

HOW SHOULD I THINK ABOUT IT?: PERCEIVED SUITABILITY AND THE  
RESOLUTION OF SIMULTANEOUS CONFLICTING PREFERENCES

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Dissertation submitted in partial fulfillment of  
the requirements for the degree of Doctorate  
of Philosophy in the Department of  
Marketing in the Graduate School  
of Duke University

2007

ABSTRACT

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– Sam

## **ABSTRACT**

Consumers often face conflict between what “makes sense” and what “feels right” – between logical analysis and intuition. This dissertation focuses on the means by which such conflict is resolved. Extending dual-process models of judgment, we suggest that consumers often select a processing output based on their assessment regarding the appropriateness of experiential (system-1) and analytical (system-2) responses. Specifically, we propose distinct mechanisms that affect the weighting of experiential versus analytical outputs by influencing the perceived suitability of each processing mode, and we test these mechanisms in a series of experimental studies. In order to demonstrate the broad applicability of our framework, these studies investigate numerous domains in which the ‘head’ and ‘gut’ produce opposing responses, employ diverse manipulations of perceived suitability, and utilize multiple judgment and evaluation measures.

The dissertation is organized in three chapters. Chapter One provides an overview of dual-systems theories and introduces the notion of simultaneous conflicting preferences. In addition, the chapter describes our conceptualization of perceived suitability as a metacognitive construct and lays out a model by which this construct influences the resolution of conflicting preferences. Chapter Two presents six empirical studies spanning a number of paradigms relevant to consumer behavior and social cognition. As an initial demonstration, Studies 1-2 utilized a semantic priming task to manipulate representations of experiential and analytical processing, and then tested the effects of this manipulation in a game of chance pitting a logically superior option against

one that was perceptually appealing. Studies 3-6 expanded our model to situations involving conflict between implicit and explicit brand attitudes. Three of these studies (3, 5, and 6) tested the proposition that prior-formed, ‘implicit’ attitudes will affect even overt preferences to the extent that experiential processing is deemed suitable to the evaluation task. The other (Study 4) identified various decision characteristics that may affect the perceived suitability of each processing mode in real-world decisions. Chapter Three concludes the dissertation by reviewing the evidence for our conceptual model and discussing both theoretical and practical contributions of the question “How should I think about it?” in situations pitting instincts against reason.

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# OVERVIEW AND DEVELOPMENT OF CONCEPTUAL MODEL

## Introduction

“How often people speak of art and science as though they were two entirely different things, with no interconnection. An artist is emotional, they think, and uses only his intuition: he sees all at once and has no need of reason. A scientist is cold, they think, and uses only his reason; he argues carefully step by step, and needs no imagination. That is all wrong. The true artist is quite rational as well as imaginative and knows what he is doing; if he does not, his art suffers. The true scientist is quite imaginative as well as rational, and sometimes leaps to solutions where reason can follow only slowly; if he does not, his science suffers.”

---Isaac Asimov (1983), *The Roving Mind*

As illustrated by the preceding passage, individuals can rarely be said to operate entirely by logic or entirely by intuition. However, the seemingly desirable capability to process both rationally and intuitively can become an impediment when the two processing routes imply contrary conclusions. Indeed, consumers frequently face conflict between what “makes sense” and what “feels right,” between the ‘head’ and the ‘heart,’ between logical analysis and intuition (e.g., Broniarczyk & Alba, 1994, Kardes 2006). For example, what happens when an emotionally charged ‘impulse’ option is pitted against an alternative favored by cognitive deliberation (Shiv & Fedorikhin 1999)? How do consumers respond when prior brand associations conflict with new information they encounter (Pechmann & Ratneshwar 1992; Mitra & Golder 2006)? Do brand equity and effective advertising create an emotional ‘tug’ that overcomes rational deliberation? In persuasion settings, how do consumers reconcile seemingly convincing arguments with their instinctive resistance to being manipulated (Wegener & Petty 1995; Wright 2002)?

Will an intuitively appealing interaction with a silver-tongued salesperson be corrected by awareness of manipulative intent, or will the heart lead the head astray?

Each of these situations involves a conflict between an instinctual, ‘gut-based’ response and a more reasoned, ‘head-based’ response. Indeed, researchers studying such phenomena have tended to describe them as dissociated processes invoking contradictory behavioral implications. Consumer choice or judgment in these scenarios requires the resolution of conflict between outputs of each process, and this dissertation focuses on the means by which such conflict is resolved. Extending dual-systems approaches to learning, memory, and judgment, we suggest that consumers will often select a processing output based on their subjective assessment of reason versus instincts as a basis for deciding. In other words, the question “How should I think about it?” will dramatically affect choice between options favored by either processing mode. We propose two sets of mechanisms that affect the relative weighting of experiential and analytical responses, and we test these mechanisms in a series of experiments.

### **Instinct and Reason in Conflict: Dual-Systems Approaches**

The notion that individuals possess two distinct modes of thought is no longer controversial. Over the past three decades, a variety of domain-specific, dual-process models have been introduced to explain and predict behavior in the areas of persuasion (Chaiken 1980; Petty & Cacioppo 1983), person perception (Brewer 1988), attributional inference (Gilbert 1989), and numerous other psychological domains. More recently, a number of broader, dual-systems models have been proposed to encompass and expand upon the insights of prior approaches (e.g., Epstein 1991, Sloman 1996, Smith &

Decoster 2000, Gawronski & Bodenhausen 2006, Strack et al. 2006). These integrative models postulate the existence of two broad-based judgment systems which are themselves based on two underlying mechanisms of memory and retrieval. One system (*system-1*) is relatively automatic, rapid, affect-laden, and based on the recognition of patterns or associations; outputs of system-1 may be achieved without understanding the underlying process (“it just feels right”). However, the relative automaticity of system-1 processing does not preclude its ability to follow higher-order rules and contingencies, ones these rules and contingencies are detected (Kunda & Thagard 1996; Hogarth 2001). The other system (*system-2*) is consciously directed, effortful, slow, and based on the application of rules or computation. Outputs of system-2 take the form of conclusions arrived at intentionally and with awareness of the underlying process (“it makes sense”).

Despite the commonalities apparent in the various integrative dual-systems models, they possess several theoretical distinctions. To cite just a few, the models differ markedly in the extent to which system-1 and system-2 are allowed to influence one another (Smith & Decoster 2000; c.f. Gawronski & Bodenhausen 2006, Kahneman 2003), the production of affect as a function of both systems versus system-1 alone (Epstein 1991; c.f. Strack et al. 2006; Shiv & Fedorikhin 2002), the degree to which one system or the other is more subjectively compelling (Epstein 1991; c.f. Smith & Decoster 2000), and the extent to which system-2 is acts as a corrective mechanism for errorful system-1 responses (Kahneman 2003, Sloman 1996; cf. Smith & Decoster 2000, Epstein 1991).

