bias against losses, which makes people loss averse. However, we posit that the psychological value bias will be evoked more strongly if an individual elaborates extensively upon the relevant information in a choice environment. For low involvement products or issues, we hypothesize that an individual is less likely to elaborate long enough to evoke a strong psychological value bias. Consequently, it is argued that the value function may take a different shape for prospects (i.e., products, issues and related outcomes) in the low involvement condition than in the high involvement condition.

Temporal Distance

Another issue prospect theory does not cope with explicitly is the temporal aspect of the outcomes. For example, is there any change in the shape of the value function with respect to time? What happens with an individual's value function when losses and gains are proximate or distant in time? (e.g., see an example by Rabin (1998) involving '*Time-Variant Preferences*' in the section 2.2.1. below). Prospect theory presents the proposed shape of the value function for atemporal choice, but does not discuss intertemporal choice. In other words, does the value function remain the same or change for intertemporal choices? These are some of the questions that this research effort attempts to answer. A separate stream of research addresses the issue of value and rational choice in the context of intertemporal choices. The following section reviews the research in the area of intertemporal choice, and how it relates to the investigation in this dissertation.

2.2. INTERTEMPORAL CHOICE

As consumers and decision makers in our daily lives, we come across numerous situations where our choices involve a temporal element. Every time we make a purchase on a credit card, every time we invest in our education, or every time we forego eating a delicious (but potentially unhealthy) dessert we make choices with an intertemporal element. Similarly, several choices we make involve situations where costs and benefits occur at different times; for example, purchase of an extended warranty for a product, deciding about a health insurance plan, or decision to invest in a retirement plan. Thus, investigating intertemporal choices for marketing researchers interested in understanding consumers' value judgments and choice is important. In the marketing literature, the temporal element in choice has been addressed by a number of researchers [(e.g., Mowen and Mowen 1991; Meyers-Levy and Maheswaran 1992; Hoch and Loewenstein 1991; Gourville and Soman 1998; and Soman 1998),(their findings are discussed in the section 2.3.2)]; nonetheless, research in marketing in this areas is still preliminary.

In the economic and psychological literatures research documented on intertemporal choice dates back to early nineteenth century with John Rae's 1834 publication of *The Sociological Theory of Capital* [see Loewenstein and Elster (1992) for an excellent review]. A major milestone in this stream of research, however, was Samuelson's (1937) discounted utility model, which was immediately embraced by economists as a normative standard to explain intertemporal choices, despite some of Samuelson's reservations about the model. As summarized by Loewenstein (1992), in its

restrictive form, the model states that consumption sequence (c_1, c_2 , …, c_n) is preferred to sequence (d_1, d_2 , …, d_n), iff:

$$\sum u(c_t)\delta^t > \sum u(d_t)\delta^t \qquad (2.2)$$

where u is a "ratio scale" concave utility function, and δ^t is the discount function with $0 < \delta < 1$. Discounted utility (DU) model became the major framework of analyzing choice with an element of temporal distance in the economic literature, much like the utility maximization framework for atemporal choice. The basic assumptions of DU model imply that any representation of preferences over temporal prospects can be monotonically transformed into a discounted-utility representation. This model has been applied in economics to various problems and provides a framework for an extensive analysis of economic decisions with future outcomes. Despite its several criticisms and shortcomings, the DU model also provides a useful guideline against which other models of intertemporal choice are tested. However, like the anomalies observed in expected utility theory, over the last few decades a number of descriptive shortcomings and anomalies to the DU model have also been observed by several scholars (Thaler 1980, 1981; Strotz 1955; Ainslie 1975). The following section summarizes a number of the assumptions of the DU model and its anomalies that are relevant to this dissertation [See Frederick, Loewenstein, and O'Donoghue (2002) for a comprehensive review].

2.2.1. Anomalies to Discounted Utility Model

A basic assumption of the DU model is that people evaluate new alternatives by unifying or integrating them with their existing plans (Frederick et al. 2002). For example, assume an individual has an existing consumption plan (c_t,…., c_T), and s/he is

offered a prospect A involving an intertemporal choice (such as to choose between $10 now and $15 in three months). The integration assumption of the DU model implies that prospect A is evaluated with respect to how it changes the individual's aggregate consumption in all future periods. Thus, the individual must consider her new consumption path (c_t',.... c_T'), when evaluating prospect A, and should accept A if:

$$U^t (c_t', \ldots. c_T') > U^t ((c_t, \ldots., c_T) \qquad (2.3)$$

However, a plausible presumption forwarded in the literature is (Frederick et al., 2002) that people evaluate prospects involving intertemporal choices independent of any expectations of consumptions in future time period; because, a person may not have well-formed plans about future consumption path, or may not be able or willing to elaborate enough and recompute the new optimal plan every time she considers an intertemporal prospect. Another assumption of DU model proposes a constant discount rate per-period. Constant discounting implies that if two dated outcomes are delayed or accelerated by a common amount, then people's preferences do not change between the two outcomes. Thus, constant discounting assumes that a single discount rate could summarize an individual's time preference.

Loewenstein and Prelec (1992) (L&P from here after) enumerate a number of anomalies to DU model empirically observed and reported by different scholars. The anomaly referred to as *common difference effect* by L&P violates the constant discounting assumption of DU model. The authors argue that preferences between two delayed outcomes often switch when both delays are incremented by a given constant amount; whereas, DU assumes that preferences in this case do not switch. L&P quote an example from Thaler (1981) to support their argument. " *A person might prefer one apple*

today to two apples tomorrow, but at the same time prefer two apples in 51 days to one apple in 50 days." Rabin (1998) calls it *Time-Variant Preference* and explains this anomalous behavior to DU model with an example that a person today may be willing to postpone a 10 hour unpleasant task for a day at the cost of an additional hour of work i.e., to do the same task for 11 hours tomorrow. Yet if the same person were asked whether she would rather do the task for 10 hours 60 days from today or for 11 hours 61 days from today, she would not opt for the latter. This anomaly observing time variant preference implies that the discount rates should decrease with time delay over which they are estimated rather than stay constant as assumed by the DU model.

Another anomaly to the constant discounting (for all time periods) assumption of DU model by L&P is referred to as the *magnitude effect*. A number of studies found that large outcomes are discounted less than or at a lower rate than the small ones (e.g. Benzion, Rapoport, and Yagil 1989; Shelley 1994). Thaler (1981) reports that subjects, on average, were indifferent between $15 now and $60 in a year, $250 now and $350 in a year, and $3000 now and $4000 in a year. These dollar amounts imply discount rates of 139 percent, 34 percent, and 29 percent respectively; whereas, DU model assumes constant discounting regardless of the dollar amount.

There is a gain-loss anomaly to DU model, which is quite similar to the idea of 'loss aversion' proposed by prospect theory discussed above in the context of atemporal choice. The anomaly reported by many studies implies an asymmetry for the discount rates applied for gains versus losses, such that losses are discounted at a lower rate than gains. For example, in one study Thaler (1981) asked subjects how much they would be willing to pay to delay payment of a traffic ticket (by three months, one year, or three

years) that could be paid now or later. The discount rates elicited from these answers of subjects were much lower than the discount rates elicited from answers to comparable questions involving monetary gains. Similar patterns of asymmetric discount rates involving gains and losses were reported by other studies (Benzion et al 1989; Loewenstein 1987). As explained by L&P, the DU model does predict the gain-loss asymmetry, however, its shortcoming is in the prediction it makes about the size of the gain-loss asymmetry at different absolute magnitudes. The DU model assumes that the gain-loss asymmetry decreases as the size of the outcome decreases and therefore, small outcomes (losses and gains) should be discounted at the same rate. Different studies, however, report that the gain-loss asymmetry is observed to be most pronounced for small outcomes (e.g., Thaler 1980; Benzion et al 1989).

2.2.2. An Alternative Model

A variety of alternative models have been proposed in the economic literature to account for the observed anomalies to DU model, for example, hyperbolic discounting (Strotz 19955;1956), habit-formation (Duesenberry 1952), reference dependence (Loewenstein and Prelec 1992), and visceral influences (Loewenstein 1996; 2000). L&P (1992) propose a behavioral model of intertemporal choice that accounts for some of these anomalies. Their final model represents preference in an intertemporal choice situation by the following equation:

$$U(x_1,t_1;..;x_n,t_n)=\sum_i v(x_i)\phi(t_i). \qquad (2.4)$$

where $v(x)$ is a value function for a prospect x, and $\phi(t)$ is discount function over time period t. Thus, the utility from a prospect x over time t, i.e. $U(x, t)$ is equal to the product

of an individual's value function $v(x)$ and her discount function $\phi(t)$, where, the authors assume that, x and t are separable within a single outcome [see Loewenstein and Preclec (1992) for more details on this model]. The discount function in this model assumes hyperbolic discounting, which accounts for the anomalies referred to as *common difference effect* and the *magnitude effect* above.

The discount function in this model explains the observation that people are more sensitive to a given time delay if it occurs earlier rather than later. The authors posit that the value function in this model resembles, and is a specialized version of, prospect theory's value function. This value function explains the anomalies (the *magnitude effect* and the *gain-loss anomaly*) to DU model for intertemporal choice. L&P assume reference dependence for their value function and propose that the reference level represents the status quo (i.e., current level of consumption) and that new consumption alternatives are evaluated without consideration of the existing plan. Similar to prospect theory's value function, L&P propose that the value function for losses is steeper than the value function for gains. Moreover they propose that the value function for losses is more elastic than the value function for gains. The third assumption proposes that the value function is more elastic for outcomes that are larger in absolute magnitude. In summary, the assumptions of the model posit that if the value function for losses is more elastic than the value function for gains, then people will discount gains more than losses i.e., people are loss averse. Similarly, if the value function is more elastic for outcomes that are larger in absolute magnitude, then people will discount smaller outcomes at a higher rate than the larger outcomes. Thus, the model accounts for *the gain-loss anomaly* and *the magnitude effect.*

The authors illustrate their value function with the help of two figures that are given below. The figure 2.3 shows the value function over a large range of outcomes, and as noted by the authors, is pieced together from the two independent segments, one for losses and one for gains, connecting at the reference point. The same value function when plotted over a small range as in figure 2.4 below shows that the function is sharply convex, and indicates not much perceived value difference between smaller outcomes. Thus, the authors contend that this property accounts for the high discount rates applied to small outcomes.

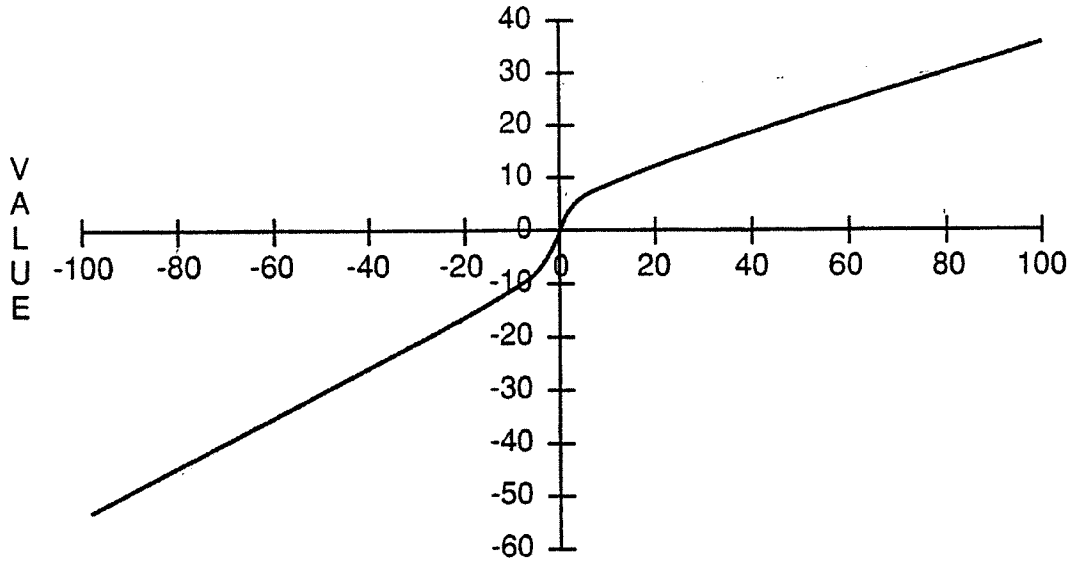


Figure 2.3
Change relative to status quo

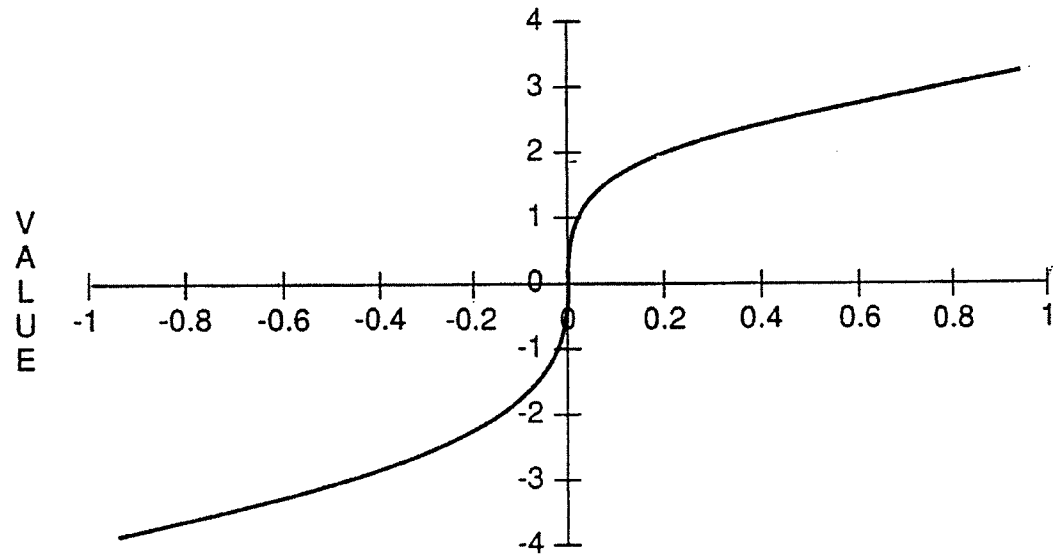


Figure 2.4
Value function plotted over a small range

This behavioral model of intertemporal choice accounts for some of the anomalies to DU model by assuming that the value curve is affected by the psychological considerations. The authors note:

> " The shape and reference point assumption reflect basic psychological consideration-extra attention to negative aspects of the environment, decreasing sensitivity to increments in stimuli of increasing magnitude, and cognitive limitations." (p. 128).

However, the model does not explain what happens to the value function for intertemporal choices in the low involvement situations, where the effect of psychological considerations is not invoked as much as in the high involvement conditions. Thus, the question may arise, if the psychological considerations and biases are absent (or too small to invoke a bias) in a certain intertemporal choice (which is often the case in the low involvement condition), how does the value function change?

Moreover, in that case, what is the state of gain-loss asymmetry? Does it attenuate with reducing psychological bias for intertemporal choices? In other words, do people not display the loss averse behavior intertemporally in the low involvement conditions? These are some of the questions that this dissertation attempts to answer for intertemporal choices, which the earlier models of intertemporal choice, including the one discussed above, do not address explicitly and clearly.

2.3. THE VIVIDNESS EFFECT

In addition to the temporal factor we discussed above, vividness of information pertaining to an outcome is another characteristic likely to affect an individual's judgment of the outcome. As Nisbett & Ross (1980) generally define:

> " Information may be described as vivid, that is, as likely to attract and hold our attention and to excite the imagination to the extent that it is (a) emotionally interesting, (b) concrete and imagery-provoking, and (c) proximate in a sensory, temporal, or spatial way". (P.45).

Thus, among other things, vividness is the amount of sensory input received from an outcome, or stimulus that an individual encounters. The degree of vividness of an object or an event in our memory depends upon how we experience the event or encounter the object. When we encounter an object or stimulus live and receive a tactile input, it becomes more vivid in our memory than if we see the same object in a picture, or hear about it from another person. Simply because we receive greater number of sensory inputs (tactile and visual in three-dimensions) from an object live than if we see it in a picture (visual only). Nisbett and Ross (1980, p. 50) note that information obtained firsthand through one's own sensory apparatus is more vivid and more likely to exert an impact on one's judgments and inferences than information obtained verbally from a

secondhand or thirdhand source. Frohlich and Oppenheimer (2000) also posit that vividness (i.e., the amount of quality of the sensory details of the objects encountered) of the encounter is one of the properties of a representation playing a role in the choice process. Thus, if we are making a judgement about an object or stimulus, its degree of vividness will be one of the factors likely to affect our judgment about that object or stimulus.

Taylor and Thompson (1982) note that vivid material is likely to have greater effect on judgement because vividly presented material is presumed to be more effectively processed at encoding and, therefore, is more likely than nonvivid material to be available when judgment is made. However, Taylor and Thompson (1982) in their review of studies assessing the vividness effects, conclude that the vividness effect was surprisingly weak in a number of studies. The authors argue that several studies may have employed inadequate designs or inadequate statistical power for examining vividness effects. In an attempt to reconcile the experimental results of those studies with real-world impressions that vividness effects do exist, as also argued by Nisbett and Ross (1980), Taylor and Thompson (1982) proffer a number of conceptual and theoretical possibilities to explain weak vividness effects found in several studies. One of the explanations the authors propose is concerning the conceptualization of the processes by which vividness is assumed to have an effect. They argue that according to one model, vividness is not a communication characteristic, but rather a condition that emerges from the interaction of communication characteristics and perceiver attributes or needs. Thus, the question may arise as to what are some of the conditions, which may lead to an

observation of vividness effect, and in absence of which vividness effect may be attenuated.

In this dissertation we have also taken a step forward towards resolving the conflicting results about vividness effects in the literature. We introduce the factor of involvement[5] from the marketing literature that may provide an alternative explanation for the weak vividness effects in some studies. In the context of the current research we propose that vividness effects of an object or outcome on judgement are likely to be more robust if an individual is highly involved with the product or stimulus. Our proposition, while not exactly same as the explanation given by Taylor and Thompson (1982), is very close to the ideas they propose. In the high involvement conditions, individuals may have prior attitudes about the product, or the product could likely be personally relevant to them. Moreover, as explained by the Elaboration Likelihood model of Petty and Cacioppo (1982)[6], in the high involvement condition individuals are likely to elaborate more extensively upon the given information than in the low involvement condition. Thus, it is proposed that vividness effects on judgement in the high involvement condition will be more robust, where the elaboration likelihood is high. In the low involvement condition, on the other hand, we propose that vividness effects on judgement will be significantly lower than the same effect in the high involvement condition, because individuals presumably do not elaborate extensively upon the given information. Thus, one of the questions this dissertation attempts to answer is that how vividness effects moderate a consumers' degree of loss aversion in the varying involvement conditions.

[5] Chapter 3 provides a detailed discussion on the 'involvement' concept
[6] See section 3.2 in Chapter 3 for a discussion of Elaboration Likelihood Model

In the next section, the relevant literature to this dissertation in marketing is reviewed including studies related to the vividness effects.

2.4. REVIEW OF THE RELEVANT LITERATURE IN MARKETING

Exploring the concept of 'value' and how consumers make value judgments is a fundamental theoretical question for consumer choice researchers and marketing scholars. Understanding consumers' value judgments and the way they choose among alternatives provides marketers an essential guideline to developing effective marketing strategies (Simonson and Tversky 1992). A number of studies (discussed in the next three sections) in the marketing literature have appeared that try to understand how consumers value different outcomes in the context of atemporal and intertemporal choices, and with respect to vividness effects on attitudinal and value judgments.