An approach of particular relevance to this dissertation is the cognitive-experiential self-theory advocated by Seymour Epstein (1991; 2003). According to this

framework, individuals possess an ‘intuitive-experiential’ system-1 that is holistic, nonverbal, and based on images, feelings, and sensations; intuition is considered a function of the experiential system. In addition, individuals possess an ‘analytical-rational’ system-2 that is logical, abstract, and based on the application of symbols, words and numbers. Importantly (and in line with virtually all the theories cited above), the two systems operate in parallel and are not mutually exclusive; in fact, evidence suggests that trait activation of experiential and analytical processing are modestly correlated (Epstein et al. 1996). However, the relative contributions of each processing mode may vary widely across occasions. In line with terminology presented by Epstein (1991), and in order to avoid multiple connotations of ‘intuition,’ the dissertation will utilize the terms ‘experiential’ and ‘analytical’ to represent the operation of system-1 and system-2, respectively.

### **Prior Approaches to System Conflict**

The outputs of experiential and analytical processing need not necessarily conflict. However, this dissertation focuses on cases in which the two systems produce opposing responses, creating an internal battle between “gut instincts” and “logical reasons.” Although theorists have long recognized that situational characteristics are important factors in the resolution of this conflict, prior research has been characterized by two general approaches. Within one approach, processing style has been examined as an individual difference reflecting stable underlying characteristics. Individuals have been presented tasks for which experiential and analytical processing modes favor distinct responses, and their behavior has been correlated with scales such as Need for

Cognition (NFC - Cacioppo & Petty 1982), Faith in Intuition (Epstein et al. 1996), or the Rational-Experiential Inventory (REI - Pacini & Epstein 1999). For example, a volume of research has documented that individuals high in need for cognition are more likely to be persuaded by central than peripheral cues (Cacioppo et al. 1983), to correct for biases when forewarned (Martin et al. 1990), and to resist conformity to the opinion of others (Areni et al. 2000). Individuals high in faith-in-intuition have been found to succumb more readily to framing effects (Levin et al. 2002) and to respond more heuristically across a variety of decision settings (Epstein et al. 1996).

In other research taking this perspective, scholars have investigated the extent to which tendencies towards experiential and rational processing are associated with other individual difference measures. For example, Stanovich and West (1998) demonstrate that a “rational thinking style” (open-mindedness, consideration of counterfactuals, etc.) is correlated with performance on the Raven Progressive Matrices (Raven 1962), Scholastic Aptitude Test scores, and reading comprehension. Need for cognition has been linked to numerous individual difference measures: positive correlations have been shown with educational attainment, openness to experience, self-esteem, and internal locus-of-control, and negative correlations have been shown with authoritarianism, chronic anxiety, and neuroticism (Cacioppo et al. 1996). High scores on the rationality subscale of the REI are associated with conscientiousness, ego strength, and belief in a meaningful world, while high scores on the experiential subscale are associated with extraversion, trust in others, and emotional expressivity (Pacini & Epstein 1999).

In contrast to the various individual-differences approaches, another stream of research has examined the extent to which analytical processing can be “turned off” or

“turned on” by variables specific to the task at hand. Most typically, a particular decision-making bias is assumed to result from flawed experiential processing, and this claim is buttressed by showing that the bias is enhanced when ability or motivation is constrained.<sup>1</sup> Concerning the ability variable, manipulation of cognitive load is undoubtedly the most popular means of linking processing biases with inadequate analytical engagement. Among voluminous research on the topic, classic empirical investigations have linked cognitive constraint to the fundamental attribution error (Nisbett & Ross 1980; Gilbert & Malone 1995), persuasion by heuristic vs. systematic message cues (Petty & Cacciopo 1983; Eagly and Chaiken 1993), and stereotyping (Gilbert & Hixon 1991). In the consumer behavior literature, cognitive resource limitations have been associated with diminished self-control (Shiv & Fedorikhin 1999), susceptibility to perceptual illusions (Raghubir & Krishna 1996; Raghubir & Srivistava 2002), and numerous context effects (e.g., Myers-Levy & Tybout 1997; c.f. Dhar et al. 2000). Concerning the motivation variable, studies of forewarning and correction show that individuals can be remarkably effective in reducing the impact of extraneous information (e.g., an attractive endorser) on their judgment, so long as they possess an appropriate “naïve theory” regarding the undue influence (e.g. Martin 1986; Schwarz & Bless 1992; Wegener & Petty 1995). In consumer research, motivation has frequently been operationalized as involvement; e.g., high involvement in advertising contexts is

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<sup>1</sup> Although the examples cited here paint a fairly pessimistic view of judgments based on experiential processing, a nascent and provocative stream of research has demonstrated situations where decisions based on ‘intuition’ outperform those based on calculative thought (Wilson & Schooler 1991; Hogarth 2001; Dijksterhuis & Van Olden 2006).



linked with greater message elaboration (Petty et al. 1983) and reduced susceptibility to irrelevant or deceptive information (Johar 1995; Park & Young 1986).

Although we acknowledge that these two approaches have been invaluable in developing the dual-systems distinction, we see them as focused primarily on *output generation* of a processing task. In other words, the majority of research within these approaches has concentrated on the extent to which experiential and (especially) analytical processing is engaged, either generally (in the case of individual differences research) or during a particular decision task (in the case of experimental manipulations of motivation and ability). Instead, our focus is on subsequent *output selection*, in which outputs of both experiential- and analytical-based processing are available as a means of comparing alternatives. Specifically, we study the common situation in which contrasting experiential and analytical outputs are generated during a judgment task, and we investigate the extent to which each processing mode is deemed suitable as a basis for judgment. As described below, we consider this assessment of processing mode suitability (“How should I think about it?”) to be a critical determinant of conflict resolution in scenarios pitting outputs of the two modes against one another.

### **Perceived Suitability as Metacognition**

The framework we present is best considered in light of a growing appreciation of metacognitive influences on judgment and decision making. The metacognitive approach emphasizes that thoughts do not influence decisions in terms of their content alone; instead, their influence is qualified by subjective beliefs about the process by which they are generated (Bless and Forgas 2000). For example, an expansive stream within

metacognitive research has focused on the ease with which stimuli are processed: processing fluency has been shown to enhance belief in the validity of information, increase its weighting in relevant judgments, and generate positive affective responses (e.g., Zajonc 1968; Begg et al. 1992, Novemsky et al. 2003). Another stream within metacognitive research has focused on the subjective experience of accessibility and, specifically, the extent to which the ease or difficulty of thought generation moderates the effect of that thought on judgment. A prominent and well-replicated finding from this stream is that recalling more reasons for a particular decision can actually decrease the likelihood of making that decision, due to the subjective difficulty of doing so (e.g., Schwarz et al. 1991; Wanke et al. 1997). Integrating these research streams, Schwarz (2004) argues that the effect of a particular metacognitive experience depends on one's naïve theories about underlying mental processes (e.g., "the more reasons that exist, the easier they are to recall").

In keeping with these principles, a fundamental assumption of our model is the metacognitive precept that higher-order cognition ("thinking about thinking") moderates the influence of retrieved content on a decision. Within our framework, the retrieved content of interest consists of target-relevant judgments generated by experiential or analytical processing routes. Furthermore, applying Schwarz' (2004) terminology, the naïve theory underlying our model regards the extent to which each processing route is an appropriate basis for deciding. In other words, given that individuals believe a particular cognition to be the result of experiential vs. analytical processing, their theory about the suitability of that processing for the present decision will impact the weight assigned to the cognition. This proposition relates indirectly to the notion of *thought confidence*

(Petty et al. 2002), which states that thoughts held with high confidence are more influential on judgment. Rather than confidence in individual thoughts, however, we focus on confidence in the processing modes by which those thoughts are generated.

### **A Relative Weighting Model**

In the following paragraphs, we present a model to capture the effects of situational factors on subjective assessments of reason versus instinct as a basis for behavior. Our model begins by assuming that an individual faces a novel decision task characterized by a finite number of alternatives. For purposes of exposition, consider the case of a consumer planning a non-routine purchase and examining two competing brands. We assume that the individual to be relatively free of cognitive constraints and sufficiently motivated to engage in effortful processing. In other words, system-1 (experiential) and system-2 (analytical) processing modes are both engaged. Further, we focus on situations in which the output of experiential processing is distinct from the output of analytical processing (i.e., the two processing modes imply different choices). For example, the individual may have developed a positive impression of one brand based on prior, favorable experiences, successful advertising, word-of-mouth, etc. However, in reading objective information about the two alternatives (e.g., descriptions in *Consumer Reports*), the decision maker becomes aware of substantial advantages held by the unfamiliar brand. A framework encompassing this example will be presented in Studies 5-6. Studies 1-2 offer a more stylized example, in which an option that ‘looks’ better perceptually is clearly inferior on rational grounds.

In keeping with the emphasis of contemporary dual-systems theories on experiential and analytical processing as distinct, parallel modes of processing (e.g. Slovic 1996), we propose that the scenarios just described evoke competing processing outputs that are mutually accessible to the decision maker (although the processes by which these outputs are produced need not be conscious – e.g., Chartrand 2005). We use the term *simultaneous conflicting preferences* to capture the tension inherent to these situations. In decision settings evoking simultaneous conflicting preferences, we suggest the following: 1) choices will be guided by the relative weighting of outputs from each processing mode, and 2) this weighting will be determined (in part) by the individual's subjective assessment of each processing mode as a basis for judgment in that decision setting. Throughout the dissertation, we use the term *perceived suitability* to capture this notion of appropriateness for experiential and analytical processing.

Our focus on experiential and analytical processing as labile and situationally dependent is in keeping with an emerging trend in judgment and decision research. A prominent example of this trend is the *task-specific-thinking-style* (TSTS) measure of Novak and Hoffman (2006). Based directly on Epstein's dual-systems conceptualization, the TSTS is intended to capture the engagement of experiential and rational processing in a given situation. Novak and Hoffman (2006) argue that task performance will be enhanced by utilization of the appropriate processing mode (e.g., creative tasks benefit from experiential processing, while numerical problem-solving benefits from analytical processing). Their research demonstrates a wide variety of benefits accruing to individuals engaging in the mode appropriate to the task: enhanced performance, better mood, subjective ease, etc. Although our research shares some similarities with this

approach (and a few of the present studies utilize the TSTS scale), our focus is on a unique cause of underlying malleability in processing style. Specifically, with no fundamental changes to the tasks undertaken by our participants, we propose specific moderators of the extent to which one processing mode or the other is deemed suitable for a decision. In keeping with Novak and Hoffman (2006), one consequence is that objective task performance may be facilitated or inhibited by the variables that we propose.

The basic concepts underlying our model are depicted in Figure 1. The left side of the figure illustrates an output generation process that invokes simultaneous conflicting preferences; i.e., the decision environment is conducive to both experiential and analytical processing, and the outputs of each mode differ in their implications for the decision. The right side of the figure portrays the resolution of simultaneous preferences as a relative weighting process (if analytical processing is sufficiently constrained during output generation or the outputs of each mode do not differ, choice will not depend on relative weighting). The grey boxes represent two sets of mechanisms – labeled *incidental moderators* and *integral moderators* – by which either experiential or analytical processing may be deemed more reliable as a decision basis and therefore weighted more heavily (we elaborate on these mechanisms below). In sum, we argue that trust in intuition versus reason is highly situation-dependent, and we propose specific contingencies of particular import (Chapter Three will consider other factors that may impact the relative weighing process).