2.4.1. Atemporal Choice

In the context of atemporal choice, a number of marketing studies draw upon prospect theory either to derive their hypotheses or support the results of their studies (Diamond 1988; Kalwani and Yim 1992; Hardie, Johnson and Fader 1993; and Dhar and Wertenbroch 2000). For example, Diamond (1988) uses prospect theory to predict how people judge two types of risky alternatives: Low-Probability / High Consequences (LPHC), such as purchase of an airline ticket, and High-Probability / Low Consequences (HPLC), such as a new grocery product. The results of experimental data in the study suggest that probabilities are important to people in HPLC situations, whereas consequences are more important to them in LPHC situations, as predicted by prospect

theory. The thought protocol data in the study, however, indicate that many people appear to disregard low probabilities altogether when judging LPHC situations. Thus, the author contends that people judging LPHC situations process the information differently than described by prospect theory, which posits that consequences are considered jointly with probabilities. In that study subjects rated used cars favorably or unfavorably on a 1-7 scale after being exposed to a scenario in which probability of a car breakdown and its corresponding repair cost was included. It appears that in the study in the case of low probability/high consequences (LPHC, e.g., Probability of a breakdown = .003, repair cost = $1750), since people were more concerned with higher consequences ($1750), they disregarded the low probability altogether instead of considering them jointly as prospect theory would argue. On the other hand, in the case of high probability/low consequences (HPLC, e.g., Probability = 0.6, repair cost = $75) people were not concerned with the low consequences ($75) and did not pay too much attention to them, and, instead, elaborated more on the high probability. Thus, the results of the author's study seem to support a basic argument of this dissertation i.e., in the low consequences situations, (which could also be characterized as a low involvement condition[7]) people do not elaborate upon the given information extensively for its outcome and pay more attention to the probability of the outcome, whereas in high consequences situation (i.e., the high involvement condition), people pay more attention to outcomes. Prospect theory, however, asserts that low probabilities are overweighted and high probabilities are underweighted (see section 2.1.3. above). Thus, despite the fact that the author's study shows results not in accord with prospect theory, valuation would most likely depend both on the nature of the outcome, and the likelihood of its occurrence. From our

[7] (See chapter three on involvement)

daily life experiences one example also supports prospect theory's assertion of overweighting of low probabilities. For example, likelihood of winning the lotteries run by public corporations is extremely low (low probability), yet probably due to handsome payouts (high consequences) people overweight the low probability and keep buying lottery tickets every week in large enough of a number to keep the corporations in business[8].

Differential Elaboration

The differential elaboration applied by consumers between product categories also provides a basis for Dhar and Wertenbroch (2000) to examine consumer choice between hedonic and utilitarian goods. With the help of three experiments and a field survey data, the authors demonstrate an asymmetry exhibited by consumers for hedonic and utilitarian dimensions of a good in acquisition (gain) and forfeiture (loss) choices. The authors find that a hedonic item is relatively more preferred over a utilitarian item in forfeiture choice (loss condition) than in acquisition choice (gain condition). Thus, the authors conclude that people show a greater degree of loss aversion for hedonic goods compared to utilitarian goods for forfeiture choice (i.e. the loss condition). The authors base their results on the notion that greater spontaneous elaboration (i.e., instant processing of the encountered prospect) in forfeiture (loss) condition enhances the evaluation of hedonic aspects of a good than the evaluation of hedonic aspects of the same good in acquisition (gain) condition. Consistent with their underlying theoretical

[8] Friedman-Savage utility function (Friedman and Savage 1943), which is a kinked inverted S-shaped function, provides a classic economic explanation for this phenomenon. An individual may attach a very small marginal utility loss to the money spent on the lottery ticket but a very large utility gain to winning a big prize so that, even attaching a low probability to that large gain yields an expected net benefit from buying the ticket.

position, the authors show with a help of a thought-listing task (that suppresses the differential elaboration) that predicted asymmetry between the hedonic and utilitarian dimensions could be attenuated.

Mere Possession Effects

Based upon the notion of loss aversion, Sen and Johnson (1997) examine preference for a good produced by its mere and arbitrary possession (i.e., the mere possession-without-possession effect) even in the absence of actual possession. With the help of two experiments, (in the context of a restaurant) the authors demonstrate that merely possessing a coupon for a product, instead of actually possessing the product, can increase consumers' preference for that option versus the other alternatives. The results of the two studies suggest that in relatively small efficient choice sets, mere and arbitrary possession of even a rebate coupon for an option prior to choices enhances consumers' preference for that good, even when the options are comparable on other attributes, and consumers have knowledge of the product category. Moreover, the studies also provide evidence of loss aversion in choice process for both attributes (food, and atmosphere of the restaurant) and report significant difference in selling and buying prices indicated by the subjects in trading the coupons to be used in the restaurant. The authors contend that they used a product category that was involving to the subjects to increase task realism. However, they suggest that since consumers' involvement, as well as expertise and liking for consumer products, in the market place spans a much wider range, how the mere possession effects of the coupons vary with the category knowledge and involvement needs to be established. Thus, indirectly the authors suggest more research on the

relationship of involvement and the possession effects leading to varying degrees of loss aversion in different product categories, which is the focus of this dissertation.

A similar effect to the mere possession-without-possession effect was suggested by Levin et al. (2002), who called it the "virtual" endowment effect. Their study showed that one does not actually have to possess a product; just considering the prospect of having it gives it enhanced value. The authors found that more ingredients were selected by study subjects when starting with a "deluxe" pizza and deleting ingredients than when starting with a basic pizza and adding ingredients. Thus, at the time of ordering a pizza when the option was framed as a deluxe pizza (from which the subjects could scale down by deleting ingredients), the subjects' choices displayed a virtual endowment effect, in that they removed fewer ingredients versus the number of ingredients they added when the option was framed as a basic pizza. The authors suggest that a basic judgmental process underlies these findings i.e., a "status quo bias" seems to govern these results where changes from an initial starting point require special thought and justification, especially when the changes are seen to represent a loss and thus trigger a feeling of loss aversion. Thus, this study not only supports the notion of the endowment effect, but also introduces the idea of 'virtual' endowment effect.

Decision Framing for Industrial Buyers

Qualls and Puto (1989) examined the ability of prospect theory to explain industrial buyer decision behavior and explored the benefits of using organizational climate as one of the factors affecting the decision-framing process of industrial buyers.

The authors hypothesize that factors such as the organizational climate and a buyer's general orientation towards risk affect the decision frame, and subsequently, the buyer's choice. The proposed model was tested in a field setting using the data collected from a national sample of industrial buyers. The study confirms the decision-framing process of prospect theory in which industrial buyers form decision reference points, view decision outcomes above the reference point as gains and below as losses, compare alternatives, and finally make choices. Moreover, buyers who framed the alternatives as gains tended to choose the certain alternative, and buyers who framed the alternatives as losses tended to choose the risky alternative. This effect of decision frame on choice is extremely consistent with prospect theory. Thus, prospect theory has shown promise in explaining choice behavior in several different contexts.

Customer Satisfaction

Smith, Bolton, and Wagner (1999) present a model of customer satisfaction based upon ideas from prospect theory, in addition to the principles of mental accounting and resource exchange theories. According to the authors, in most service encounters customers do not expect a failure, so the initial 'reference point' or status quo is likely to be 'no failure'. Customers will encode service failures as losses and recovery efforts (e.g. compensation) as gains. Moreover, customers will weigh loss as a result of a service failure more heavily in their evaluations of service encounters than an equivalent gain received in the form of a recovery effort. The authors posit that prospect theory and mental accounting imply that service recovery will be more effective when the magnitude of the failure is low versus high due to the differential weighting applied to service

failures versus recovery efforts. The findings of the study, conducted in a hotel context, suggest that recovery efforts (compensation, speedy recovery) have a greater effect on perception of justice when magnitude of failures is low versus high. The study provides insight into how consumers value recovery efforts, which can help organizations in designing their compensations in a recovery effort for consumers to mitigate the effects of a service failure. An implication of the study for the proposed dissertation could be that when the magnitude of failures is low, consumers' involvement level is low and as a result it is relatively easy to recover and influence consumers' perception of justice positively, and vice versa when the magnitude of failures is high.

Reference Dependent Models

In another stream of research based upon the reference dependent notion of prospect theory, Hardie et al. (1993) find that the reference dependent model (in which Pricegain and Priceloss represent a gain or a price decrease and a loss or a price increase respectively) fits their data better than a model without reference dependence (in which instead of Pricegain or Priceloss a single Price variable is used). The coefficients of Pricegain and Priceloss in the reference dependent model are consistent with the notion of loss aversion i.e., choices are impacted more by a price increase (loss) than a price decrease (gain) for both attributes of price and quality considered in the model. This asymmetric response to price increase and decrease was also suggested by other researchers in marketing (Kalwani et al., 1990; Winer 1988; Kalwani and Yim 1992; Mayhew and Winer 1992; and Putler 1992). For example Kalwani and Yim (1992) estimate a model of price expectation and find consumers' response to price promotions

to be asymmetric i.e., an unexpected price increase (loss) had a larger and significant impact than an unexpected price decrease (gain). The authors also find similar results for a promotion expectations model i.e., the coefficient estimate for the unfulfilled promotion expectation (loss) event variable had a larger absolute magnitude and a larger *t*-value than the coefficient for the unexpected promotion (gain) event variable. Thus, the authors conclude that both for promotion and price expectations losses loom larger than gains.

Interestingly, several studies also report results that are not in complete accord with prospect theory or some of its elements. For example, Krishnamurthi, Mazumdar, and Raj (1992) argue that brand loyalty is expected to influence the asymmetric price responses of consumers as observed in other studies. The authors posit that a customer loyal to a brand may not view its price as either a gain or a loss because of her relative insensitivity to price changes of her favorite brand. As a result, she may not display asymmetry in responses to price differences i.e., she may not be loss averse for her favorite brand. An alternative explanation for these results could be that brand loyalty reduces cognitive processing that may lead to less loss aversion. In this dissertation, we also try to establish that extensive elaboration is likely to be an antecedent for the loss aversion phenomenon to hold. The results in their study do not show asymmetry in response of customers loyal to a brand; moreover, switchers (who are usually not brand loyal) in the panel data are found to be more responsive to a gain than to a loss, implying that switchers are more motivated to obtain some form of price reduction or deal than to avoid paying more than what they normally pay for the product. The authors characterize such shoppers as "bargain hunters" [the term earlier used by Thaler (1985)]. Analysis (similar to previous studies cited above) of one of their data sets conducted by the authors

indicated that the magnitude of loss coefficient was slightly larger than the gain coefficient, but was statistically not significant. In another data set, they found the gain coefficient to be significantly larger than the loss coefficient. Thus, the findings from the data sets in their study do not support the asymmetric response to prices exhibiting loss aversion as reported by some of the other studies. On the other hand, one of their data sets supports the notion of bargain hunting or gain seeking.

A more recent study by Bell and Latin (2000) contends that the loss aversion measure observed in earlier empirical studies of reference-dependent choice models is confounded by the presence of unaccounted for heterogeneity in consumer price responsiveness. The authors argue that a relatively price sensitive consumer faces a greater proportion of prices above her reference point, and thus the response curve is steeper for her in the loss domain. On the other hand, for a relatively price insensitive consumer a larger proportion of prices are below his reference point, so the response curve is less steep within the gain domain. Thus, any cross-sectional estimate of loss aversion that does not account for this consumer heterogeneity in price responsiveness may be biased upward. In other words, such estimates may arrive at incorrect substantive conclusions about the loss aversion phenomenon. The authors test their proposition using scanner panel data on orange juice and eleven additional product categories. They find that accounting for consumer heterogeneity in price responsiveness leads to lower and frequently nonsignificant estimates of loss aversion. Thus, the authors posit that in the context of frequently purchased grocery products, loss aversion may not be a universal phenomenon.

The results of at least two of the studies discussed above (Bell and Latin 2000; Krishnamurthi et al., 1992) suggest that loss aversion may not be a universally exhibited behavior for frequently purchased grocery products. Since most of the products in this class could be categorized as generally low involvement products, some support in the literature exists to concur with the theoretical propositions forwarded in this dissertation. However, research investigating the role of cognitive processes is preliminary in the marketing literature, particularly in the case when consumers do not exhibit loss aversion for certain product categories. For example, Irwin (1994) found that people were more loss averse for nonmarket goods (environmental improvements) than for market goods (stereos). Dhar and Wertenbrock (2000) note that the phenomenon of loss aversion is well established, however, relatively little is known about the exact processes that underlie asymmetric valuations of gains and losses and thus a systematic analysis of key moderators is needed that drive differences in reference dependence and loss aversion across categories of goods and attributes. This dissertation attempts to fill this gap in the marketing literature by observing and delineating the responses exhibited by consumers as a result of being exposed to a number of stimuli while responding to prices and outcomes for the low and high involvement products. Thus the dissertation proposes that one of the key moderators is consumers' level of involvement with different product categories that drive differences in the degree of loss aversion.

2.4.2. Temporal Element in Choice and Judgment

The topic of intertemporal choice has its roots in the literatures of economics and psychology. Building upon this body of research, a number of marketing studies

(reviewed below) consider the temporal element in choice, however, a research stream in marketing in this area has yet to be established.

The TOV Model

Mowen and Mowen (1991) propose a theoretical model of Time and Outcome Valuation (TOV) based upon the works of Kahneman and Tversky (1979), Loewenstein (1988), and Miller (1959). The authors introduce a third dimension of time in the value curve proposed by Kahneman and Tversky (1979). They propose that the value curve in their TOV model matches the value curve as proposed by prospect theory i.e., steeper for losses than for gains, however, as time passes, losses and gains are discounted with losses time discounted more rapidly than gains. In other words, discounted gains into the future are weighted more heavily than the discounted losses of the same size. Thus, according to the authors, when people evaluate future outcomes, their psychological value of a gain that lies in future is greater than the psychological value of a loss of the same amount that lies in future. The assumption of TOV model was also supported by Shelley (1994), who found that on average, perceived severity of a loss declined faster with delay than the perceived benefit of a gain i.e., experiments in her study suggest that loss outcome magnitudes diminish faster relative to gains, and future losses are viewed as less painful than future gains of an equal size are pleasurable. However, both of these studies contradict Lowenstein and Preclec's (1992) propositions of behavioural model of intertemporal choice, which proposes that gains are discounted at a higher rate than losses that leads to the gain-loss anomaly for intertemporal choices.

Temporal Delay in Benefit Redemption

In a study involving the effects of temporal delay on consumers' choice and judgement, Soman (1998) proposes that at the time of brand choice, the future effort is underweighted, relative to the future savings. Thus, if we were to consider future effort as a pain or loss of comfort, and future savings as a gain, then this would mean that future losses are discounted more relative to the future gains. This argument is in accord with Mowen and Mowen (1991) and Shelley (1994) as discussed above. Based upon this reasoning, Soman (1998) argues that an incentive that may appear attractive at the time of brand choice may appear unattractive at the time of redemption. Soman's results indicate that temporal delay between choice and redemption causes a systematic underweighting of future effort (i.e., future pain or loss), which mediates the increased attractiveness of alternatives (or outcomes) with delayed incentives (i.e., future gain). The author explains that the presence of temporal delay in his experiments influenced subjects' choice behaviour; however, the effect of actual length of delay could depend upon the context of choice and alternatives involved in the choice scenarios. For example, in case of buying a house, remodelling within a month might be considered no delay, but one month could be considered a delay for redeeming a rebate. This position provides support to one of our arguments in this dissertation, which asserts that the effect of time delay depends upon whether the choice made is in the context of low or high involvement condition. Loss aversion phenomenon may be observed in consumers' choice intertemporally in the context of high involvement products; however, this effect may be attenuated for the same length of temporal delay if the choice involved is in the context of low involvement products.

Payment Depreciation

The effect of time delay on consumers' judgement was also demonstrated by Gourville and Soman (1998). In a study of choices where costs significantly precede benefits, such as making a prepayment in a certain transaction, the authors predict that a consumer gradually adapts to a historic cost with the passage of time, which decreases the sunk-cost impact on the consumption of pending or future benefits. The process of adaptation was termed, " payment depreciation." The examples of such a transaction could be buying tickets for a basketball game or a famous concert/theatre well in advance. The authors argue that such a temporal separation between costs and benefits of a transaction impacts consumers' consumption behaviour. In a number of experiments conducted in the study, the authors find evidence of payment depreciation across a range of consumer transactions demonstrating that sunk cost effect is attenuated by a temporal separation between a cost and a benefit, resulting in a greater willingness to forego a benefit that is scheduled to expire, and a greater willingness to consume a benefit that could be inventoried. Thus, the research in Gourville and Soman (1998) and Soman (1998) shows that the temporal delay could affect a consumer's judgement both in the matters of choice making and benefit consumption.

Consumer Self-Control

In another discussion of intertemporal effects on choice, Hoch and Loewenstein (1991) proffer a model to explain consumers' time-inconsistent preferences and their self-control. Their model attempts to integrate the rational and emotional forces

influencing consumer self-control. The authors try to address consumer impatience by developing a decision theoretic model based on reference point. Their model explains consumers' impulsive increase in desire for a product, which momentarily overcomes their long term preferences and welfare. They further discuss consumer self-control strategies in dealing with such sudden increases in desire. The self-control strategies are framed as a struggle between desire and will power, and the strategies to deal with them are also described into two classes: strategies that directly reduce desire, and the ones that overcome desire through willpower. The model explains consumers' choice behaviour with respect to time inconsistent preferences from visceral and emotional perspectives (i.e., psychological) in conjunction with the explanations provided by the perspective of rational choice models of economics. The authors contend that neither perspective by itself is sufficient to explain consumers' choice, and thus, their model combines the two broad perspectives in consumer behaviour research. The article is one of a number of papers in the marketing literature that incorporates the temporal element in explaining consumers' judgements and choice.

Affective Reactions and Involvement Level

In a research study on the role of time in consumers' affective and persuasive responses, Meyers-Levy and Maheswaran (1992) find that changes in temporal distance affect consumers' affective responses to a message or issue. Consumers may experience intense affective reactions when an outcome occurs in close time proximity as compare to its occurrence at a remote point in time. For example, our reaction to a friend's car accident may be more intense if it happens just a day after his car insurance expires

versus if it happens six months after his car insurance expires. Two experiments in their study suggest that temporal distance manipulation can effectively influence consumers' motivation to engage in extensive message claim scrutiny (i.e., closely examining the claim in a message). However, they found that variations in temporal distance might differentially affect people's responses only when people's involvement with the message issue is low rather than high. In other words, the difference between the intensity of affective reaction to a message was observed only in the low involvement condition. In the high involvement condition, this difference may not be observed because people may be already motivated by other factors such as personal relevance. Thus, the authors suggest that manipulation of temporal distance might be added to the list of devices that can effectively influence consumers' motivation to engage in extensive message claim scrutiny.

2.4.3. The Vividness Effects on Attitudes and Evaluation

Several marketing studies have documented the vividness effects on consumers' attitudinal judgments (e.g., Kisielius and Sternthal 1984; Keller and Block 1997; Coyle and Thorson 2001), and evaluation (Kisielius and Sternthal 1986; McGill and Anand 1989). Experiences from the real world lead us to believe that vivid stimuli have a disproportionate effect on attitude and/or evaluation. To investigate the vividness effects on attitude, marketing studies typically involve the presentation of vivid and nonvivid messages and/or other stimuli. Study subjects are usually asked to render their judgments about the message advocacy to measure persuasion effects or evaluation. Despite the intuitive appeal from the real world experiences, vividness effects on persuasion have

been mixed and attributed to a number of different factors. For example, in a discussion of vividness effects, Kisielius and Sternthal (1986) report that investigating the effects of vividness manipulations on attitudinal judgments indicates that various outcomes may be obtained. In a substantial number of studies no treatment effects were observed [e.g., see Taylor and Thompson (1982)]. But in other experiments the existence of a vividness effect on judgment was documented. This has been observed whether information concreteness, presentation format, or instructions to image were used as operationalizations, and whether judgments were determined immediately after the information presentation or after a delay. The authors further argue that available evidence also indicates that the effect's direction can take two forms: enhancing or reducing the favourableness of judgments. Thus, the relevant research question, according to the authors, is not whether vividness affects attitudinal judgment, but rather when such an effect is likely to occur and what direction the effect is likely to take.

Availability-Valence Hypothesis

Based upon the findings of their study, Kisielius and Sternthal (1984) propose that persuasive effect of vividness is determined by the favourableness of the available information. The authors support this notion with the help of their " availability-valence hypothesis." According to this hypothesis, people process message information and other stimuli by relating such information to relevant information they have stored in memory. In performing this operation, people typically do not access all the information they have processed previously. Rather, they rely on the previously stored information that is most available. The favourableness or valence of the available information determines the

favourableness of the judgment rendered. Thus, attitudinal judgments are hypothesized to depend on the favourableness of available information. From this perspective, the effect of pictures, concrete information, and other vividness inductions on attitudes depends upon the extent to which they stimulate a cognitively elaborate representation in memory. Further, whether such elaboration enhances, undermines, or does not affect attitudinal judgments depends on its favourableness. The research in their study provides evidence for the vividness effect on judgment, and their main assertion (that favourableness of the available information determines the persuasive effects of vividness) is also supported. The authors, however, caution that it is necessary to ensure that individual's cognitive elaboration of stimulus information is favourable to the message advocacy, because otherwise their findings show that stimulating information availability may enhance or undermine persuasion.

Cognitive Elaboration

McGill and Anand (1989) test for vividness effects in the low and high elaboration conditions and find that cognitive elaboration may be a necessary condition to produce an effect for vividness on attitudes. To test their hypotheses, the authors conduct a study in which subjects evaluate alternatives described in terms of vivid and nonvivid attributes (of a car and an apartment) and elaborate on the material in high and low elaboration conditions. The authors manipulate elaboration by instructing the subjects to use mental imagery in making their choice in the high elaboration condition. (e.g., their instructions included: .....close your eyes, and visualize the cars/apartments described. Utilize your imagination to envision the different cars/apartments). Vividness of

attributes was also manipulated by asking the subjects to rate the imageability of certain attributes of cars and apartments. (e.g., for apartments the vivid attributes used were 'excellent view: city scape and river', and nonvivid attributes were ' Security level: below average'). Subjects in the study were told to consider "how easy it is to visualize the attribute when you try to imagine a particular apartment". For both cars and apartments, subjects rated the vivid attributes significantly more imageable than the nonvivid attributes. The results of the main study, however, indicate that subjects who elaborated on the descriptions appeared to afford the vivid attributes greater weight than nonvivid attributes in their evaluation. Subjects in the low elaboration condition gave equal consideration to vivid and nonvivid attributes included in the same description. Finding suggests that a vividness effect may depend additionally on whether subjects are instructed to elaborate on the information presented. Thus, the data supported the hypothesis that vivid information had greater influence on judgements through the effect of cognitive elaboration. This dissertation proposes that vividness effects will be observed in the high involvement condition, due to extensive cognitive elaboration. Thus, the main ideas of the authors' study were quite similar to the conjectures proffered about vividness effects with the involvement manipulation in this dissertation. However, the proposed methods of manipulating vividness and involvement (i.e., elaboration) are different (discussed later), as McGill and Anand (1989) also note that future research may examine additional conditions for the production of vividness effects, for example, vivid material presented through pictures (or actual products) may encourage elaboration despite the absence of instructions to use imagery.

Competitive Conditions

Investigating the mixed effects of vividness (and spokesperson fame) on attitude in the context of issue-relevant thinking, Heath et al. (1994) explored the moderating role of competitive conditions. With the help of three experiments, the authors showed that vividness of (and spokesperson fame in) advertising copy did not influence attitudes in noncomeptitive settings, however, these features proved effective in the context of balanced competition. When brands were homogenous or characterized by large price-quality trade-offs, vividness improved attitudes and choice probabilities despite issue-relevant thinking. However, when price-quality trade-offs were small, vividness of the advertising copy was ineffective. The authors posit that product homogeneity in competitive settings neutralizes the effect of product features, and nonsubstantive features (e.g., vividness) influence attitudes despite issue-relevant thinking. The authors point out to the generally unpersuasive effects of message vividness (Taylor and Thompson 1982, discussed above) and note that exceptions occur when either: 1) attitude reports are delayed and depend on memory which is facilitated by vividness [i.e., availability-valence hypothesis of Kisielius and Sternthal (1986,1984)], or 2) consumers are asked to imagine vivid features that are both substantive and important (McGill and Anand 1989, discussed above). By assessing in competitive settings, Heath et al. (1994) show that vividness effects can affect persuasion regardless of memory demands, and thus they are more robust than previously thought. Multiprocess theories such as the elaboration likelihood model (Petty and Cacioppo 1981) and heuristic/systematic (Chaiken 1980) model (see chapter three) maintain that issue-relevant thinking reduces the effects of nonsubstantive features (such as vividness) of advertising; however, Heath

et al., (1994) show that in competitive settings these features proved effective in influencing attitudes. The authors posit that to accommodate these findings, multiprocess theories require additional processes, the most important of which is neutralization. Competition can neutralize substantive-feature effects through product homogeneity or cross-alternative trade-offs, and also introduces uncertainty regarding relative preferences and promotes perceptual contrast. According to the authors, it appears that large cross-brand differences in price and quality (i.e., high trade-offs) left consumers increasingly undecided and more susceptible to the influence of nonsubstantive features (vividness). Another explanation for that could be that differences in price and quality prime the consumers to pay attention, thus the effect of nonsubstantive features such as vividness increases due to increased cognitive elaboration. The effects of these competitive settings empower nonsubstantive features to serve as heuristics and/or help reduce the risk of postperference regret.

Vividness in Internet Sites

In the context of web marketing sites, Coyle and Thorson (2001) investigated the vividness effects of a commercial web site on consumers' attitudes, and consistency between attitudes and behaviours. In an experiment, the authors manipulated vividness (along with interactivity) by including audio and animation in the internet marketing sites of different products. The authors predicted that high vividness would lead to stronger attitudes towards the website, and lead to an increase in the consistency between attitudes and behaviours. Furthermore, the authors expected that study subjects who saw web sites high in vividness would develop attitudes that endured over time. The results of their

experiment partially supported their predictions about the vividness effects. The authors found that participants who saw websites high in vividness developed stronger attitudes toward those websites than those participants who saw websites of moderate or low vividness. However, no effect was found for the expected relationship between levels of vividness and attitude-behaviour consistency. Finally, the authors did find support for the prediction that high level of vividness helps create more enduring attitudes toward the website.

The Resource-Matching Perspective

Based upon resource theory, Anand keller and Block (1997) present a resource-matching perspective to explain the relationship between vividness and persuasion. The resource-matching perspective suggests that judgments are affected by the balance between the resources required to process a message and those allocated to the task. Thus, predicting vividness effects requires an assessment of the relative resource demands of vivid and nonvivid, or pallid information, and a determination of the resources that are likely to be allocated to the processing task. The authors' prediction was that persuasion is maximized by a match between the resources required to process the vivid and nonvivid information and those allocated by the processor. An inverted-U relationship between resource allocation and persuasion for vivid information, and a positive linear relationship between resource allocation and persuasion for nonvivid information was predicted when vivid information was less resource demanding than nonvivid information. A reverse relationship was predicted when vivid information was more resource demanding than nonvivid information. The study was conducted with the

help of four experiments, in which vividness was manipulated in various ways. For example, by using either the message alone, or message with a picture (e.g., description of skin cancer warning signs with accompanying coloured photographs, or the description alone). In another instance, vividness of information was manipulated by presenting either personal or impersonal histories of people with sexually transmitted disease. The persuasiveness was measured by message recipients' intention to comply with the behaviour recommended in the message.

As the authors predicted, the results of the first three experiments indicated that increasing the resources individuals allocate to message processing enhanced the persuasive impact of a nonvivid message (i.e., positive linear relationship) and first enhanced, and then reduced, the impact of a vivid message (i.e., inverted-U relationship), when vivid information was less resource demanding than nonvivid information. This persuasion pattern was reversed in the fourth experiment, where nonvivid information was less resource demanding than vivid information; that is, there was an inverted-U relationship for nonvivid information, and a positive linear relationship for vivid information. The authors posit that the contrasting persuasion function for vivid and nonvivid information can predict when vivid information will be more versus less persuasive than nonvivid information.

One of the conclusions of Anand Keller and Block's (1997) study was that vivid and nonvivid information could produce the same outcomes at different levels of resource allocation, which implies that there are no special characteristics that distinguish the persuasiveness of vivid information from nonvivid information. However, in an earlier

study in the context of product warning messages, Kelley, Gaidis and Reingen (1989) found that vivid product warnings were clearly superior in communicating the hazards associated with product use to consumers. The cognitive response data in their study indicated that this effect was observed regardless of how much cognitive effort consumers put into processing label information. Thus, based upon their research Kelley et al. (1989) suggested that vividness should be regarded as stimulus characteristics that can be manipulated and measured across subjects independent of other message characteristics, such as the amount of information or source of the message.

The foregoing literature review pointed out the most relevant research to this dissertation in the economic, psychology, and marketing literatures. A number of studies discussed above explored the impact of involvement manipulation on consumers' choice, atemporally or intertemporally, and directly (e.g., Meyers-Levy and Maheswarn 1992) or indirectly (Bell and Latin 2000). Moreover, McGill and Anand (1989) also explored the role of differential cognitive elaboration in explaining vividness effects on attitudes. However, no study to the best of our knowledge in the marketing literature has thus far explained the impact of involvement manipulation on the consumers' judgment of outcomes (i.e., gains and losses). Nevertheless, several studies have made calls for such research efforts (Hoyer 1984; Sen and Johnson, 1997; Dhar and Wertenbroch 2000), because as marketers and consumers we find ourselves making decisions in a number of low involvement situations quite often. Thus, this dissertation tries to fill this gap by exploring the impact of involvement manipulation on consumers' judgement of outcomes and prospects and subsequently their choices. We discuss the 'involvement" construct

and the scale used in this research in the next chapter to further strengthen our theoretical argument and to propose our formal hypotheses in Chapter Four.

CHAPTER THREE

This chapter discusses the 'involvement' effect as an intervening variable and highlights some of the definitions of involvement from the previous literature. The concept of involvement plays a key role in the development of theoretical arguments and formal hypotheses in this dissertation. Thus, previous literature on the concept is reviewed, based upon which an involvement scale with relevant facets is developed and assessed for this dissertation. Before we begin to review the involvement literature, we would like to clarify that marketers, traditionally, have defined involvement as a factor which is either individual related, product related, or situation related. In this dissertation, we test subjects' product involvement with the help of a scale (discussed below) which captures the individual related facets (i.e., relevance, and interest) of involvement in the experiments. Furthermore, the second study (see chapter six) of this dissertation tests the theoretical argument in the context of an intertemporal choice, and the third study (see chapter seven) investigates the vividness effects, both these factors are situation relation related, and thus capture the situation related aspects of involvement. For example, an individual is likely to be more involved with an outcome that is proximate in time and more vivid than distant in time and less vivid. Finally, the product related involvement is accounted for by the fact that stimuli used in all three studies were different products (real and hypothetical), and subjects' involvement level with these products were measured with the help of our proposed involvement scale. Thus the three aspects of involvement i.e., individual related, product related, and situation related were accounted for in this research.

3.1. The Involvement Concept

Research on the concept of involvement dates back several decades both in the marketing and psychology literatures (Festinger 1957; Freedman 1964; Krugman 1965; Lastovicka and Gardner 1979). A large body of research exists with substantial agreement on the notion that in a high involvement condition people have greater personal relevance to the issue or product, and anticipate greater consequences for making a decision than in the low involvement condition (Krugman 1965; Engel and Blackwell 1982; Sherif and Hovland 1961; Petty, Cacioppo and Schumann 1983).

Defining the Concept

Involvement has been defined in a number of ways by several scholars in psychology and marketing. Engel and Blackwell (1982) defined involvement as activation of extended problems solving behaviour. Krugman (1966-67) defines involvement as the number of "connections," conscious bridging experiences or personal references per minute that the subject makes between the content of the persuasive stimulus and the content of his own life. Festinger (1957) defined involvement as *concern with the issue itself*, which can be extended to mean concern with the general issue, or product class. Based upon the discussion of Hovland et al. (1957), Freedman (1964) defined involvement as *degree of commitment to a position or concern with a specific stand on an issue.* Rothschild (1977) argues that there are problems with the definitions of Festinger and Freedman from a marketing perspective, in that, he argues that, these definitions are static in nature and do not consider attitude's relationship to behaviour. He

further elaborates that these definitions, however, imply that in the low involvement condition, people are interested in the general product class but not in any specific brand. For the low involvement case, for example, people may be interested in using soap for cleanliness and removing body odours, but the brand of soap may be purchased in a random manner, or based upon price. On the other hand, in the high involvement condition people may be interested both in the product class and a specific brand.

Rothschild (1977) further categorized involvement into two types: situation involvement and enduring involvement. Situation Involvement shows how concerned an individual is with a certain situation e.g., a particular purchase occasion. Enduring Involvement reflects the level of involvement for a general product category or issue which an individual may already have before coming into a situation, and which may also reflect her past attitudes, affects, and behaviour about the product or issue. For example, we may buy a drink for ourselves with low involvement and randomly when we feel thirsty, however, when we buy the same drink for a special invited guest for dinner, our involvement level with the purchase goes up. Thus, an individual's involvement could also be occasion and context dependent and does not necessarily have to depend only on the product or issue in question. Later on Rothschild (1984) provides a broader definition of involvement, which was well accepted by other researchers (Laurent and Kapferer 1985; Jain and Srinivasan 1990):

> " Involvement is an unobservable state of motivation, arousal or interest. It is evoked by a particular stimulus or situation and has drive properties. Its consequences are types of searching, information processing and decision making".

Krugman's (1965) view of the difference between the underlying processes of communication under high and low involvement conditions was also very well accepted by consumer researchers. The author notes:

> " The significance of conditions of low or high involvement is not that one is better than the other, but that the process of communication impact are different. That is, there is a difference in the change processes that are at work. Thus, with low involvement one might look for gradual shifts in perceptual structure, aided by repetition, activated by behavioural-choice situations, and *followed* at some time by attitude change. With high involvement one would look for the classic, more dramatic, and more familiar conflict of ideas at the level of conscious opinion and attitude that precedes changes in overt behaviour." (p. 355).

Thus, Krugman (1965) argues that under the low involvement condition a message most likely affects cognitions, then behaviours, and then attitudes. Whereas, under the high involvement condition a message most likely affects cognitions, then attitudes and then behaviours. Ray (1973) also concurs with Krugman's hierarchy of change in the low involvement condition, and claims that low involvement processing occurs in situations where product differences are not important to an individual. Along the same lines, Robertson (1976) argues that when the consumer does not have a strong belief about a product, low involvement processing occurs because she selectively processes the information for evaluation. Thus, the common notion emerging about the low involvement theory is simply the lack of extensive information processing (Calder 1977).

An alternative approach from social psychology explains a different characterization of involvement, which was proffered by Sherif et al., (1965). This characterization of involvement is related to the notion of 'commitment to a particular cause.' Since one reason for a high commitment to a cause would most likely be an

individual's high level of involvement with the cause, we briefly summarize here the authors' approach for this review of involvement concept. Sherif et al., (1965) posit that under the high involvement condition people exhibit more negative evaluations of a communication because high involvement is associated with an extended "latitude of rejection" (i.e., people are more committed to a certain position). Under the low involvement condition, individuals are noncommittal toward more positions in the universe of discourse, and their latitude of acceptance and rejection are equal or encompass equally small segments of the total range of positions on the issue. Thus, under the high involvement condition the probability is greater that an individual may reject an incoming piece of information, and a message is likely to fall within a person's latitude of rejection. Consequently, in the high involvement condition an individual is likely to accept messages only similar to her current position. Conversely, in the low involvement condition, people that are less committed can easily change their position as a result of a persuasive message and are usually responsive to any situational factor that may provide anchors or heuristics for their evaluations [e.g., an expert source or an attractive personality in an advertisement (Petty, Cacioppo and Schumann 1983)].

Involvement and Perceived Risk

Dholakia (2001) conducts a study to test the relationship of involvement and perceived risk and proposes a motivational process model. The study suggests that situational involvement to a greater or lesser extent is responsible for the feeling of anxiety. Furthermore, both the affectively evaluated psychological risk, as well as the motivation arising from the purchase situation, contribute to subsequent cognitive-

evaluation of the risk associated with the product. The focus of the author's research is on evaluation of adverse consequences arising from product purchase. The author finds that both functional risk perception as well as the motivational state of situational involvement influence the propensity to seek information prior to a purchase. The author further posits that for low-involvement purchases, a consumer may not evaluate, and therefore not experience, risk associated with the product class. Thus, situational involvement may be a necessary condition for experience and evaluation of risk.

3.2. The Elaboration Likelihood / Systematic - Heuristic Processing Models and Prospect Theory

The foregoing brief review enumerated a number of approaches taken by different scholars in defining the involvement concept. In a related research stream Petty, Cacioppo and Schumann (1983) propose a delineation of high versus low involvement that emerges from Petty and Cacioppo's (1981) Elaboration Likelihood Model (ELM) of attitude change. ELM proposes two different routes to persuasion (leading to attitude change) depending upon the degree of elaboration likelihood (i.e., the probability of thinking about a message) of a message, issue or a given communication. When elaboration likelihood of a message is high (i.e., the probability of issue relevant thoughts occurring is high), the *central route* to persuasion is employed and is more effective. On the other hand, when the elaboration likelihood is low, *the peripheral* route to persuasion is better and is more likely to be employed. ELM further holds that people elaborate upon or think about an issue (or a decision to be made) more if it is high in personal relevance and/or has greater consequences for them. Furthermore, it becomes important

for people to form a veridical opinion about an issue (or make a right choice) that is highly relevant to them. Thus, when people are highly involved with an issue or product, they devote cognitive efforts to evaluate the true merits of the issue or product. Conversely, when people's involvement level with an issue or product is low, they may not elaborate upon the issue extensively and, instead of devoting much cognitive effort to evaluate true merits of the issue, they may use non-issue relevant aspects (i.e., the peripheral route) such as simple heuristics to accept or reject a position, or to form an opinion.