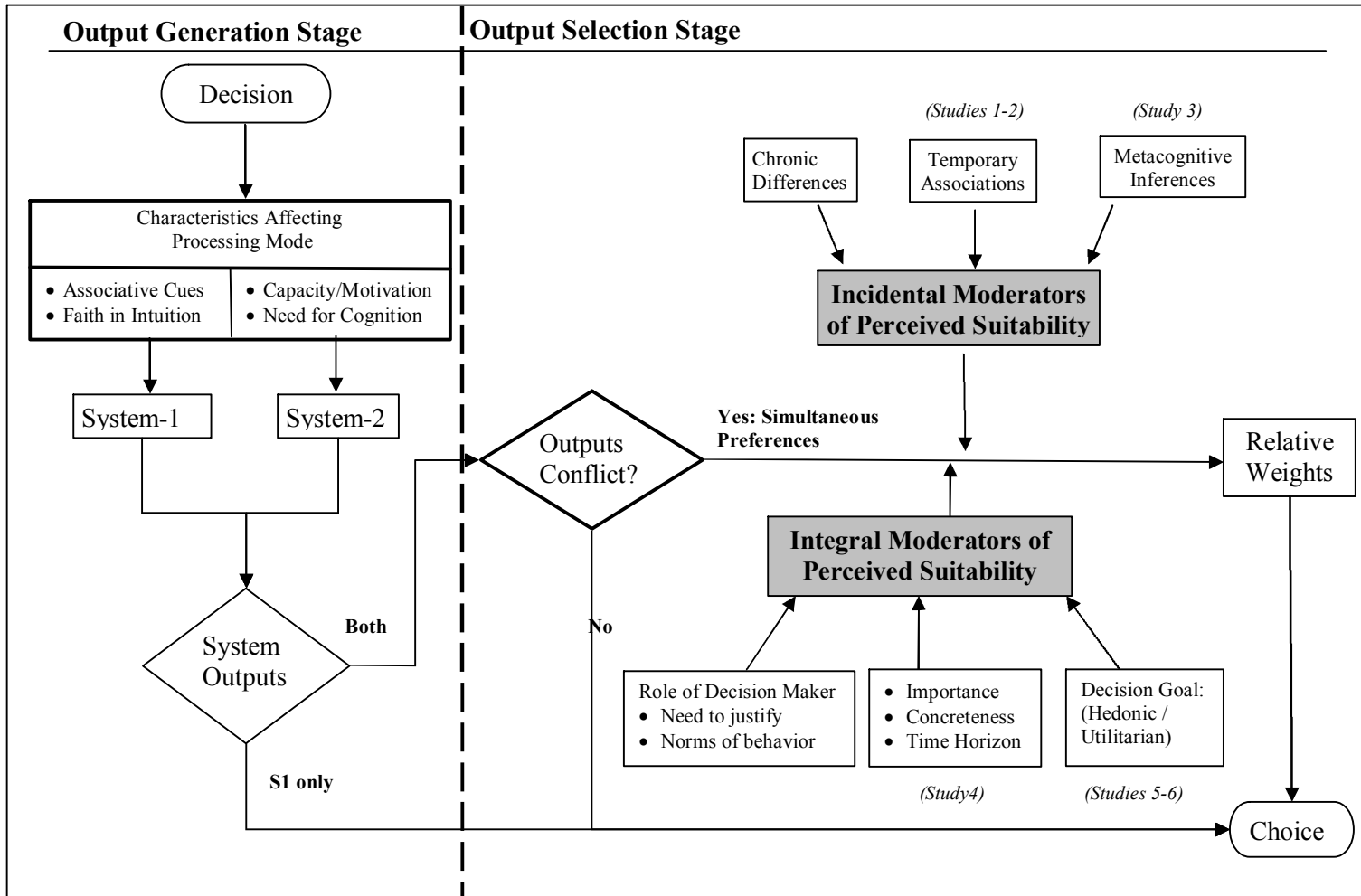


Figure 1: Conceptual Diagram

The first set postulated mechanisms, *incidental moderators*, represent factors associated with a processing mode itself, distinct from any properties of the stimuli being considered. For instance, if individuals consider the use of intuition to be subjectively unfavorable or unpleasant, they will weight the intuitive response less heavily in their decision. In the ongoing example, individuals who hold momentarily accessible, negative representations of ‘instincts’ may devalue the importance of brand loyalty as a reason for purchase. This mechanism is similar in some respects to processing fluency, whereby subjective ease in processing a stimulus generates positive affect (Whittlesea 1993); however, while fluency effects are associated with the stimuli themselves, the affect we describe is a direct, valenced association to particular processing styles. Studies 1-2 of the second chapter manipulate representations of each processing mode directly by semantically priming the favorability of each system. Outside the laboratory, similar effects may result from exposure to proverbs, slogans, etc. which cast experiential or analytical processing in a positive or negative light (e.g., “image is nothing”). In addition, the suitability associated with each mode may be altered by metacognitive assessments made by the individual about his/her prior experience (for example, by recalling repeated success or failure as a result of “following your gut”). Study 3 addresses the influence of metacognitive representations.

Our second set of mechanisms, labeled *integral moderators*, represent aspects of the decision task itself which alter the perceived suitability of experiential or analytical processing by their perceived ‘fit’ with one or the other system. The notion of ‘fit’ between task features and processing goals has received considerable attention. In social psychology, the most prominent example of this idea is regulatory focus theory (Higgins

2000); in consumer behavior, the concept of ‘fit’ has been applied to such diverse topics as preference reversal (Nowlis and Simonson 1997), goal-attribute compatibility (Chernev 2004), and comparative advertising (Thomson and Hamilton 2006). Applying the construct to situations of simultaneous contradictory preference, we argue that certain aspects of the decision task may incline the individual towards the selection of an experiential or analytical response. In an exploratory survey of consumer decision making, Study 4 investigates what these aspects might be and generates a list of plausible candidates. Studies 5 and 6 follow up on this survey by examining the possibility that in utilitarian judgment domains possess better ‘fit’ with the use of reason versus instinct, while hedonic domains may seem conducive to reliance on experiential processing (Pham 1998). As another example, the role of the decision maker may serve as an important integral moderator of perceived suitability. For instance, when a decision is made on the behalf of others, weighting of experiential output may be elevated among individuals who associate “good instincts” with “good leadership.”

Regardless of the particular mechanism involved, our primary hypothesis is that intuition or analysis can be made to feel more or less appropriate by characteristics of the decision setting. In a sense, therefore, we argue that “faith in intuition” (Epstein et al. 1996) is highly context-dependent, and this idea can be considered in light of other research examining reliance on intuition as a decision basis. For example, Simmons and Nelson (2006) describe a construct labeled “intuitive confidence,” which is related to the magnitude of evidence opposing one’s intuitive response. In a series of intriguing experiments, Simmons and Nelson (2006) reveal powerful effects of intuitive confidence on choice. The intuitive confidence construct is similar in spirit to our notion of relative



weighting; however, we focus on the subjective belief that reliance on intuition or analysis is appropriate in a particular setting, holding constant any relevant information.

## **EMPIRICAL INVESTIGATIONS**

### **Overview**

This chapter discusses six empirical studies conducted to investigate the underlying premises of the perceived suitability model. In five of the studies, we manipulate task variables to vary the mechanisms depicted by our model, and we use downstream decisions and process measures to examine the relative weighting of experiential and analytical outputs. Studies 1 and 2 utilize a semantic priming procedure to endow intuitive or analytical processing with positive or negative associations. As a dependent measure, the studies involve a game of chance where the subjectively appealing option is analytically inferior. Study 3 manipulates perceived suitability directly by using a metacognitive inference task and investigates its effects on the relationship between self-reported judgments and implicit or explicit attitudes. The focus of the study is a brand evaluation task where information is acquired serially over time. Study 4 is correlational in nature and identifies characteristics of real-world consumer decisions which may affect responses to the “How should I think about it?” question. Studies 5 and 6 experimentally investigate one of the characteristics identified by Study 4. In a brand evaluation task using either hedonic or functional product categories, participants are first conditioned to favor one brand, and then encounter information that favors a competing brand. In sum, each experiment creates a situation of simultaneous contradictory preferences, where analytical and experiential processing imply different

responses, and each applies a manipulation of perceived suitability which we expect to affect the resulting tradeoff.