In a number of studies, support was found for Petty and Cacioppo's ELM (e.g., Petty and Cacioppo 1979; Petty, Cacioppo, and Goldman 1981; Petty, Cacioppo and Schumann 1983; Andrews and Shimp 1990). Similar ideas but with different terminologies were also proposed by Chaiken (1980) in her study. The terms used by Chaiken were Systematic (i.e., central) versus Heuristic (i.e., peripheral) information processing strategies. Findings of the two experiments in her study suggest that in the high involvement condition message recipients use a systematic information processing strategy in which persuasion is mediated by message-based cognitions. In the low involvement condition, on the other hand, message recipients use a heuristic processing strategy in which persuasion is mediated by simple decision rules or economic (time and effort saving) heuristics.

In contradiction to the ELM and Systematic versus Heuristic processing strategies, Prospect Theory proposes that a psychological value bias makes individuals loss averse, thus invoking a bias in the assessment of objective value of a loss. An individual may be attempting to form a veridical opinion while elaborating on message-

based cognitions (as ELM would argue), but in the process she becomes biased (particularly for losses as argued by prospect theory) as a result of a psychological value bias. Thus, there seems to be a contradiction between the process models of involvement proposed by Petty and Cacioppo (1981) and Chaiken (1980), and Kahneman and Tversky's (1979) prospect theory. Ample evidence in the literature, however, supports the notion that in the high involvement condition people elaborate upon the given information extensively, whereas in the low involvement condition that may not be the case; people may use simple economic heuristics to make a choice, or to form an opinion.

3.3. Operationalizing the Involvement Concept

Several authors have taken a number of approaches in operationalizing the involving concept (Rothschild 1977; Lastovicka and Gardner 1977; Traylor and Joseph 1984; Laurent and Kepferer 1985-1986; Kepferer and Laurnet 1985; Zaichkowsky 1985). No clear agreement exists in the literature on the number and kinds of measures or facets to be included in a construct of involvement. For example, Rothschild (1977) argues for a number of measures to be included in a construct of involvement such as price, length of purchase cycle, similarity of choice, and perceived risk. *Price* is a commonly used intuitive measure of involvement. Most of the expensive products, in general, are high involvement; however, within a range of prices more or less involving products could be found. Similarly, *length of purchase cycle* also could reflect level of involvement. Products bought occasionally often imply a greater commitment and thus higher involvement, whereas items bought with greater frequency such as grocery items are usually low involvement, however, exceptions or contradictions could also be found.

Similarity of choice could be another factor that may affect the level of involvement (Festinger 1957). If the consequences of making a choice among alternatives do not vary much, there would be no need to become too much involved in the decision for a product or issue. Conversely, if the choices are not similar, and different options could lead to substantially different consequences, then the level of involvement with the decision would increase. However, if the perceived risk in making a poor choice is not high, the level of involvement may not be high despite the lack of similarity of choices. Thus, *perceived risk* could also be another factor affecting the level of involvement (Bauer 1960). Perceived risk in making a choice could increase with the level of uncertainty, and thus one could get highly involved to search for information in order to reduce perceived risk. As summarized by Rothschild (1977), Cox (1967) extends the perceived risk into two types: *functional risk*, and *psychosocial risk*. Functional risk refers to the risk in case of the product not performing according to expectations, and psychosocial risk refers to the risk of social embarrassment one may have by using an underperforming product. Rothschild (1977) notes that these four measures may provide insight into the vaguely defined construct of involvement, but none by itself can predict involvement sufficiently.

Involvement and Brand Commitment

Lastovicka and Gardner (1977) conduct two studies to investigate whether the numerous approaches used to measure the construct of involvement are complimentary and if the involvement is a multidimensional concept. In the first study, they conduct a multidimensional scaling analysis, which suggests two independent components of

involvement (i.e., normative importance and commitment). The second study, in which they conduct a factor analysis, shows the convergent and discriminant validity for the concepts of normative importance, commitment, and familiarity. The authors contend that involvement is best measured in terms of two components they propose. Normative importance refers to the degree of connectedness of a product class to an individual's values, whereas commitment is the pledging or binding of an individual to her brand choice. Thus, in the low involvement condition, people are not only less involved with the product class, but also are less committed to the brand. Recent research, however, shows that involvement may or may not be related to brand commitment (Warrington and Shim 2000). For example, Ratchford (2001) argues that even those consumers who are happy with their existing brand may want to experiment with new brands as an investment for future consumption. This notion was also supported in a research effort by Coutler et al. (2003).

Traylor and Joseph (1984) argue that emphasis of involvement research on primarily advertising and products as stimuli has given rise to semantic problems. They contend that stimuli are not inherently low or high involving; therefore, terms such as *high involvement products*, or *low involvement medium* are inaccurate. The authors posit that only consumers are involved or uninvolved (i.e., a low involving message for one consumer could be high involving for another). Thus, the involvement concept could be useful in segmenting consumer markets. The Involvement scale developed by Traylor and Joseph (1984) used consumer protocols to generate a large pool of items (based upon a review of the product involvement literature), which were further refined with the help of factor analysis. The final six-item scale indicated high internal reliability (coefficient

alpha = 0.92). The authors' objective in the study, however, was to develop a concise, easy-to-use scale that practitioners could use in a variety of consumer research settings and field designs. Thus, the scale did not take a number of facets of involvement into consideration, for example, the scale did not include an item measuring risk of making a poor choice in the product category, which some of the other scales have used (e.g., Kapferer and Laurent 1985).

Involvement Scales

Perhaps the two most widely accepted scales to measure the involvement construct are Laurent Kapferer's (1985) Involvement Profile (IP) and Zaichkowsky's (1985) Personal Involvement Inventory (PII). The definition of involvement that Zaichkowsky (1985) used for scale development was, " a person's perceived relevance of the object based on inherent needs, values and interests". Beginning from a 168 pair of adjectives, the author refined the PII scale to 20 pairs of adjectives (e.g., important, unimportant, or relevant, irrelevant etc) with the help of content validity and factor analysis. A number of product categories were included to develop the scale, and a major factor of 'relevance' was captured across all categories. Approximately 70% of the total variance was accounted for by the major factor. The PII has a simple structure and reports a single score to indicate the degree of product involvement of a product on a continuous scale; for example, automobile with a score of 122, and instant coffee with a score of 66 represent highest and lowest ends of the scale respectively. This scale was extended by McQuarrie and Munson (1987) who argued that PII reflected "*Importance*" and

'*Pleasure*' only. They revised the scale to include the '*Sign*' and '*Risk*' components and refined the scale by dropping certain components that they considered redundant.

Laurent and Kepferer (1985) developed their involvement scale based upon five facets which, they strongly argue, should be included in an involvement profile. The five facets of their Involvement Profile (IP) include *Importance* (product perceive importance), *Pleasure* (the rewarding nature of the product), *Sign-Value* (the perceived ability of a brand to express one's status or identity), *Risk Importance* (perceived importance of the negative consequences of a mispurchase), and *Risk Probability* (subjective probability of making a mispurhcase). A 19-item profile of these five facets collapsed into four factors in a factor analysis, with *Importance* and *Risk Importance* loading onto the same factor. In a subsequent analysis, Kapferer and Laurent (1985/86) included the same five facets, but replaced *Importance* with *Interest*. In a comparison of five involvement scales (see next section), Jain and Srinivasan (1990) report, that in the latest update of this scale, Laurent and Kapferer retained the same five factors structure, but changed the number of items in each of these factors. Jain and Srinivasan (1990) also note that the five distinct facets of involvement in IP are non-orthogonal, and strong correlations exist among Interest-Pleasure (0.55), Interest-Risk Importance (0.50) and Pleasure-Sign (0.47).

3.4. The Scale Used for This Study

The discussion of operationalizing the involvement construct in the previous section shows that several approaches have been taken by different authors using a number of involvement facets. The emphasis in the marketing literature has been on

either product or message (advertising) involvement (Traylor and Joseph 1984). To manipulate the involvement level of an individual with an advertisement, studies have manipulated their communications to subjects. For example, subjects in the high involvement condition would be told that a product might be test-marketed in their city and subjects in the low involvement condition would be told that the same product would be test marketed in a different city (Petty, Cacioppo and Schumann 1983). To manipulate the subjects' involvement level with a product as stimulus, products are simply tested on a given involvement scale and used accordingly for high, and low involvement conditions (McGill and Anand 1989).

The 'involvement' variable has a key role in the theoretical arguments of this dissertation. We argue, and as the review of previous research shows, that in the high involvement condition people tend to elaborate more on the given information (received from a stimulus) than in the low involvement condition. Thus, the facets of involvement most relevant to the current study are the ones that reflect the degree of elaboration, or extensive information processing by an individual. Furthermore, in this study we use products as stimuli to manipulate the subjects' involvement level. Thus based upon these two arguments we choose a scale that is relevant to test the product involvement and capture subjects' degree of elaboration on the outcomes (i.e., gains and losses) related to those products. Jain and Srinivasan (1990) conducted a comparison of five scales from the previous literature including Laurent and Kapferer's IP, and Zaichkowsky's PII, and further refined the involvement construct. The authors selected 10 different products, and chose 49 items from 5 different studies (Table 2). A factor analysis of all the items led them to choose 5 dimensions with three items each. The five dimensions include

Relevance, *Pleasure*, *Sign*, *Risk Importance*, and *Risk Probability*. Items of each of the dimensions had alpha value of 0.80 or above, except for the *Risk Probability* with an alpha value of 0.56 (Table 3).

Scale Comparison

To test the performance of their New Involvement Profile (NIP), Jain and Srinivasan (1990) compared their scale to other available scales in terms of its ability to predict some of the consequences of involvement used in previous studies: *greater information search*, *perception of differences among brands*, and *preferences for a particular brand* (Zaichkowsky 1985; McQuarrie and Munson 1987). The items used to predict information search were: " I would be interested in reading about this product," "I would pay attention to an ad for this product," and "I would compare product characteristics among brands for this product." The results of their regression analysis indicate that predictive ability (adjusted R-squared) of the NIP matched the best of scales in earlier studies. Moreover, when they regressed the 5 dimensions of their scale on *greater information search* (scale of three items mentioned above), *perception of differences among brands*, and *preferences for a particular brand*, the adjusted R-squared of *greater information search* was the highest (0.35) compared to 0.16 and 0.13 for the other two consequences of involvement. Thus, this result shows that if a scale can reflect the degree of information processing, it can account for a significant amount of variance in predicting the level of involvement of an individual with a product. Secondly, in the same regression analysis, the facets used as predictor variables that had highest beta values ($p < 0.001$) were Pleasure / Interest ($\beta = 0.36$), Risk Importance ($\beta =$

0.23), and Relevance ($\beta = 0.17$). These facets would be the most relevant to account for the degree of information processing.

Relevant Facets of Involvement

The analyses in Jain and Srinivasan's study, and the foregoing review of several scales, lead us to propose that most relevant facets of involvement for this dissertation are those that capture an individual's degree of information processing / extensive elaboration. Thus, based upon our review of different analyses we chose three facets of involvement for this study: *Importance / Relevance*, *Interest*, and *Risk*. Since we wished to test several products for involvement level, we did not include more facets in order to avoid the problem of subject fatigue. Jain and Srinivasan's study shows that these three facets capture most of the variance in the involvement construct reflected by the degree of information search (i.e., extensive elaboration). The items included for the *Importance* facet were: 1) How important is this product? 2) How important is this product for you personally? and 3) How important would be a purchasing decision in this product category for you? Similar items were included for '*Interest*.' The items included for the *Risk* facet were: 1) A poor choice in this product category would not be upsetting; 2) Most of the brands in this category are alike; and 3) I have little to lose by choosing poorly in this product category. Subjects responded to the questions on 1-7 Likert-type scale, where 7 represented highly important, and 1 represented highly unimportant. A copy of the complete scale is given in the appendix A. The '*Risk*' scale was reverse coded for the analysis. These items were selected based upon the scales used in previous

studies (Howard 1997; Jain and Srinivasan 1990; Lauren and Kapferer 1985; Lastovicka and Gardner 1977).

The Scale Validity

To assess the performance of our scale, we conducted a confirmatory factor analysis with Amos (a structural equation modeling software) using maximum likelihood estimation. Figure 3.1 shows the strengths of the significant relationships between their items and the three facets of importance, risk, and interest. As the figure shows, all the items loaded on to the three first level latent variables (i.e., the three facets) significantly. The squared multiple correlations, which were all positive and in the reasonable range, show that the relationships were strong and in the hypothesized direction. The Variance Extracted measure is 0.59 and the Composite Reliability measure is 0.80 (Fornell and Larcker 1981; Hair, Anderson, Tatham and Black 1998); both values are in the desirable range and show that almost 60% of the variance of the involvement construct is explained by the three facets of importance, risk, and interest.

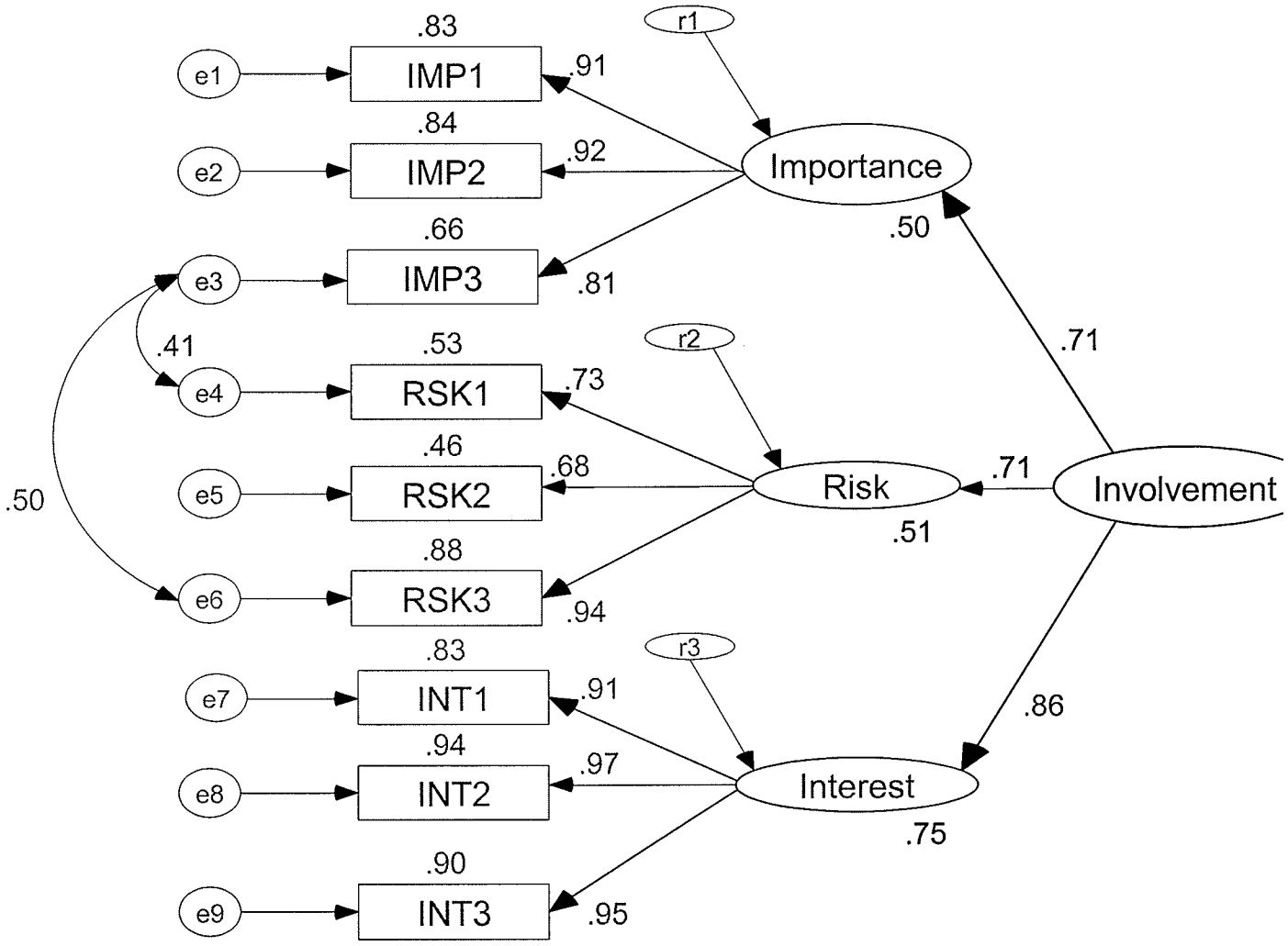
As shown in the Figure 3.1, the fit of the model significantly improves if the measurement error covariances between items related to Risk3 and Importance3, and Risk1 and Importance3 are allowed. Based upon the modification indexes conducted, we free up these covariances, which improves the model fit significantly (see Baumgartner and Homburg 1996). The value of the root mean square error of approximation (RMSEA) was .09 before the modification index for the former model, which improves to .069 after we free up the covariances (Hu and Bentler 1999; Browne and Cudek 1993). An

important criterion for modification indexes is to ensure that doing so makes theoretical sense. Since it is possible that there might be some shared variance explained by the contents of the items related to Risk3 and Importance3, and Risk1 and Importance3 (please see appendix A for these item descriptions), freeing up the error covariances makes sense theoretically (Byrne 2001). Moreover, we conducted a chi-square difference test based upon the chi-square values of the models before ($\chi^2_{(24)} = 66.15$) and after ($\chi^2_{(22)} = 43.82$) the modification index. The test was significant at $p < .001$, which implies that freeing up the error convariances, as suggested by the modification index, significantly improves the model fit (Baggozi and Yi 1988). Finally, a number of other criteria including Bentler-Bennett's Normed Fit Index (NFI = 0.99), the Comparative Fit Index (CFI = 0.99), and Tucker-Lewis Index (TLI = 0.99) were all indicative of a superior fit of the model (Browne and Cudek 1993). Thus our analysis of the data shows that the items we used to measure the involvement level were appropriate. The results of the involvement pre-test and product categories tested are discussed in chapters five, six, and seven.

This chapter provided a review of the involvement concept, and different scales used in the previous literature to measure the construct of involvement. Based upon this review, the scale to be used for this study was proposed, and validated. Using the involvement level as a main effect, Chapter Four formally proposes the hypotheses of this dissertation.

Figure 3.1

Confirmatory Factor Analysis



CHAPTER FOUR

THEORY AND HYPOTHESES

This chapter integrates the theory and proposes the hypotheses of this dissertation. Based upon the literature review of the atemporal and intertemporal choice, the vividness effect, and the involvement construct, theoretical propositions and the relevant formal hypotheses are proposed. Some of the ideas from the previous chapters are briefly mentioned again as a prelude to presenting the formal hypotheses.

4.1. Loss Aversion in Atemporal Choice

Losses loom larger than gains. This was one of anomalies to expected utility theory as proposed by prospect theory.[9] The anomaly was called the 'endowment effect' by Richard Thaler (1980) and is also known as 'loss aversion'. This anomaly violates the rational choice model, which assumes losses and gains to be weighted equally by a rational individual maximizing her utility. The elements of prospect theory predict that due to a psychological value bias regarding losses - which is evoked when an individual weighs losses and gains - losses are weighted more heavily than equal-sized gains. Based upon this notion, prospect theory proposes its psychological value curve, which we discussed earlier in chapter two.

One of the questions this research effort tries to answer is whether the loss aversion phenomenon of prospect theory holds equally in the low involvement condition and the high involvement condition. In the low involvement condition, people tend to use simple heuristics to make a decision or a choice. Previous literature suggests that a

[9] See chapter two for a discussion of prospect theory

consensus about the low involvement theory is the lack of extensive information processing[10] (Calder 1977). In a study involving consumer choice in a low involvement situation, Hoyer (1984) also posits that when consumers buy relatively unimportant and low involvement products, they tend to apply very simple choice rules or tactics that provide a satisfactory choice while allowing a quick and effortless decision. The author's study demonstrates that consumers use simple choice heuristics when making low involvement decisions.

Thus, evidence from the extant literature supports the absence of extensive elaboration or information processing in the low involvement condition.

However, an essential antecedent to evoke the psychological value bias (proposed by prospect theory) in an individual's judgment would be extensive information processing. An individual can only become psychologically biased for an outcome if she cognitively elaborates upon the outcome. Thus, extensively elaborating the given information, which occurs in the high involvement condition as previous literature suggests[11], is most likely an essential antecedent for the loss aversion phenomenon to hold. Absent extensive elaboration of information, which is most likely the case in the low involvement condition as discussed above, the psychological value bias may be evoked less effectively, and thus we may observe less loss aversion. This theorizing leads us to our first hypothesis:

H_1: In the context of atemporal choice, people are less loss averse in the low versus high involvement condition.

[10] See chapter three
[11] See chapter three

Kahneman and Tversky (1979) explain the loss aversion phenomenon with the help of a value function. The value curve, as proposed by the authors, has steeper and convex slope in the loss domain, whereas in the gain domain it is concave and less steep[12]. Our first hypothesis could be explained with the help of two value curves for high and low involvement conditions. We propose that people are less loss averse in the low versus high involvement condition, and thus the gain-loss asymmetry of the slopes of the value curve should be more pronounced in the high versus low involvement condition. The following diagram presents the two proposed value curves.

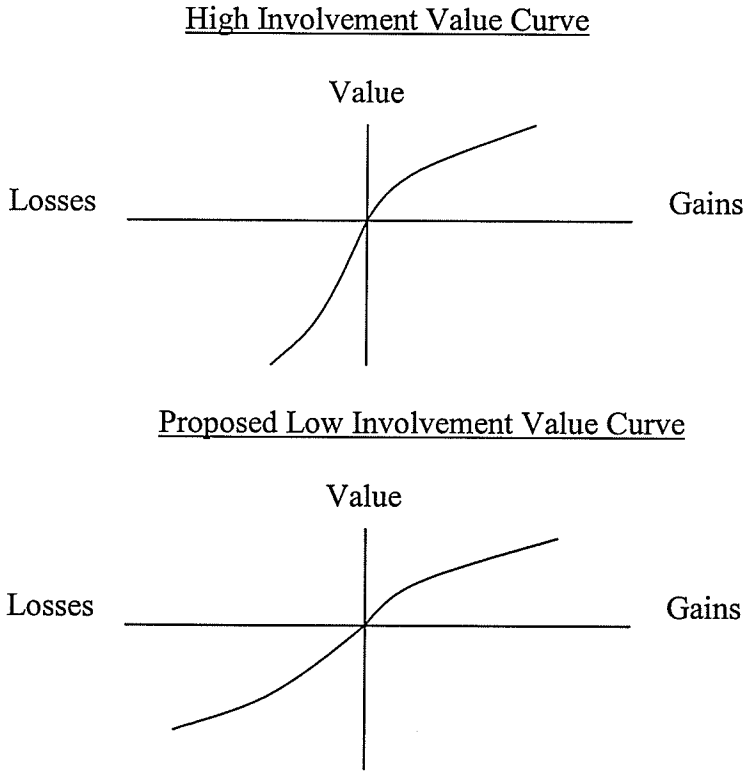


Figure 4.1

4.2. Loss Aversion in Intertemporal Choice

Relatively fewer studies in the marketing literature have investigated the impact of temporal distance on consumers' valuation of gains and losses. The importance of

[12] See figure 2.1 in section 2.1.2 for the shape of Prospect Theory's value curve

investigating intertemporal choice is, however, evident from the attention it has received in psychology and particularly economics literatures over more than a century[13]. For marketing scholars and practitioners, the importance of investigating intertemporal choice lies in the fact that in several purchasing and consumption situations these days costs and benefits related to a transaction can occur at different points in time. For example, when we use our credit card for a meal at a restaurant, we derive the benefits related to that transaction much sooner than we incur the cost. Similarly, when we finance a new vehicle with a loan, we start deriving the benefits the same day we drive the vehicle off the dealer's lot, however, we incur the cost over an extended period of time in future. Despite the fact that the finance charges we end up paying are considerably higher than the price of the vehicle, one reason we do not feel at loss is because incidence of cost occurs at distant points in the future. Mowen and Mowen (1991) in their time and outcome valuation (TOV) model also propose that time systematically influences how individuals value the worth of losses and gains[14]. Thus, it is important for marketing scholars to investigate the effect of time on consumers' judgements and valuations to enhance their understanding of consumers' intertemporal choices.

Similar to the rational choice model of expected utility (Von Nuemann and Morganstern 1944) for atemporal choice, Discounted utility (DU) model (Samuelson 1937) is a well known model as a normative standard for intertemporal choice in economics. The DU model was instantly embraced by economists as a standard for intertemporal choice. However, a number of anomalies to the model were also observed and documented, as we discuss in chapter two. Loewenstein and Prelec (1992) proposed

[13] See chapter two for a discussion of intertemporal choice
[14] See chapter two for a discussion of TOV model

a behavioural model of intertemporal choice to account for some of the observed anomalies of DU model, as did Kahneman and Tversky (1979) for expected utility model and its anomalies. A common element in both models is the notion of 'loss aversion'. Loewenstein and Prelec (1992) propose that loss aversion penalizes specifically for intertemporal choices [i.e., the incurring of a loss now in exchange for a future gain, or enjoying a current gain in return for a future loss (see chapter two)]. They propose the same gain-loss asymmetry for their value function, as was proposed by prospect theory.

The gain-loss asymmetry in the context of intertemporal choice could be well explained with the help of discounting in time. The asymmetry implies that in the context of intertemporal choices, losses are time discounted at a lower rate than gains. For example, Loewenstein (1988) in his study found that, on average, subjects were indifferent between losing $10 immediately and $15 in a year. However, if the same subjects are not indifferent between the payoffs of the same amount and prefer a $10 payoff now to a $15 payoff in a year, this would mean that subjects are discounting gains and losses at different rates (i.e., they time discount gains faster than losses). In other words, they are loss averse intertemporally because there is a gain-loss asymmetry displayed by their time discount rates.

The question for intertemporal choices this research tries to answer is whether or not loss aversion attenuates in the low involvement condition for intertemporal choices. As theorized earlier in the case of atemporal choice, we further theorize that in the context of intertemporal choice, in the low involvement condition people are less loss averse than in the high involvement condition, because in the low involvement condition

people do not process the given information extensively to evoke the psychological value bias. Thus, we should observe significantly less loss aversion displayed by people, because in the low involvement condition the psychological factors discussed by the behavioural model of intertemporal choice of Lowenstein and Prelec (1992) would be mostly absent or substantially less. This discussion leads us to propose the following two hypotheses, where $\mathbf{H_3}$ is proposed as an implication of $\mathbf{H_2}$:

$\mathbf{H_2}$: Level of involvement affects the relative discounting (i.e., the slope of gains on the value curve) of gains, such that people time discount gains at a higher rate in the low versus high involvement condition.

$\mathbf{H_3}$: In the context of intertemporal choice, people are less loss averse in the low versus high involvement condition.

4.3.Vividness Effects on Loss Aversion

It was discussed in Chapter Two that vividness of information pertaining to an outcome is another characteristic likely to affect an individual's judgment of the outcome. In the context of prospect theory, Frohlich and Oppenheimer (2000) proposed that vividness of a product (endowed object) plays a substantive role in the valuation process, and provides an alternative explanation for the gain-loss anomaly assumed by prospect theory's value function. Based upon their cognitive model of decision making, the authors argue that elements of the status quo (the here and now) are more vividly represented and lead to higher evoked affects than hypotheticals (i.e., a future outcome or prospect, or an event which has not been realized *in vivo*). According to the authors, this should allow an individual to form a vivid representation of the endowed object and place

the object into a potentially valued representation. The loss of such an endowed object should, thus, be realized as a loss from the status quo, and would lead an individual to become loss averse (or to demand a higher selling price for the endowed object than the buying price she would normally offer to acquire the same object i.e., the object is not yet endowed and has not become part of the current asset position or the status quo). Previous research, however, does not explore whether or not such a vividness effect (that provides an explanation for the loss aversion phenomenon) will be observed irrespective of the product or issue involvement. This dissertation contributes by testing the vividness effects on value judgments both in the high and low involvement conditions. As we propose in the contexts of atemporal and intertemporal choice, the loss aversion phenomenon of prospect theory is attenuated in the low involvement condition; along the same lines, we propose that vividness of an outcome evokes significantly lower degrees of loss aversion in the low versus high involvement conditions. Since the psychological value bias is likely to be more effective in the high involvement condition (as was argued above); therefore, the vividness effect will contribute to loss aversion more in the high versus low involvement condition. Thus, in Study Three, we investigate the effects of vividness of objects or outcomes (i.e., losses and gains) on an individual's judgement and decision making in the high and low involvement conditions. Based upon the discussion thus far we forward the following hypothesis:

H_4: Vividness of outcomes (losses and gains) evokes a higher degree of loss aversion in the high versus low involvement condition, such that people become more loss averse in the high versus low involvement condition as the vividness of outcomes/objects increases.

Figure 4.1 on the next page presents the proposed hypotheses in a visual model. The figure relates to the diagram presented in Frohlich, Oppenheimer, and Saqib (2005); however, the involvement factor is introduced in figure 4.1. Chapters five, six and seven discuss the research design, the experiment and the results of three studies respectively.

The Proposed Model

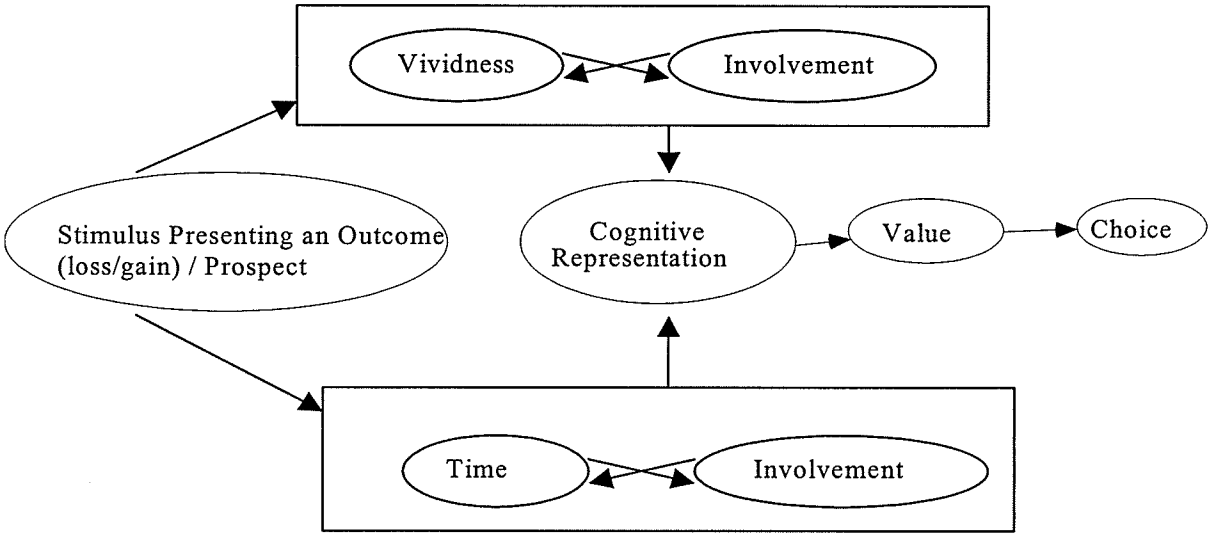


Figure 4.2

CHAPTER FIVE

This chapter discusses the method and the results of Study One along with a brief discussion of its findings. Study One tests the first hypothesis of this dissertation in the context of atemporal choice. The hypothesis proposes a lower degree of loss aversion exhibited by people in the low involvement condition. A discussion leading up to the hypothesis was included in Chapter Four.

STUDY ONE

Study One tests the following hypothesis:

$\mathbf{H_1}$: In the context of atemporal choice, consumers are less loss averse in the low versus high involvement condition.

5.1. Experimental Design

One hundred and forty undergraduate students from a marketing class (males = 51%, females = 49%, mean age = 20.5) were assigned randomly to four cells in a 2 (Involvement: low and high) X 2 (Transaction: buy and sell) between subjects factorial design. The subjects participated in the experiment in exchange for partial course credit. This research was approved by the human ethics board. A 42-inch big screen plasma TV and a $20 gift certificate for a favourite restaurant were chosen as high and low involvement products respectively based upon a pretest. The involvement scale discussed in chapter three was used for the pretest, which was conducted with the same general subject population that participated in the experiment.

5.2. Method

In the low involvement 'sell condition', subjects were asked for how much minimum would they sell a $20 gift certificate for a restaurant of their choice, which they already owned. Thus, in this condition they were asked to assume that they were already endowed with the gift certificate. In the low involvement 'buy condition', subjects were asked how much maximum they would pay for a discounted $20 gift certificate for a restaurant of their choice. Thus, the dependent variable was the subjects' valuation of a $20 gift certificate when they were asked to assume that they were already endowed with it and they were to part with it (loss), versus if they did not own it and were to acquire it (gain). In the high involvement condition, $20 gift certificate was replaced with a 42-inch big screen plasma TV. In the 'buy condition', subjects were asked to assume that they won $10,000 in a lottery and that they were in the market to buy a big screen plasma TV, thus how much maximum would they pay for the 42-inch plasma TV. In the 'sell condition,' they were asked to assume that they won a 42-inch plasma TV in a lottery, however, the lottery organization gives them a choice to sell their TV back, thus for how much minimum would they be willing to sell their 42-inch plasma TV[15]. The $10,000 lottery amount was included in the buy condition to overcome any potential budget constraint problems assumed by subjects in purchasing an expensive TV. Again, the dependent variable was subjects' valuation of the 42-inch plasma TV in the two conditions.

5.3. Results

Pretest. The results of the pretest based upon the involvement scale show that on average subjects consider a 42-inch plasma TV as a high involvement product (Mean =

[15] Please see Appendix B for complete instruments of study one

5.16, on a 1-7 Likert type scale, where 7 is the highest value for involvement), and a $20 gift certificate for a restaurant of their choice as a low involvement product [Mean = 3.9, $t(50) = 8.0; p < .001$]. Thus, the difference between the two products on the involvement scale was significant and these two products were used in the main experiment as high and low involvement stimuli.

Experiment. In support of our hypothesis, we found a significant interaction effect of outcome (buy and sell) and involvement, $F(1,124) = 13.83$, $p < .001$. Subjects' valuation in the low involvement condition were not significantly different in the buy (M = $15.40, S.E = 4.7) versus sell (M = $16.92, S.E = 2.8), $F(1,124) = .001$, NS) condition. In contrast, the valuations were significantly different in the high involvement buy (M = $3571, S.E = 2036) versus sell (M = $6257, S.E = 2750; $F(1,124) = 410$, $p< .0001$) conditions. The results of this experiment in the high involvement condition provide evidence for the loss aversion phenomenon i.e., subjects' valuations were significantly higher in the loss (framed as sell) versus gain (framed as buy) condition. However, in the low involvement condition, the same difference was not significant indicating significantly less loss aversion.

5.4. Discussion of the Findings

The results of this study support our theoretical proposition for atemporal choice. In the low involvement condition individuals do not elaborate upon given information extensively and, as a result, the psychological value bias that causes loss aversion is evoked less effectively in the high involvement condition. Thus, due to the absence of an effective psychological value bias, subjects in the low involvement condition (i.e., involving a $20 gift certificate scenario) were less loss averse.

This study finds an exception to one of the main assumptions of prospect theory, which claims that the psychological value curve is steeper and convex in the domain of losses, particularly, closer to the status quo. Our results indicate that in the low involvement condition the value curve is not significantly steeper for losses than for gains (i.e., subjects were less loss averse). Prospect theory asserts that closer to the status quo the curve is steeper than farther from the status quo. We have shown in this study that at least in the magnitude dimension (bigger and smaller dollar amounts i.e., $20 gift certificate versus a plasma TV), this is not the case. The value curve was not found to be significantly steeper for losses (smaller degree of loss aversion) closer to the status quo ($20 gift certificate) in the magnitude dimension, but it was found steeper (greater degree of loss aversion) farther from the status quo in the magnitude dimension (plasma TV)(See figures 5.1 and 5.2 on the following pages). Thus, in the low involvement conditions, in the magnitude dimension the value curve does not seem to be much steeper for losses than for gains closer to the status quo. This is an important finding. The finding suggests that for smaller outcomes, or in cases where people are not highly involved with a product and its related outcomes, consumers may exhibit significantly less loss aversion, and thus their valuation of outcomes will be different in the low involvement compared to the high involvement conditions. Thus, based upon the results of this study, we argue that different value curves exist for people in the high and low involvement conditions for atemporal choices. For marketers it is important to recognize this difference in consumers' valuation not only for further theory building, but also for formulating appropriate marketing strategies. Further discussion and practical implications of this study are discussed in Chapter Eight.