### **STUDY 1: AFFECTIVE PRIMING OF EXPERIENTIAL PROCESSING**

Our first study focused on the affective implications of processing mode utilization (“temporary associations” in Figure 1). Central to the study was the *ratio bias* problem developed by Epstein and colleagues (1992). The task is essentially a game of chance in which participants choose which of two gambles to select: one of these gambles is perceptually appealing, while the other offers superior odds of winning. A stream of prior work using the ratio bias task has established that the perceptually appealing option appeals to the experiential system, while the probabilistically superior option appeals to the rational system. However, most of this work has focused on explaining non-optimal choices and correlating responses with individual difference measures of chronic processing style (e.g., Epstein et al. 1996; Epstein 2003). In particular, prior research has demonstrated: 1) individuals choose the ‘inferior’ gamble a substantial percentage of the time, even though they are aware they are being irrational, 2) choice of the inferior gamble is associated positively (negatively) with trait measures of experiential (rational) processing, and 3) the effect virtually disappears under conditions unfavorable to the experiential system (e.g., when the options are presented in numerical rather than visual form).

The ratio bias paradigm provided an ideal setting for our initial study because the task represents a clear case of simultaneous conflicting preferences. We predicted that by

manipulating affect associated with the use of intuition, we would alter the perceived suitability of this processing mode for the task at hand and thereby influence the extent to which individuals make the normative response. As our manipulation, we utilized semantic priming in order to heighten the accessibility of primed concepts (Higgins et al. 1977). In the conceptualizations of dual-process theorists – as well as real-world discourse – experiential processing can be described in both favorable and unfavorable terms. On the one hand, such processing can be viewed as ‘instinctual,’ ‘spontaneous,’ or ‘natural,’ which connote favorable associations. Equally applicable, however, are terms such as ‘rash,’ ‘unthinking,’ or ‘impulsive,’ which call to mind unfavorable connotations. Therefore, we manipulated the affective associations of experiential processing by semantically priming participants with terms like those above. We predicted that beyond any effects of chronic processing style, performance on the ratio bias task would be directly impacted by the primed representations of experiential processing:

H<sub>1</sub>: Individuals will be more likely to choose a perceptually appealing option over a probabilistically superior alternative to the extent that affectively positive associations with experiential processing are accessible.

Notably, a different expectation might follow from recent literature in the field of behavioral priming. In well-known demonstrations, researchers have used semantic priming procedures to directly activate prime-consistent behavior: e.g., priming the concept ‘rude’ causes participants to behave less politely in interactions with the experimenter (Bargh et al. 1996). Applied to the current setting, the behavioral priming literature would seem to predict heightened experiential processing after exposure to

experiential primes, regardless of valence. For positive primes, this prediction is congruent with our hypotheses; therefore, the critical condition in distinguishing our approach is that involving *negative* experiential primes. Although the findings above imply that individuals will behave more ‘brash’ and ‘unthinking’ after exposure to unfavorable depictions of experiential processing, we expected these individuals to behave more rationally on the ratio-bias task (we return to this issue later).

## **Method**

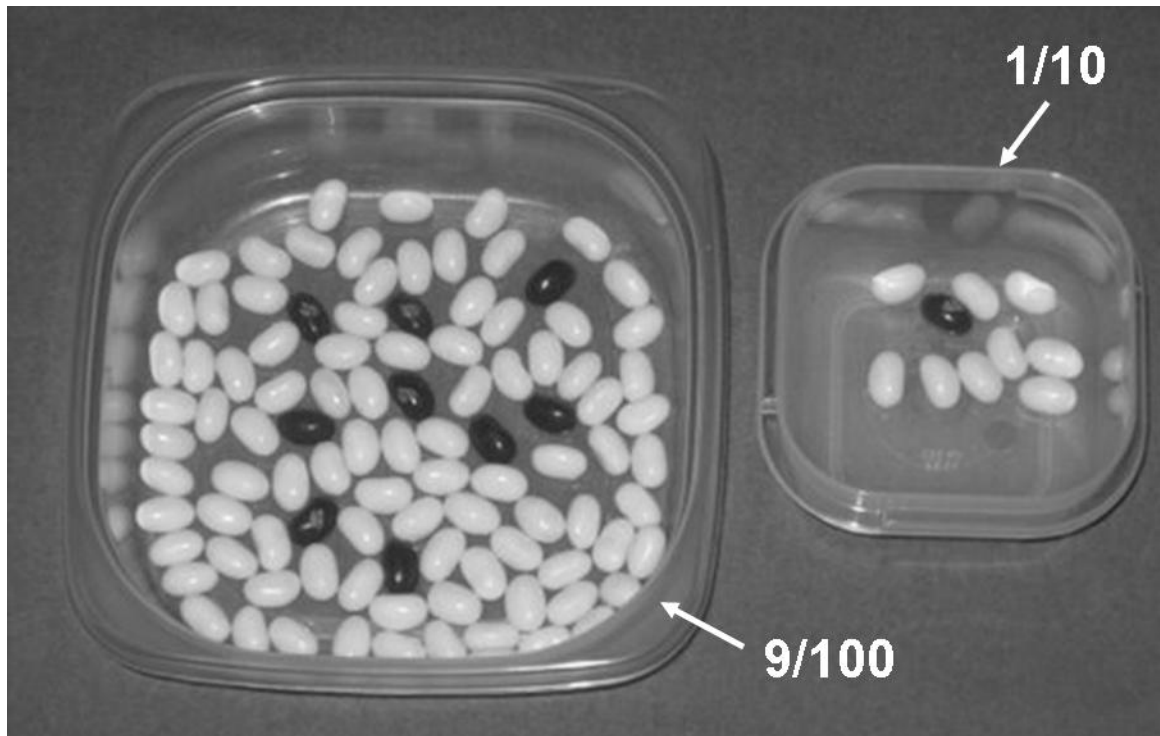
Participants were 103 students at a large university recruited to take part in two (seemingly unrelated) studies on “verbal comprehension” and “judgment under uncertainty”; they were compensated \$7 for their time. In order to manipulate the affective implications of processing mode, we created a semantic priming task with three conditions (Higgins et al. 1977). Based on terms used by dual-systems theorists to describe their models (e.g., Sloman 1996, Smith & DeCoster 2000, Epstein 2003), we developed three distinct lists of words: 1) *experiential-positive*, 2) *experiential-negative*, and 3) *neutral*. *Experiential-positive* words presented the use of instinctual processing in a favorable manner (e.g., ‘spontaneous,’ ‘intuitive,’ ‘natural’). *Experiential-negative* words presented the same processing mode in an unfavorable manner (e.g., ‘unthinking,’ ‘rash,’ ‘impulsive’), and neutral words were unrelated to processing mode (e.g., ‘seasonal,’ ‘typical’). In a separate pretest (n = 130), participants were asked to rate the extent to which each of the listed words is favorable or unfavorable in the context of making a decision. Based on mean valence ratings and deviations generated by the pretest, thirteen words were selected for each condition. On a scale of one (“very