Low Involvement Value Curve

Psychological Value (Gift Certificate)

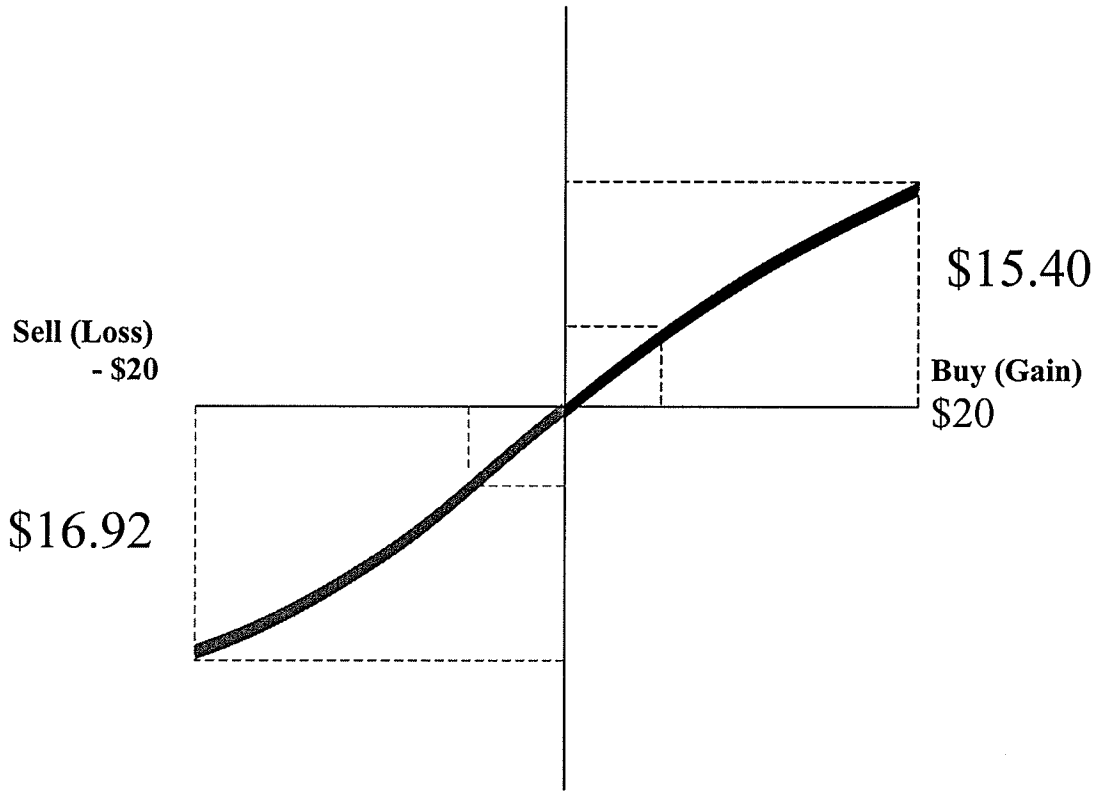


Figure 5.1

High Involvement Value Curve

Psychological Value (Plasma TV)

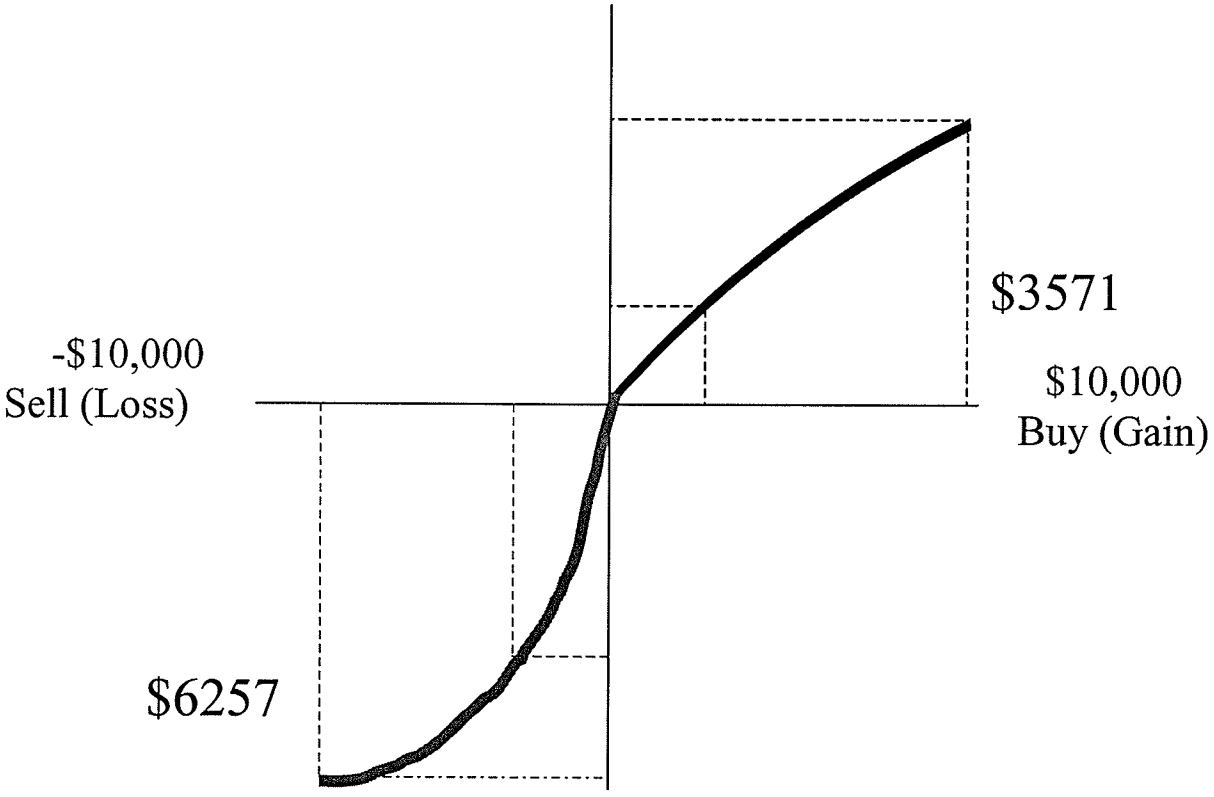


Figure 5.2

CHAPTER SIX

This chapter discusses the method and the results of Study Two along with a brief discussion of its findings. Study Two tests the second and third hypotheses of this dissertation. These hypotheses are proposed for an intertemporal choice context. The hypotheses propose a high time discount rate exhibited by people in the low involvement condition. We propose that, as an outcome of high discounting, people exhibit a lower degree of loss aversion in the low involvement condition for intertemporal choice. A discussion leading up to the hypotheses was included in Chapter Four.

STUDY TWO

Study Two tests the following hypotheses:

H_2: Level of involvement affects the relative discounting of gains (i.e., the slope of gains on the value curve), such that people time discount gains at a higher rate in the low versus high involvement condition.

H_3: In the context of intertemporal choice, people are less loss averse in the low versus high involvement condition.

6.1. Experimental Design

The number of subjects for Study Two was the same as Study One with the similar male and female proportion and approximately same mean age. The subjects were assigned randomly to four cells in a 2 (Involvement: low and high) X 2 (Outcome:

gain and loss) X 2 (Time: now and three months) mixed design, where Involvement and Outcome were between subject factors, and Time was a within subject factor. A $100-book and an automobile worth $20,000 were chosen as low and high involvement products respectively based upon a similar pretest as used in Study One.

6.2. Method

In the low involvement 'gain condition', subjects were asked to assume they are shopping online for a book that costs $100, and that the company was running a promotion which entitled them to either get a $10 discount with the purchase or a $15 rebate after three months. In the 'loss condition,' subjects were asked to indicate their preferences between either paying a $10 shipping charge with the purchase of a $100 book online, or deferring the shipping charge for now and, instead, paying $15 after three months. Thus, in the 'gain condition' subjects revealed their preferences between a proximate gain (i.e., a $10 discount now) or a future larger gain (i.e., a $15 rebate after three months), and in the 'loss condition' they revealed their preferences between equal amounts of proximate loss (i.e., a $10 shipping charge) or a future larger loss (i.e., a $15 charge after three months). In the high involvement 'gain condition' subjects were asked to indicate their preferences between receiving a $500 discount with a car purchase on the day of purchase, or a $750 rebate after three months. In the high involvement 'loss condition' they were asked to indicate their preferences between paying off a $500 car loan by either paying $500 now or by paying $750 after three months, without having to make any payments during the three month period[16]. Thus, the amount of loss was made equal to the amount of gain in both conditions, and the ratio of present gains and losses to

[16] See appendix C for the complete scenarios of four conditions in study two

the future gains and losses were also made equal in each condition with the same three months time delay.

Dependent Measures: Subjects' preference was measured based upon two items: 1) How likely are you to accept a $10 discount instead of a $15 rebate? (1= "highly unlikely," 7 = "highly likely"), 2) Indicate your preference between a $10 discount or a $15 rebate (1 = "I would definitely not choose the $10 discount," 7 = " I would definitely choose the $10 discount"). Similar dependent variables were used for all conditions. The correlation between the two items was significant ($r = .96$, $p < .001$). Thus, we averaged the two items to provide a more reliable measure (Klink and Smith 2001).

6.3. Results

Pretest. The results of the pretest based upon the involvement scale indicate that on the involvement scale used, subjects considered an automobile as a high involvement product (Mean = 6.45, on a 1-7 Likert type scale) and a $100 book as a low involvement product [Mean = 4.61, $t(50) = 12.97$; $p < .001$].

Experiment. In support of H_2, the data showed a higher mean value (5.3) in the low involvement gain condition (How likely are you to accept a $10 discount now instead of a $15 rebate in three months). A majority of subjects discounted $15 rebate at a higher rate and accepted $10 now instead. On the other hand, in the high involvement condition the mean value (2.6) for the gain (How likely are you to accept $500 discount now instead of a $750 rebate in three months) was significantly lower ($F(1, 28) = 39.19$, $p < .001$). Most subjects did not discount $750 after three months as highly (as the subjects did in the low involvement condition) to accept $500 now instead. In case of losses, as we proposed, the discount rate applied by the subjects between losses in the low

involvement condition (M = 6.08) and high involvement condition (M = 6.21) was not significantly different (F (1,128) = .031, NS).

The results also support H_3. In the high involvement condition, the difference in the mean values of subjects' preferences in the loss condition (M = 6.21, S.E = 1.2) versus the gain condition (M = 2.6, S.E = 1.9) was highly significantly F (1,128) = 74.605, $p < .001$, $\eta^2 = 0.54$]. On the other hand, as predicted, in the low involvement condition, the same difference between mean values of subjects' preferences for a loss (Mean = 6.08, S.E = 1.42) versus a gain (M = 5.30, S.E = 1.97) was only marginal (F (1, 128) = 3.22, $p < .08$); $\eta^2 = 0.05$]. Thus, the study finds an interaction effect of outcome with involvement as shown in Figure 3. The difference of the effect size (η^2) (Kerlinger 1986) in the high and low involvement condition indicates a significant difference. Thus, the significant difference in subjects' preferences reveal that the gain-loss asymmetry of the discount rates is well pronounced in the high involvement condition; however, the same difference in the low involvement condition is not significant (i.e., subjects are less loss averse).

6.4.Discussion of the Findings

The results of Study Two further support the basic argument of this dissertation, which asserts that in the low involvement condition people's valuations of outcomes are different from their valuations in the high involvement condition. Study Two confirms that this result also holds for intertemporal choices.

Loewenstein and Prelec (1992) proposed in their behavioural model of intertemporal choice that loss aversion specifically penalizes for intertemporal choices. Two factors seem to contribute towards the gain-loss asymmetry leading to the notion of

loss aversion for intertemporal choices. First is the notion of loss aversion itself as proposed by prospect theory, which, based upon its value curve, posits that losses loom larger than gains (i.e., between equal amounts of a loss and a gain, loss is weighted more heavily by an individual due to a psychological value bias). Secondly, research on discounting by Loewenstein and Prelec (1992) and other scholars (Frederick et al., 2002) suggests that losses are time discounted at a lower rate than gains. These two factors make the gain-loss asymmetry more pronounced for intertemporal choices than for atemporal choices. Thus, one could reasonably argue that loss aversion penalizes more for intertemporal choices, as did Lowenstein and Prelec (1992). The two factors discussed above (that contribute towards loss aversion for intertemporal choices) are observed anomalies in expected utility and discounted utility models. These anomalies are observed due to the psychological value bias. However, the results of Studies One and Two suggest, in the low involvement condition the gain-loss asymmetry, or loss aversion, attenuates due to the absence of extensive elaboration and effective psychological value bias. This leads us to conclude that both for atemporal and intertemporal choices, people are less loss averse in the low involvement condition, and their relative valuations of gains and losses are different in the low versus high involvement conditions. Thus, we argue that both for atemporal and intertemporal choices, different value curves exist in the low and high involvement conditions[17].

One of the assumptions of the value function in Loewenstein and Prelec's (1992) model proposes that people will discount smaller outcomes at a higher rate than the larger outcomes (see chapter two). Figure 2.3 in Chapter Two shows that the function is sharply

[17] Thus, one could reasonably make an argument that standard microeconomic theory may explain our choices better in the low involvement conditions.

convex, indicating not much perceived difference exists between smaller outcomes, and thus this property (the fact that the function is sharply convex close to the origin) accounts for the high discount rates applied to small outcomes. The results of Study Two are partially in accord with this assumption, if we consider the fact that outcomes in the low involvement condition were smaller in magnitude. However, Loewenstein and Prelec do not explain clearly the effect of this assumption on the state of gain-loss asymmetry. Study two of this dissertation clearly shows that when smaller gains are discounted at a higher rate (or in the low involvement condition when gains are discounted at a higher rate), this attenuates the gain-loss asymmetry, and as a result one could reasonably conclude that in the context of intertemporal choices people are less loss averse in the low involvement condition, or for outcomes closer to the status quo.

Study Two contributes to the explanation of loss aversion in two ways. First, Loewenstein and Prelec (1992) propose a gain-loss asymmetry as one of the assumptions of the their value curve, and claim that their value curve is similar to prospect theory's value curve. They further propose the assumption that smaller outcomes are discounted higher than the larger outcomes, but they do not identify clearly that their later assumption could arguably result in an attenuation of gain-loss asymmetry and less loss aversion. The results of the first two studies of this dissertation clearly explain this phenomenon, where in the high involvement condition the gain-loss asymmetry is evident, and in the low involvement condition the asymmetry attenuates both for intertemporal and atemporal choices. Secondly, Lowenstein and Prelec (1992) propose that smaller outcomes are discounted highly without providing an explanation for the delineation in the psychological considerations. Study Two identifies that a possible

reason for varying discount rates applied by people could be due to their varying level of involvement. One could possibly observe in a future research effort that people may discount a larger outcome highly because they are less involved with it (e.g., tires for their automobile, or roofing material for their house etc), and do not elaborate upon it long enough to evoke the psychological value bias. Conversely, one could also observe a smaller outcome not discounted highly because people's level of involvement with the outcome is high. Thus, this would suggest that different levels of involvement account for the different discount rates applied by individuals and not the size of the outcome itself. Although one could argue that in some cases size of the outcome is positively correlated with the level of involvement, this may not necessarily be the case always.

Further discussion and practical implications of the study are discussed in the last chapter. The next chapter discusses the design and results of the Study Three.

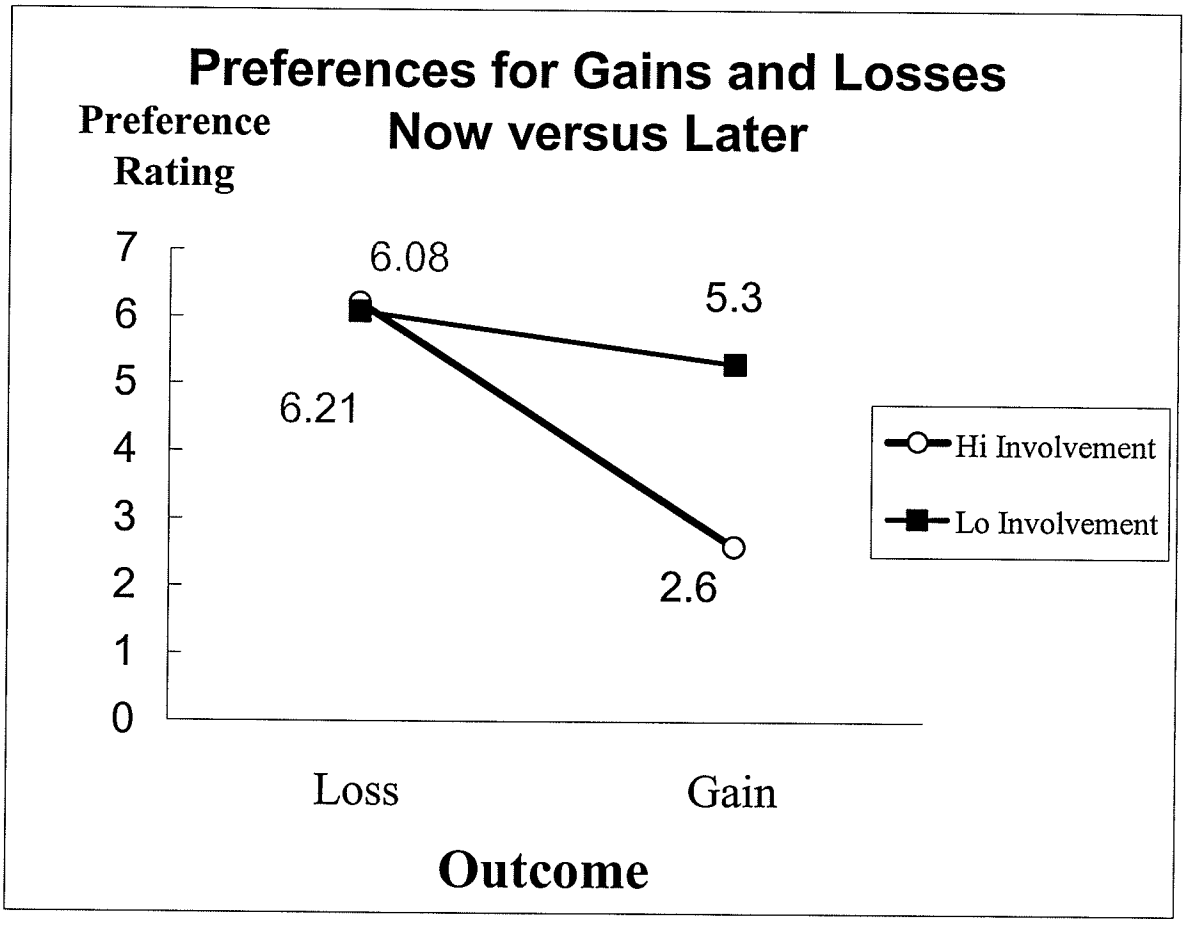

Preferences for Gains and Losses
Now versus Later
Preference Rating
7
6
5
4
3
2
1
0
6.08
5.3
6.21
2.6
Hi Involvement
Lo Involvement
Loss
Gain
Outcome

Figure 6.1

CHAPTER SEVEN

This chapter discusses the method and the results of Study Three along with a brief discussion of its findings. Study Three tests the fourth hypothesis of this dissertation. The hypothesis proposes that vividness of outcomes or alternatives is another factor that interacts with an individual's involvement level and affects his or her degree of loss aversion. A discussion leading up to the fourth hypothesis was included in Chapter Four.

STUDY THREE

Study Three tests the following hypothesis:

H_4: Vividness of outcomes (losses and gains) evokes a higher degree of loss aversion in the high versus low involvement condition, such that people become more loss averse in the high versus low involvement condition as the vividness of outcomes/objects increases.

7.1. Experimental Design

Approximately two hundred and forty undergraduate business students from the Faculty of Management (males = 51%, females = 49%, mean age = 20.5) were assigned randomly to four cells in a 2 (Involvement: low and high) X 2 (Vividness: more and less) between subjects factorial design. The subjects participated in the experiment in exchange for a small monetary incentive and a chance to win a digital camera in a lottery. This research was approved by the human ethics board. A digital camera and a

University of Manitoba coffee mug were chosen as high and low involvement products respectively based upon a pretest. The involvement scale discussed in chapter three was used for the pretest, which was conducted with the same general subject population that participated in the experiment.

7.2. Method

Vividness was manipulated by endowing the subjects with real products in the 'more vivid endowment' condition, and with only a picture and a display of the product in the 'less vivid endowment condition'. This method eliminated the need to use a vividness scale by providing face validity to the vividness manipulation. In the high involvement - more vivid condition, subjects were given a digital camera to use for few minutes. In the high involvement – less vivid condition subjects were given only a picture and manual of the camera, and a display of the camera was shown. The subjects were asked to assume that they won this camera in a random draw, and the lottery organization gives them a choice to sell the camera back. The dependent measure was selling prices of the products revealed by the subjects in all four cells. The retail price of the digital camera was revealed. We expected that the subjects endowed with the camera would value the camera higher (and thus would demand a higher selling price) than those endowed with only a picture and manual of the camera. In the low involvement – more vivid condition subjects were endowed with a coffee mug, whereas, in the low involvement – less vivid condition only a display and picture of the coffee mug was shown. A similar procedure elicited the subjects' selling prices for the coffee mug. The conjecture is that the difference of the selling prices demanded by the subjects in more

and less vivid condition should be significant in the case of digital camera (i.e., the high involvement condition) but not in the case of coffee mug (i.e., the low involvement condition). A result supporting this conjecture would confirm that the vividness effects (of an outcome or stimulus) evoke a greater degree of loss aversion in the high versus low involvement condition.

7.3. Results

Pretest. The results of the pretest based upon the involvement scale show that on average subjects consider a digital camera as a high involvement product (Mean = 5.30, on a 1-7 Likert type scale, where 7 is the highest value for involvement), and a coffee mug as a low involvement product [Mean = 1.77, t (50) = 25.08; $p < .000$]. Thus, the difference between the two products on the involvement scale was significant and these two products were used in the main experiment as high and low involvement stimuli.

Experiment. We predicted that the subjects' valuation in the low involvement condition would show relatively less loss aversion than in the high involvement condition as a function of vividness. In support of our hypothesis, we found a significant interaction effect of vividness and involvement, $F(1,167) = 4.45$, $p < .05$. On average subjects in the high involvement condition (i.e., for the digital camera) demanded a significantly higher selling price in the more (Mean Value = \$196.62, S.E = 44.54) versus less (Mean value = \$175.13, S.E = 48.53; $F(1, 167) = 9.06$, $p < .005$] vivid condition. On the other hand, in the low involvement condition (i.e., for the coffee mug) the difference between the average selling prices demanded by the subjects between more vivid conditions

(Mean value = $9.14, S.E = 2.88) versus less (Mean value = $9.90, S.E = 2.61) was not significant [F (1, 167) = 0.01, NS]. The results of the study clearly indicate that increased vividness of digital camera in more vivid condition led subjects to demand on average a higher selling price (thus exhibiting a higher degree of loss aversion) than the subjects in the less vivid condition. However, in the low involvement condition i.e., in the case of coffee mugs such an effect was not significant. Thus the results of the study support $\mathbf{H_4}$.

7.4. Discussion of the Findings

Study Three of this dissertation contributes by revealing that the vividness of an outcome or product evokes a higher degree of loss aversion in the high versus low involvement condition. Thus, the study allows the conclusion that the vividness effects on an individual's value judgement could be moderated by his or her level of involvement with the prospect. McGill and Anand (1989) also report a similar effect of cognitive elaboration on vividness. The data in their study showed that vivid information had greater influence on attitudes through the effect of cognitive elaboration. In our study, we further investigate the cognitive processes and identify that the vividness effects on loss aversion are moderated by the level of involvement. While discussing the results of a number of studies involving the vividness effects, Kisielius and Sternthal (1986) note that the relevant research question is not whether vividness affects attitudinal judgement, but rather when such an effect is likely to occur and in what direction the effect is likely to take. Our study attempts to answer this question by trying to establish that one of the intervening factors that may enhance or reduce the vividness effects of a product or stimulus could be consumers' level of involvement with the product or

stimulus. Secondly, the study also identifies that vividness is another factor, which may lose its robust effects in the low involvement condition. Thus, the study further highlights the importance of delineating consumers' value judgements in the low versus high involvement conditions.

As discussed in Chapter Two, in terms of observing the vividness effects on attitudes or judgements, the vividness literature reports mixed evidence (e.g., Kisielius and Sternthal 1986, 1984; Taylor and Thompson 1982). Some studies report to have observed the vividness effects on judgement (McGill and Anand 1989; Kelley et al. 1989; Keller and Block 1997), whereas others report weak or mixed vividness effects (Wright and Rip, 1980; Taylor and Thompson 1982; Edell and Staelin 1983). Taylor and Thompson (1982), however, argue that one of factors contributing towards the mixed vividness effects could be the method of operationalizing and manipulating vividness in these studies. Some studies do judge the effect of tactile input on consumers' attitudes (e.g., Kempf and Smith 1998); vividness, however, was seldom manipulated based upon tactile input in studies assessing the vividness effects as we did in our study. Thus, Study Three also takes a step forward in reconciling the mixed vividness effects by demonstrating that the use of tactile input is a better manipulation of vividness to observe the vividness effects, at least in the high involvement condition.

Further discussion and some of the practical implications of this study are discussed in the next chapter.

CHAPTER EIGHT

This chapter is divided into four sections. In the first section a general discussion of the findings from the three studies are discussed. Main conclusions of the research are presented in the second section. Third section discusses the theoretical and managerial implications that arise from this research. Finally, in the fourth section limitations and potential avenues for future research are proposed.

8.1. General Discussion

The goal of this dissertation research was to understand the effects of consumers' level of involvement on their value judgements of different alternatives. As consumers we purchase many products in our daily lives that are generally low involvement such as daily consumables and edibles. Therefore, for marketing scholars and practitioners it is important to investigate how consumers value certain alternatives in the low involvement condition. A number of previous marketing studies have investigated the effect of involvement on consumers' learning (Hawkins and Hoch 1992), processing brand names (Howard, Kerin and Gengler 2000), search behaviour (Moorthy, Ratchford, and Talukdar 1997), external search effort (Beaty and Smith 1987), and advertising (Sawyer and Howard 1991). However, to the best of our knowledge this dissertation is first to explicitly investigate the effect of consumers' level of involvement on the degree of their loss aversion.

The series of research studies presented in this dissertation makes an important contribution to the literature of consumer choice, judgement and decision-making. The main contribution of the dissertation is that it identifies consumers' level of involvement as a factor which affects the cognitive processes behind loss aversion. The studies in this dissertation reveal that consumers' level of involvement affects their degree of loss aversion in the context of atemporal and intertemporal choices. Furthermore, the research also finds that the vividness effects of products and their related outcomes are moderated by consumers' level of involvement with the product.

Prospect theory has had significant influence on the judgement and decision making literature over the past several decades. Economists have finally begun to realize that behavioural and hedonic aspects of a prospect are significant, in addition to the utilitarian aspects, in understanding human choice and preferences. Prospect theory played a significant role in this realization. Keeping in view the significant impact of prospect theory on behavioural decision theory, it is of utmost importance to identify boundary conditions of prospect theory for its further qualification. In other words, it is imperative upon consumer researchers and marketers to identify those conditions where predictions of prospect theory may not hold. While prospect theory, with the help of its value function, predicts phenomena such as loss aversion and diminishing sensitivity, it is mute on the issue of the effects of peoples' involvement level with respect to these phenomena. A significant contribution of this dissertation is that it identifies that some of the predictions of prospect theory, such as diminishing sensitivity and loss aversion, do

not hold universally in the low involvement condition. Thus, the research qualifies prospect theory by identifying some of its boundary conditions.

Since consumers' valuation of different alternatives plays one of the most important roles in choices they make, consumer economists, decision-making researchers, and marketing scholars have always been keenly interested in investigating how people value certain alternatives. And thus, identifying factors that may affect people's valuations in different contexts (e.g., product categories, or different time and vividness dimensions) continues to be an important and relevant area for research. The dynamic nature of this research area also keeps it relevant and important. For example, consumers' valuation with respect to intertemporal choices gained incrementally more importance as credit card purchases and leasing and financing options were made available to consumers with the development in pertinent financial and technological infrastructure. Similarly, with the advent of online purchasing, and payment options, consumers' value judgements of different alternatives related to such transactions are now most likely to be different when compared with traditional brick and mortar transactions. To develop robust models of consumers' valuations, these technological and other dynamic factors will have to be taken into account. Thus, there will always be a need for updated research investigating consumers' value judgements of different alternatives.

8.2. Main Conclusions

Following are some of the main conclusions of this dissertation research:

1- Consumers' level of involvement affects the slope of their value curves for atemporal and intertemporal choices such that the degree of loss aversion attenuates for the low involvement decisions.

2- In the context of intertemporal choices, the attenuation of loss aversion occurs mainly due to a high discount rate applied to gains in the low involvement condition, whereas a ceiling effect for losses keeps the discount rate applied to losses at a lower rate.

3- Based upon the findings of this dissertation we conclude that different value curves (with a different ratio of gain-loss slopes) exist in the high and low involvement conditions. Thus, representing values with a single value curve may not be an accurate or complete representation of a value function in varying involvement conditions.

4- Consumers' level of involvement moderates the vividness effects of a product / alternative. In the low involvement condition the vividness effects attenuate leading to lower degrees of loss aversion. A choice model taking into account the vividness effects of outcomes is likely to increase its predictive ability by accounting for the level of involvement as another factor.

5- Alternatively, high level of involvement may be necessary to observe vividness effects in some contexts. This proposition may explain the weak vividness effects reported in some of the previous studies (Taylor and Thompson 1982).

6- A choice model (e.g., brand choice) involving gains (sales promotions) or losses (price increases) from a status quo or neutral reference point is likely to increase its predictability and model fit by accounting for consumers' level of involvement (e.g., product category) as another explanatory factor.

8.3. Implications:

Theoretical Implications:

Over the past several decades, researchers in economics and psychology have discovered a number of anomalies within the traditional rational choice paradigm. Phenomena such as loss aversion have been proposed to account for some of these anomalies. Relatively, fewer studies (e.g., Sen and Johnson 1997; Buehler and Griffin 2003), however, investigate the underlying cognitive processes that lead to such psychological biases. This dissertation attempts to address this gap in the literature by identifying factors (i.e., consumers' level of involvement, vividness of outcomes) that affect cognitive processes behind loss aversion, and influence value biases in human judgment.

Theoretically, the dissertation extends the research in the area of judgment and decision making by clearly identifying involvement as a factor that moderates the degree of loss aversion. Based upon this finding, the research suggests that different value

functions represent consumers' choices in the high and low involvement condition. Prospect theory's value curve does not account for a change in consumers' involvement level with an outcome or prospect. Moreover, accounting for consumers' involvement level also has potential implications for another characteristic of the value curve known as *diminishing sensitivity*. The *diminishing sensitivity* (as proposed by prospect theory) implies that the impact of the difference between a loss and a gain (i.e., the *loss aversion*) attenuates for larger outcomes (i.e., gains and losses) or outcomes farther from the neutral reference point. Research in this dissertation, however, indicates that the value curve is less steep for losses in the low involvement conditions than the value curve for losses in the high involvement condition. Thus, based upon this finding one could reasonably infer that due to the difference in the steepness of two value curves, the *diminishing sensitivity* dissipates more in the low involvement condition than it does in the high involvement condition. Our results also indicate that in the low involvement conditions the gain-loss asymmetry is less pronounced close to the neutral reference point on the value curve than it is in the low involvement condition; whereas, prospect theory implicitly assumes that gain-loss asymmetry is independent of the level of involvement. This is an important theoretical contribution of this dissertation. It is important to delineate the two value functions (and their relevant characteristics such as *loss aversion* and *diminishing sensitivity*) in the low and high involvement conditions to further qualify prospect theory and develop sound theories in this research stream.

The second study of this dissertation contributes by extending and confirming the relationship of involvement and loss aversion for intertemporal choices. Theoretically,

the study contributes to the literature of intertemporal choice by identifying that one of the reasons people may be applying varying discount rates to different outcomes is their varying level of involvement with the outcomes or related prospects. To the best of our knowledge, this dissertation is first to investigate explicitly and document the significant involvement effect on intertemporal choices.

Finally, the dissertation also contributes by demonstrating that vividness effects contribute to loss aversion significantly more in the high versus low involvement situation. Thus, by demonstrating that attribute vividness is another factor, which may lose its robust effects in the low involvement condition, the dissertation further emphasizes the importance of delineating consumers' value judgements in the high and low involvement situations. Theoretically, the research contributes by showing that high involvement may be a necessary condition in some product categories to observe a significant vividness effects on value judgements. The study also contributes to the vividness literature by raising the possibility that weak vividness effects reported in the previous literature could be due to a lack of subject involvement with the stimulus in the study.

Delineating Risk from Vividness

One of the possible observations about the vividness effects could be that vividness as a construct could be same as or quite similar to *risk*. Therefore, it would be relevant to discuss here some of the differences and similarities of risk and vividness.

We define vividness for this dissertation as the information received from a stimulus with the help of the number of sensory inputs received. Thus, a stimulus would be more vivid to us if we could touch it and see it live versus if we only see it in a picture or it is only described to us. Risk, on the other hand, is a probability or likelihood of a loss (Webster's definition) e.g., a gamble with a 60% chance of losing would be considered more risky than a gamble with 40% chance of losing. Thus, risk involved with a prospect or outcome is directly related with a probability or likelihood of the loss related to the same prospect. In case of a certain or sure prospect/ outcome this probability of loss is equal to zero or one.

Vividness could be one of the features or attributes of a prospect that gives us information about the prospect (based upon the sensory inputs we receive from it), which could possible affect our risk perception of the prospect. Thus, there may be some correlation between risk and vividness of a stimulus. For example, a more vivid representation of the side effects of a medicine would induce a high risk perception (a greater likelihood of occurrence) of the side effects e.g., shown in a picture versus described by a doctor. In terms of the difference between risk and vividness, we propose that two stimuli could be equally vivid, yet with a difference in risk associated with them. For example, if we can touch and/ or use two digital cameras on a display in a retail store, both cameras would be equally vivid to us; however, if one camera has Sony brand name versus the other camera has a less familiar brand name, all else being equal, Sony camera would be considered a less risky purchase than the other camera. Thus, the future

uncertainty about a prospect is one factor that determines the risk involved related with stimuli, which could be equal in vividness.

Managerial Implications:

A number of managerial implications also arise from the research in this dissertation, which are noted below.

First of all, research in pricing (Simester 1997) suggests incremental, rather than aggregate, price increases for products with high price sensitivity (and therefore high involvement). Results found in this dissertation indicate attenuated loss aversion, thereby obviating the need for such strategies in the low involvement purchase situations. Thus, a more appropriate pricing strategy for the low involvement products would be aggregate rather than incremental price increases, and perhaps more emphasis on value added through product quality. Since, in this research, we find that the level of involvement affects the degree of loss aversion significantly, it is recommended that promotional (gains) and pricing (losses) strategies should be accordingly different for low and high involvement products both for atemporal choices (e.g., cash sales) or intertemporal choices (e.g., credit sales).

Secondly in Study Two, gains were found to be time discounted at a higher rate than losses in the low (but not high) involvement situations. This suggests that the willingness to buy would be greater for product bundles that consist of relatively cheap

products and expensive accessories that require eventual replacement (e.g., toner cartridges for printers, brush-heads for electric toothbrushes, blades and screens for electric shavers). It can be argued that consumers are less involved in the purchase of relatively expensive accessories at a future date (and discount a future outcome highly) and are more willing to buy the less expensive product bundle in its entirety at the time of original purchase. Anecdotal evidence from the electronic industry shows that manufacturers earn proportionally much higher profits from selling accessories than the main products.

Another example of high discounting of future outcomes from the industry is credit card purchases or credit purchases in general. For instance, when a $59.99 price is broken down in three payments of $19.99 each, it is time discounted highly by shoppers because it becomes a low involvement future outcome. Thus, among others, one explanation for this phenomenon could be that future outcomes are discounted highly when consumers' involvement level with the outcome is low. Similarly, generic brand sellers capitalize on the fact that more price sensitive consumers discount future gains (may forego long-term benefits of having a name brand quality product) and opt for the generic products to save money.

Some implications for retail strategy also arise from this research. For example, if a retail store finds that its customers buy more of the lower price generic brand products than the national brand products; this would mean that customers of the store are more price sensitive, and are highly involved in proportionally more purchases than

purchases by people with less price sensitivity. For such a retail store, a more effective strategy would be sales promotions including price guarantees and/or price deals (e.g., buy one get one free) than pursuing a strategy that emphasizes quality such as longer or extended warranty. On the other hand, if a store's clientele is less price sensitive (typically in a high income area), and are not highly involved (and therefore less loss averse) with relatively more of their purchases than purchases by price sensitive people, then the name brand products or national brands should sell better in such a store. A more effective strategy for such a store would be emphasizing product quality, and providing longer warranties.

Interestingly, we may find that both more and less price sensitive people are highly involved with some products for different reasons and have different motivations. People with more price sensitivity may be highly involved with a product and as a result search for a better price, whereas people with low price sensitivity may be highly involved with a product and may search for a better quality product. Thus, more price sensitive people may be loss averse for high prices, whereas less price sensitive people may show loss aversion for low quality. Hardie et al. (1995) presented a multinomial logit model incorporating separate loss aversion coefficients for price and quality. The data in their model showed that consumers were considerably more loss averse for quality than for price. However, they did not control for price sensitivity of consumers in their model. Bell and Latin (2000) subsequently, presented a model in which they controlled for price response heterogeneity and found that loss aversion attenuated as a result. Both studies were, however, based upon empirical observations from scanner

panel data and do not reflect upon cognitive factors behind their observations. Research in this dissertation provides a cognitive account of this empirical observation of attenuated loss aversion, by explaining that more price sensitive people by definition are highly involved with a purchase decision, and as a result show a greater degree of loss aversion.

Finally, an implication of the vividness study is that managers should be cognizant of the fact that vividness affects judgments in the high involvement condition more than in the low involvement condition; thus, products that are big ticket items, or the ones tend to be high involvement products should be available for display, so that consumers could receive a tactile input. Test-driving an automobile is a good example of this strategy. Once a customer test-drives a car, she is likely to become more loss averse and is more likely to buy the car because product ownership becomes more vivid.

8.4. Limitations and Future Research

This dissertation contributes by identifying factors that affect observed anomalies to rational choice; however, at the same it raises a number of other interesting questions and thus provides opportunities for future research. Noted below are also some of the limitations of this research that also provide future research opportunities.

Same Outcome with Varying Involvement

A caveat in this research could be that the involvement manipulation involved smaller and larger outcomes (e.g., $20 gift certificate versus a 42-inch plasma TV), which may raise a question that whether the same results would hold if involvement manipulation was based on outcomes of the same or similar magnitudes but varying involvement due to other factors. For example, it is possible that with some smaller outcomes people are differentially involved e.g., purchasing plants for one's backyard may be a high involvement purchase for some people but not for others. Thus, an interesting question for future research would be whether the attenuation in loss aversion occurs for low involvement subjects with a product/outcome, if high involvement subjects for the same product/outcome display significant loss aversion. Findings of such an investigation would emphasize the importance of individual differences in consumers' brand choice behaviour.

Vividness and Involvement Confounding

Another potential concern with Study Three could be that vividness of an object may increase people's involvement with the object, and therefore we may be measuring the same thing, or there may be a confounding effect of involvement with vividness, and not a moderating effect. However, it could be argued that vividness was also high in one of the coffee mugs' condition in study three (in one of the conditions subjects touched the coffee mugs thus receiving a tactile input), but it did not lead to high involvement and as a result subjects did not show significant loss aversion. This explanation rules out the

possibility that increased vividness always heightens the level of involvement, and that there is a confounding effect of involvement in the more vividness condition. A previous study by McGill and Anand (1989) also looked at the effect of cognitive elaboration on vividness and report that the vividness effect was moderated by a significant vividness by elaboration interaction; however, no issue of confounding vividness with cognitive elaboration was raised in the study.

Other Accounts of Loss Aversion

In this dissertation, we identified involvement as a factor that affects cognitive processes behind loss aversion. There may be, however, other possible explanations of loss aversion that should be investigated in future research e.g., List (2004) showed in one of his studies that consumers with significant market experience were less loss averse and behaved more in accordance with the neoclassical predictions. However, one could argue that the level of expertise with (and liking of) a product may increase the product worth for experts, and as a result make them highly involved and more loss averse.