unfavorable”) to seven (“very favorable”), mean ratings each list were as follows: *experiential-negative* (2.51), *neutral* (3.81), and *experiential-positive* (5.26).

In order to implement the semantic priming procedure, a scrambled sentence task was utilized (Srull and Wyer 1979). Participants were asked to unscramble a series of 16 sentences, each of which contained a group of five words (e.g., “ACTIONS EVERY APPEAR INSTINCTIVE HER”). Solving the scramble required dropping one word and rearranging the others to form a meaningful sentence (“HER ACTIONS APPEAR INSTINCTIVE”). Using the pretested word lists, a set of scrambled sentences was created for each condition. Each set contained thirteen critical trials in which one of the five words was a target word from the pretest; in addition, the sets contained three filler trials that were the same across conditions. Depending on condition, participants were given one of the three sets to unscramble, with a time limit of two minutes per sentence.

Following the priming task, all participants learned about a “jellybean game” that was in fact an adapted version of the ratio-bias problem (Kirkpatrick & Epstein 1992). Participants were presented with two trays, each containing both red and white beans (see Figure 2). Participants were asked to draw a bean (sight unseen) from the tray of their choice, and they were told that they would win a small prize if they were fortunate enough to draw a red bean. In each of four target trials, one tray contained a greater number of winning beans but a smaller probability of winning (e.g., 9/100 vs. 1/10). In order to disguise this pattern, two filler trials offered much greater chances of winning (and a different pattern of probabilities). The procedure was the same for each trial: participants chose one of the two trays, the non-chosen tray was removed, and the chosen tray was concealed from view. Participants then drew a bean from the chosen tray,

observed whether they had won or lost, and were presented with their next choice. The six trials occurred in the same order for all participants.



**Figure 2: Example of the ratio bias problem from Study 1**

The small tray on the left provides a 1/10 chance of winning. The large tray on the right provides a 9/100 chance of winning. (Participants were given the odds for each draw.)

After finishing the drawing game, participants were seated again at the computer and asked for a variety of demographic information. In addition, they completed a short form of the Rational-Experiential Inventory (REI) scale (Pacini & Epstein 1999). The scale measures chronic tendency to engage in rational and experiential thinking. On a 5-point scale, participants were asked to state their agreement with items such as “I believe in trusting my hunches” and “I enjoy solving problems that require hard thinking.” Finally, participants completed a funneled debriefing questionnaire designed to measure

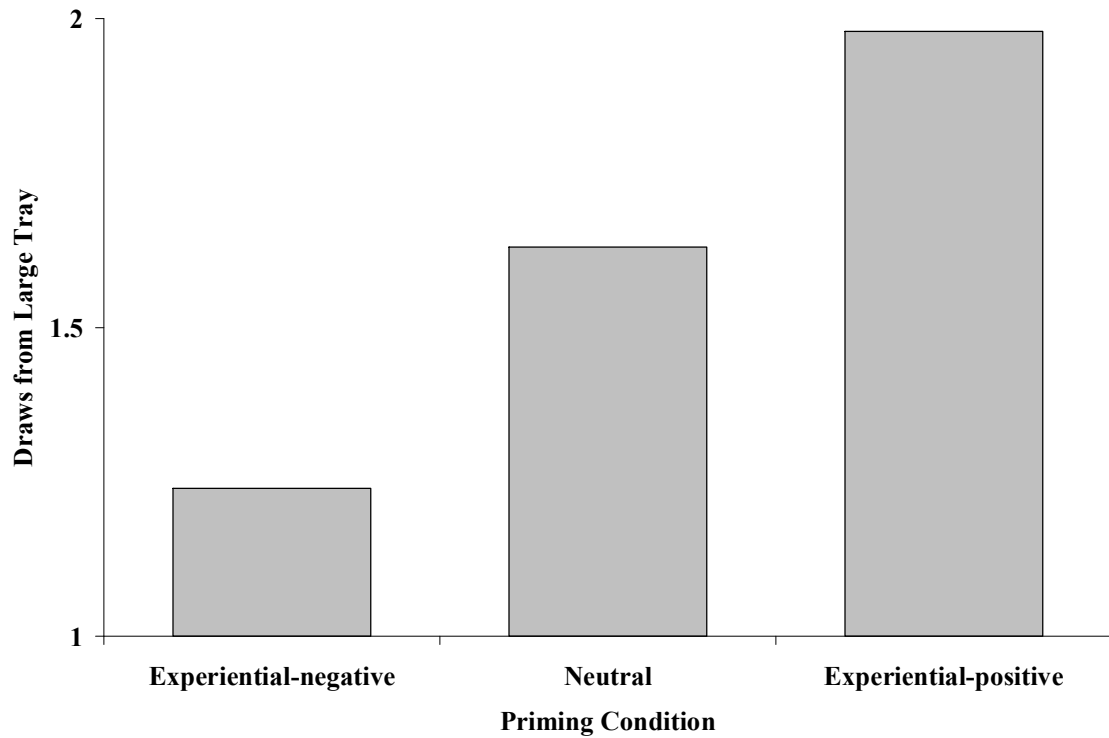
awareness of the priming procedure and its relationship to the jellybean game. Over a series of questions that gradually increased in specificity, participants stated the perceived purpose of the study, whether they believed their behavior on any one task was affected by another, and whether they noticed any theme or pattern to the scrambled sentence task.

## **Results**

The funneled debriefings were screened for participants that both: 1) recognized a theme to words used in the scrambled sentence task, and 2) connected that task to the subsequent jellybean game. Six participants were excluded on this basis. In addition, responses to the scrambled-sentence task revealed that six participants responded incorrectly on at least one fourth of the trials; removing this group left a valid sample of ninety-one participants<sup>2</sup>. The key dependent measure was the number of times (out of four) that participants selected the large (inferior) tray. Analysis was performed using univariate ANOVA, and the difference between each participant's rational and experiential subscores on the REI inventory was entered as a covariate. Initial examination of the REI covariate revealed that the parallel slopes assumption was satisfied ( $F < 1$  for the interaction with condition).