Similarly, the *endowment effect*, which was first proposed by Thaler (1980), was also called into question by some economists. Hanemann (1991) noted that economic theory only suggests that willingness to pay (WTP) and willigness to accept (WTA) should be equal for goods which are close substitutes, so observed differences in these measures for goods such as environmental resources and personal health (for which close subsitute may not be available) can be explained without reference to an endowment

effect. Shorgen et al. (1994) noted that the experimental technique used by Kahneman, Knetch and Thaler (1990) to demonstrate the endowment effect created a situation of artifical scarcity. Shorgen et al.(1994) performed a more robust experiment with the same goods used by Kahneman et al. (chocolate bars and mugs). The authors conducted a Vickery auction in which they removed any related transaction costs of substitution and found no evidence of the endowment effect. In their experiment, Shorgen et al. (1994) found that with perfect subsitution the value measures for WTP and WTA converged on the average market price with repeated exposures. On the other hand, these measures did not converge for nonmarket goods with imperfect subtitues (i.e., for reduced health risk). Thus, their experiment support Hanemann's (1991) proposition that the degree of substitution drives the divergence between value measures of WTP and WTA.

An interesing observation to make in the studies reported by Kahenman et al. (1990) and Shorgen et al. (1994) would be that both studies conduct experiments on relatively low involvment products (i.e., candy bars, and coffee mugs) and find inconsistent evidence for the endowment effect (or loss aversion). However, when outcome is related to a relativly high involvment good (i.e., reduced health risk or personal health) the endowment effect is observed despite repeated market transactions, as reported by Shorgen et al. (1994). Thus, an alternative explanation is provided by this dissertation that accounts for the inconsistent endowment effect seemingly driven by the degree of subtitutability of a good.

Irwin (1994) also found that subjects were more loss averse for nonmarket goods (environmental improvements) than for market goods (stereos). One could make an argument that the level of involvement may be a factor driving these effects. We may observe attenuated loss aversion for nonmarket goods if controlled for the level of involvement, because people not highly involved with environmental improvement would likely exhibit less loss aversion. Thus, future research should continue to investigate these alternative accounts of loss aversion, the endowment effect, and the status quo bias, with an emphasis on how alternative elicitation methods (e.g., auction versus traded goods or revealed buying/selling prices) in these experiments affect the results and provide alternative explanations.

Loss Aversion for other Categories

To formulate appropriate marketing strategies, marketers are generally interested in consumers' purchasing and consumption behaviour in different categories; thus, future research should also investigate loss aversion in different product categories. In this dissertation, the transaction scenarios mainly involved utilitarian exchanges (i.e., buying and selling of products without emphasis on brand names). However, consumers often face transactions where symbolic exchanges (Bagozzi 1991) are involved e.g., buying a Mercedes car, Rayban glasses, or a Mont Blanc pen. In these transactions there is also a symbolic exchange involved along with a utilitarian exchange, as consumers some time relate with these brand names and consider themselves as someone who uses prestigious

brands. Future research should investigate whether consumers show the same degree of loss aversion both for utilitarian and symbolic exchanges.

Another interesting and relevant issue for marketers would be to investigate whether consumers are differentially loss averse for tangible and intangible goods e.g., services versus products or purchasing versus consuming goods. Consumers may be more involved and more loss averse for consumption rather than purchasing decisions. For example, when consuming a meal in a restaurant we may be more impatient and more loss averse versus purchasing a pair of shoes for future use. Understanding consumers' loss aversion for different product and service categories would likely help marketers formulate appropriate marketing strategies accordingly.

Intertemporal Choice and Vividness

This research has investigated the effect of involvement on intertemporal choices. Future research could also look into the effect of vividness on intertemporal choices. Thus, it would be interesting to investigate whether the vividness and involvement interaction reported in this study also affects the intertemporal choices. Findings of such a study would have important implications for credit purchases, and financing/leasing of big-ticket items that are generally high involvement decisions and involve making intertemporal choices. Another interesting question that such a study could answer is whether or not vividness effects hold for intertemporal choices. One could argue that

vividness may lose its robust effects not only in the low involvement condition (as we find in the current research), but also it may do so with time delay.

In the second study we manipulated the timing as within subject factor between now and three months. An interesting extension of the work would be to change the time delay to six months and a year and observe whether the same results hold. An anomaly to discounted utility model known as hyperbolic discounting (Strotz 1955-56) implies that people are more sensitive to a given time delay if it occurs earlier rather than later. For example, Thaler (1981) asked subjects to specify the amount of money they would require in (one month, one year, and ten years) to make them indifferent to receiving $15 now. The median responses elicited ($20, $50, and $100) imply an average annual discount rate of 345 percent over one-month, 120 percent over a one year, and 19 percent over ten years. We have demonstrated in this research that the level of involvement affects the discount rates for intertemporal choices. Future research should investigate whether the significant effect of the involvement level holds similarly for hyperbolic discounting. In other words, would the hyperbolic discounting rates for different intertemporal choices be moderated with varying involvement levels? Findings of such a study would contribute theoretically to the literature on intertemporal choices.

Other Anomalies

In this dissertation, we investigated the factors that affect the cognitive processes behind loss aversion, however, a number of other anomalies to the rational choice paradigm have also been pointed out by earlier studies e.g., the reflection effect,

probabilistic insurance, and the certainty effect etc., by Kahneman and Tversky (1979). Similarly, Rabin (1998) and Lowenstein and Prelec (1992) pointed out anomalies such as preference reversal, the common difference effect and the magnitude effect. Nevertheless, relatively fewer studies investigate and provide cognitive accounts of these identified anomalies, which were mainly based on empirical observations. As future research in this stream, anomalies other than loss aversion could also be investigated to know more about the cognitive processes behind such anomalies. Investigating cognitive processes behind these anomalies would help delineate sources of biases, which is essential for building sound theories, and formulating effective marketing strategies.

Risk Aversion: An Alternative Explanation for Loss Aversion

In this research we proposed the greater degree of information processing in the high involvement condition as one of the cognitive factors behind the loss aversion effect. However, *risk averse* behaviour could also be investigated in a future research effort as one of the possible explanations for the significant loss aversion effect in the high involvement condition. Since in the high involvement condition, generally the outcome of making a right or wrong choice could involve a much bigger range of stakes than in the low involvement condition, one could reasonably argue the larger stakes may trigger a risk averse behaviour in the high involvement condition. And thus, a greater degree of risk aversion in the high involvement condition could explain the loss aversion effect.

A Proposed Definition of Involvement

In Chapter Three of this dissertation a detailed overview of the involvement construct was presented. A number of definitions were reviewed as proposed by different scholars. During the course of our work in this dissertation, emanating from a number of discussions, we propose a definition of involvement to be tested in future research efforts. We propose that involvement is a measure of expected value of variance in outcomes probability of a choice: the greater the expected value of variance in outcomes as a result of a choice decision, the higher an individual's involvement with a decision. For example, the expected value of variance in outcomes of an election related to one individual's vote is small, thus for an average citizen voting may not be a highly involving decision [In the political science literature, Downs (1957) characterized this phenomenon in terms of rational ignorance]. On the other hand, the expected value of variance in the outcome of making a good or bad choice of a university for one's education could be very high, and as a result the individual would be highly involved with making such a decision.

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Appendix A

The Involvement Scale

1- Please rate each of the given products for their importance by circling the appropriate response on the given scale, where 1= highly unimportant, and 7 = highly important:

• **Automobile**	***Highly unimportant***						***Highly important***
How important is this product?	1	2	3	4	5	6	7
How important is this product to you personally?	1	2	3	4	5	6	7
How important would be a purchasing decision in this product category for you?	1	2	3	4	5	6	7

2- Please answer the following question about each of the given products by circling the appropriate response on the given scale, where 1= strongly disagree, and 7 = strongly agree:

• **Automobile**	***Strongly Disagree***						***Strongly Agree***
A poor choice in this product category would not be upsetting.	1	2	3	4	5	6	7
Most of the brands in this product category are alike.	1	2	3	4	5	6	7
I have little to lose by choosing poorly in this product category.	1	2	3	4	5	6	7

3-Please rate each of the given products in terms of their interest to you by circling the appropriate response on the given scale, where 1= Not at all interesting, and 7 = Very interesting:

• **Automobile**	***Not at all interesting***						***very interesting***
How interesting is this product?	1	2	3	4	5	6	7
How interesting is this product to you personally?	1	2	3	4	5	6	7
How interesting would be a decision to choose in this product category for you?	1	2	3	4	5	6	7

Appendix B

Study One Instrument

Marketing Study

Thank you for participating in this study. Please take as much time as you need to answer the questions. There are no right or wrong answers and we are only interested in your thoughts and opinions. Individual responses will not be used in any way and you will not be identified. We will use only an average of the responses for all analyses. Some of you may finish this study before others. Please wait for others to finish the study before leaving the room. Please do not discuss this study with other students, as they will also be participating in this study. We greatly appreciate your cooperation.

While answering the questions, please proceed to the next page only when you are finished working with a page. In other words, please do not come back to a page once you are finished with it. Thank you for your cooperation.

Low Involvement Buy Condition

- Assume you have a chance to buy a $20 gift certificate for a restaurant of your choice at a discounted cash amount. Out of the following given amounts, please indicate the maximum dollar amount between $1 and $20 you will be willing to pay for the certificate.

  Please circle the maximum amount you will be willing to pay.

$1
$2
$3
$4
$5
$6
$7
$8
$9
$10
$11
$12
$13
$14
$15
$16
$17
$18
$19
$20

Low Involvement Sell Condition

- Assume you have received a $20 gift certificate for a restaurant of your choice. You find out that the restaurant will also buy back the gift certificate for cash, but only at a discounted amount. Out of the following given amounts, please indicate for what minimum dollar amount between $1 and $20 you would be willing to sell back the certificate to the restaurant?

  Please circle the minimum amount for which you will be willing to sell back the certificate:

$1
$2
$3
$4
$5
$6
$7
$8
$9
$10
$11
$12
$13
$14
$15
$16
$17
$18
$19
$20

- How confident are you in your valuation of the $20 gift certificate for a restaurant of your choice. Please circle the appropriate number:

Not at all confident	1	2	3	4	5	6	7	8	9	***Very confident***

High Involvement Buy Condition

- Assume you have won first prize in a lottery, which is $10,000. You do not have a TV at home and you were planning to buy a big flat screen 42-inch plasma TV. Out of the following given amounts, please indicate the maximum dollar amount between $500 and $10,000 you will be willing to pay for a big flat screen 42-inch plasma TV.

  Please circle the maximum amount you will be willing to pay for the TV.

$500
$1000
$1500
$2000
$2500
$3000
$3500
$4000
$4500
$5000
$5500
$6000
$6500
$7000
$7500
$8000
$8500
$9000
$9500
$10,000

High Involvement Sell Condition

- Assume you have won a lottery and the prize is a big flat screen 42-inch plasma TV. Imagine that you do not have a TV at home. However, you find out from the lottery organization that you also have an option to sell your TV back for cash, but only at a discounted amount. Out of the following given amounts, please indicate the minimum amount between $500 and $10,000, for which you will be willing to sell back your plasma TV.

  Please circle the minimum amount for which you will be willing to sell back your TV.

$500
$1000
$1500
$2000
$2500
$3000
$3500
$4000
$4500
$5000
$5500
$6000
$6500
$7000
$7500
$8000
$8500
$9000
$9500
$10,000

- How confident are you in your valuation of the big flat screen 42 inch plasma TV. Please circle the appropriate number:

Not at all confident	1	2	3	4	5	6	7	8	9	***Very confident***

Appendix C

Study Two Instrument

Low Involvement Gain Condition

- Assume you are shopping on the internet for a book at a website of a reliable company such as Chapters.ca, or Amazon.com etc. You finally select a book that costs $100. The company is, however, running a promotion on discounts. You can either get a $10 discount with the purchase, or the company will mail you a $15 rebate cheque after three months.

How likely are you to accept the $10 discount with the purchase instead of a $15 rebate cheque after three months? Please circle the appropriate number:

Highly unlikely	1	2	3	4	5	6	7	***Highly likely***

Please indicate your preference for the $10 discount with the purchase by circling the appropriate number:

I would definitely not choose the $10 discount with the purchase	1	2	3	4	5	6	7	***I would definitely choose the $10 discount with the purchase***

1- What was the price of book that you assumed to buy in this questionnaire?

[] $110 [] $100 [] $120

2- How much was the discount offered at the time of the purchase?

[] $5 [] $10 [] $15

3- In the case of accepting the mail-in rebate, what was the amount of the rebate cheque?

[] $5 [] $10 [] $15

4- After how many months was the rebate cheque supposed to be mailed?

[] One month [] Two months [] Three months

5- What was your preferred option?

[] Discount with the purchase [] Mail-in rebate cheque

Low Involvement Loss Condition

- Assume you are shopping on the internet for a book at a website of a reliable company such as Chapters.ca, or Amazon.com etc. You finally select a book that costs $100. The company is, however, running a promotion on shipping charges. You can either pay the $10 shipping charge, or you can postpone it for 3 months, and pay $15 after three months. Assume that there are no other costs involved in making a payment after three months.

How likely are you to pay the $10 shipping charge with the purchase instead of making a $15 payment after three months? Please circle the appropriate number:

Highly unlikely	1	2	3	4	5	6	7	***Highly likely***

Please indicate your preference for the $10 shipping charge with the purchase by circling the appropriate number:

I would definitely not choose the $10 shipping charge with the purchase	1	2	3	4	5	6	7	***I would definitely choose the $10 shipping with the purchase***

1- What was price of the book that you assumed to buy in this questionnaire?

[] $110 [] $100 [] $120

2- How much was the shipping charge?

[] $5 [] $10 [] $15

3- In the case of deferred shipping charge, what was the amount of payment to be made?

[] $5 [] $10 [] $15

4- For how long could the shipping charge be deferred?

[] One month [] Two months [] Three months

5- What was your preferred option?

[] Pay the shipping charge with the purchase [] Defer the shipping charge

High Involvement Gain Condition

- Imagine that you are in the market to buy a new car for yourself. You are interested in buying a particular car, car-Z. At a dealership, you test drive car-Z and happen to like it. The price of the car-Z is $20,000. As it turns out the dealership is also running a promotion on car-Z that day. After working out all the financial details on which you and the sales manager seem to agree, the sales manager gives you two options. You can either get a $500 cash back at the time of purchase, or the dealership will mail you a $750 cheque after three months.

How likely are you to accept $500 cash back with the purchase instead of a $750 cheque after three months? Please circle the appropriate number:

Highly unlikely	1	2	3	4	5	6	7 ***Highly Likely***

Please indicate your preference for $500 cash back with the purchase by circling the appropriate number:

I would definitely not choose the $500 cash back with the purchase	1	2	3	4	5	6	7 ***I would definitely choose the $500 cash back with the purchase***

1- What was the price of the car-Z?

[] $10,000 [] $15,000 [] $20,000

2- What was the amount of cash back offered at the time of purchase with the Car-Z?

[] $500 [] $750 [] $1000

3- In case of accepting the mail-in rebate, what was the amount of the rebate cheque?

[] $500 [] $750 [] $1000

4- After how many months was the rebate cheque supposed to be mailed?

[] One month [] Two months [] Three months

5- What was your preferred option?

[] Cash back at the time of purchase [] Mail-in rebate cheque

High Involvement Loss Condition

- Imagine that you have owned a car for few years and have been making regular payments for it. You are thinking of paying off the remaining loan and would like to know your options. You visit your bank, and the bank officer gives you two options to pay off the remaining loan. You can either pay off the loan today by making a $500 payment or you could defer the loan for three months and make a $750 payment after three months. Meanwhile, you will not have to make any more payments.

How likely are you to make the $500 payment today instead of a $750 payment after three months? Please circle the appropriate number:

Highly unlikely	1	2	3	4	5	6	7 ***Highly Likely***

Please indicate your preference for making the $500 payment today by circling the appropriate number:

I would definitely not choose the $500 payment today	1	2	3	4	5	6	7 ***I would definitely choose the $500 payment today***

1- What was the amount of payment for the car loan, if you were to make the payment today?

[] $500 [] $750 [] $1000

2- What was the amount of the payment for the car loan, if you were to make the payment later?

[] $500 [] $750 [] $1000

3- For how long could the loan payment be deferred?

[] One month [] Two months [] Three months

4- What was your preferred option?

[] Paying off the loan today [] Paying off the loan later

1- Please indicate your gender: [] Male [] Female

2- Are you an exchange student? [] Yes [] No

3- What is your age (in years)? _____

4- What language you speak at home? [] English [] French [] Other _____

Thank you for your participation!

Appendix D

Study Three Instrument

Consent Form1a

You have agreed to participate in an experiment for which you will be paid $10,. In addition your name will be included in a draw for a digital camera. You will have a 5% chance to win the digital camera through the random draw. The experiment will involve looking at the digital camera and its manual and then filling out a questionnaire. If for some reason, over the course of the experiment, you cannot continue, please contact the experimenter to receive permission to leave. The experiment is expected to take about 30 minutes.

We ask that you neither speak to each other nor make comments, except to ask those running the experiment questions about the procedures of the experiment. We also request that you not discuss the procedures of this experiment with others outside this room. If you are unable to comply with these rules, we ask that you leave now.

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

This research has been approved by the Joint-Faculty Research Ethics Board (JFREB). If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Secretariat at 474-7122. A copy of this consent form has been given to you to keep for your records and reference.

The persons in charge of these experiments are:

Najam Saqib and Professor Norman Frohlich, Department of Business Administration. They can be reached at phone number: 474 8975

_____

Signature Date

NUMBER: _____ **Questionnaire** **Date** _____

1- You just looked at a (picture of) digital camera / coffee mug that has a retail price of $228 including taxes. You were told that there is a 5% chance you will win this camera in a random draw. Assume that you are one of the lucky winners whose name is drawn in the random draw and you own this camera now. If you were given a choice to sell your camera / coffee mug back to us, please indicate the minimum dollar amount for which you would be willing to sell this digital camera? Please think carefully before writing your response.

$---------

For each of the following questions, please circle the response that best fits your beliefs.

2. I trusted that the experiment was being conducted in the way that it was described to me.

Disagree Strongly 0 1 2 3 4 5 6 7 8 9 10 Agree Strongly

3. I am sure that I have 5% chance of winning the digital camera in the random draw.

Disagree Strongly 0 1 2 3 4 5 6 7 8 9 10 Agree Strongly

4. Uncertainty about the way the experiment would be conducted affected my valuation of the digital camera.

Disagree Strongly 0 1 2 3 4 5 6 7 8 9 10 Agree Strongly

5. I viewed the experiment as a sort of "game" in which I was a player trying to win.

Disagree Strongly	0	1	2	3	4	5	6	7	8	9	10
Agree Strongly											

6. How certain are you of your answer to the first question involving your selling price of the digital camera?

Not certain at all	0	1	2	3	4	5	6	7	8	9	10
Extremely certain											

8- Do you own a digital camera? Please circle the appropriate response:

[] Yes [] No

9- Please indicate your gender: [] Male [] Female

10- Are you an exchange student? [] Yes [] No

11- What is your age (in years)? _____

12- What language you speak at home? [] English [] French [] Other _____

Thank you for your participation!