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<sup>2</sup> The pattern of results does not change when using the full sample of 103 participants, and the effect of our priming manipulation was not significantly different across the filtered and unfiltered groups ( $p > .60$ ).

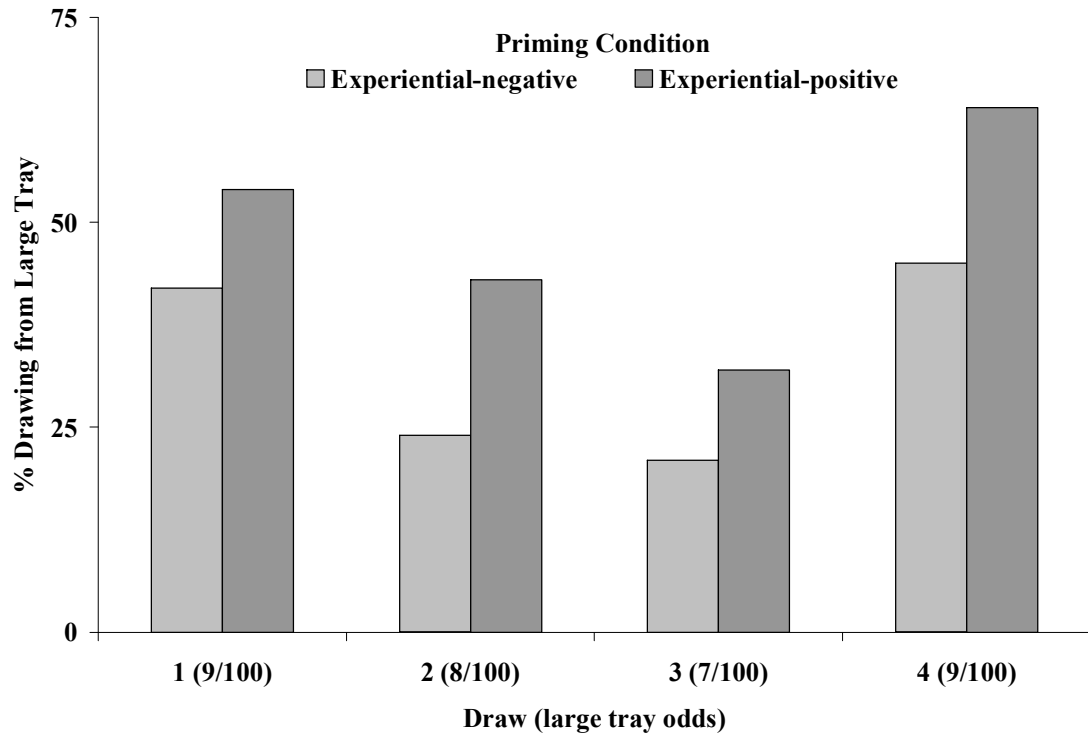


**Figure 3: Study 1 - Number of draws from the large tray as a function of experiential (system-1) prime.**

For each condition, Figure 3 depicts the adjusted mean number of times that participants drew from the large tray. The pattern of results fell largely in line with expectations. A univariate ANOVA on the number of draws revealed a marginally significant effect of condition ( $F(1,87) = 2.83, p < .07$ ). Most importantly, draws from the large tray were a linear function of priming condition: that is, participants in the *experiential-positive* condition ( $M = 1.98$ ) drew significantly more often from the large tray than participants in the *experiential-negative* condition ( $M = 1.24; F(1,87) = 5.36, p < .05$ ), and results for the *neutral* condition lay between these extremes ( $M = 1.63, p > .20$  for both neutral comparisons). As expected, therefore, participants were more likely



to choose the perceptually appealing (but probabilistically inferior) option when primed with a favorable depiction of experiential processing. Furthermore, virtually all between-subjects variance in the model was captured by the linear trend ( $F_{\text{remaining}} < 1$ ).



**Figure 4: Study 1 - Percentage of participants drawing from large tray on each trial.**

Because participants saw the results of each draw before they made their subsequent choice, more sophisticated analyses were performed by utilizing a feedback variable to incorporate the effects of prior outcomes on current choices; these analyses failed to improve on the basic linear model. Notably, the difference in *experiential-positive* and *experiential-negative* conditions persisted throughout the four draws (Figure 4). In sum, Study 1 provided initial evidence for our proposition that the resolution of

conflicting preferences can be moderated by the affective implications of each processing mode.

## **Discussion**

Study 1 provided unique and compelling evidence that discrete processing systems can be semantically primed. In a task that is recognized as a measure of dissociated experiential and analytical processing, participants' choices were influenced by the accessibility of favorable and unfavorable construals of the former system. According to our framework, the perceptual favorability of the large tray was recognized via experiential processing ("the large tray looks better"), while the numerical superiority of the small tray was recognized via analytical processing ("the small tray has better odds"). Perceptual favorability was weighted more heavily as a viable decision basis to the extent that positive associations with the experiential system were made accessible by the priming procedure. These results present intriguing implications regarding the extent to which individuals possess awareness of their own cognitive modalities (Schwarz 2004).

As mentioned previously, a hypothesis derived from the behavioral priming literature suggests that participants exposed to experiential primes (regardless of valence) will rely more on experiential outputs. However, data from the *experiential-negative* condition clearly refute this hypothesis: that is, participants acted less (not more) 'brash' and 'unthinking' after being exposed to *experiential-negative* primes. Under our conceptualization, semantic priming provided a means of heightening the availability of primed concepts, so that these concepts were likely to be retrieved during the evaluation

of subsequent stimuli (Collins & Loftus 1975; Higgins et al. 1977). In keeping with the findings of Epstein (e.g., 2003), we believe that virtually all participants recognized the smaller tray as rationally superior and the larger tray as intuitively appealing (Study 3 examines this assumption directly). However, participants construed a reliance on intuitive appeal as either ‘brash’ and ‘unthinking’ or ‘natural’ and ‘spontaneous,’ depending on connotations made accessible by the priming task.

In following up the first study, we wished to address two issues. First, a potential criticism of our procedure is that the affective primes may have influenced participants in a manner other than that described by our model. According to a simple, mood-based explanation, participants in the *experiential-negative* condition may have experienced negative affect and become more systematic in their processing of the decision (Bless et al. 1990). Alternatively, participants may have simply transferred the valence of the semantic primes to the most salient cue available on the subsequent decision task (presumably the perceptual appeal of the larger tray), so that the specific content of the primes was in fact irrelevant. Second, the semantic primes referred exclusively to experiential processing, yet our model predicts that affect associated with *either* processing system should impact judgment in situations of simultaneous contradictory preference. Fortunately, both these criticisms could be resolved with the addition of semantic primes associated with analytical processing.

## **STUDY 2: EXTENSION TO ANALYTICAL PRIMES**

Study 2 provided a systematic replication of the first study with the fundamental addition of two new conditions: *analytical-negative* and *analytical-positive*. As before,

we predicted that affect associated with experiential or analytical processing modes would influence the extent to which these modes are deemed suitable to a judgment at hand. If choices in the new *analytical* priming conditions showed a pattern opposite those in the *experiential* priming conditions, we would have evidence congruent with our explanation and against the alternative accounts described above. Formally, our hypothesis was as follows:

H<sub>2</sub>: Individuals will be less (more) likely to choose normatively in the ratio-bias task to the extent that affectively positive associations with experiential (analytical) processing are made accessible.

## **Method**

Participants were 120 students at a large university who were compensated for their time. The materials and procedure for Study 2 were the same as for Study 1, with the following exceptions. Most importantly, two new conditions were created to semantically prime affective associations with analytic processing, using the same scrambled-sentence task as the prior study. The priming words in the new conditions were obtained from the pretest described in Study 1. Based on the means and deviations of valence scores obtained in this pretest, thirteen words were selected to be used in each of the new conditions. Target words in the *analytical-negative* condition included ‘unfeeling,’ ‘tedious,’ and ‘rigid,’ while target words in the *analytical-positive* condition included ‘unbiased,’ ‘reasoned,’ and ‘comprehensive.’ On the seven-point scale described previously, mean favorability ratings were 2.57 for the *analytical-negative* condition and 6.06 for the *analytical-positive* condition.

Three other changes were incorporated in Study 2. First, the *neutral* condition was dropped, so that the study incorporated a 2 (primed system: experiential vs. analytical) x 2 (valence: positive vs. negative) between-subjects design. The second change pertained to the procedure of the ratio-bias game. Unlike participants in Study 1, who saw the results of each draw before making their subsequent decision, participants in Study 2 made all six decisions (four target trials and two fillers) before they were allowed to begin the actual drawing. By making this change, we eliminated the ability of success or failure on prior draws to affect current choices. Finally, prior to actually making their draws, participants estimated the number of times that they would draw a red jellybean (we discuss this measure below).

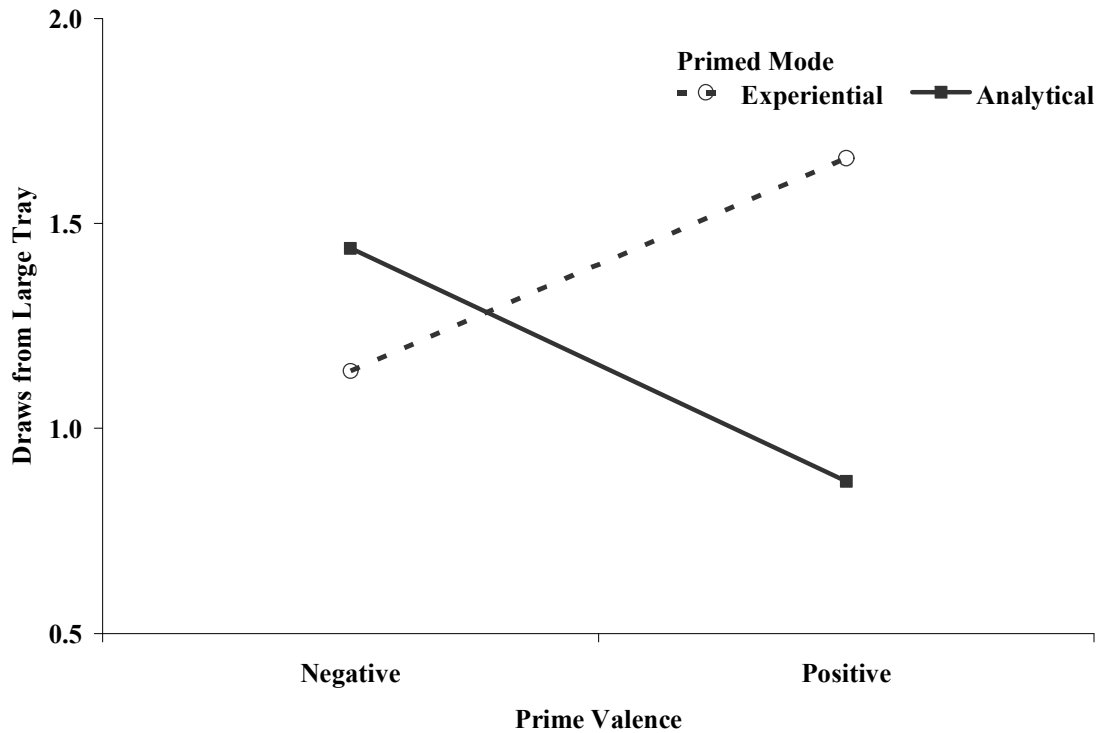
## **Results**

As in Study 1, funneled debriefings were screened for participants who both noticed a theme to the words in the priming task and connected that theme to the jellybean game, and responses to the scrambled sentence task were examined to ensure participants attended to the task. Data from twelve participants were excluded on this basis (6 each), leaving a usable sample of 108<sup>3</sup>. As in the previous study, the primary dependent measure was the number of times (out of four) that participants draw from the large (inferior) tray. Analysis was performed using univariate ANOVA, and the difference between each participant's rational and experiential subscores on the REI inventory was entered as a covariate. An initial examination revealed that the covariate did not interact with the other factors or their interaction (all  $p > .30$ ).

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<sup>3</sup> As in Study 1, the pattern of results does not change when using the full sample of 120 participants, and none of the effects reported were reliably different across the included and excluded groups.

For each condition, Figure 5 depicts the adjusted mean number of times that participants drew from the large tray. The data reveal a pattern generally consistent with our hypothesis. Contrary to the alternative accounts presented above, the valence of words presented during the priming task did not by itself influence performance on the ratio-bias task ( $F < 1$ , *ns*). Instead, and in line with our hypothesis, a significant primed-system\*valence interaction reveals that the effect of valence depends on the particular processing mode being primed ( $F(1,103) = 5.49$ ,  $p < .05$ ). As demonstrated by the figure, simple effects of valence within each prime are also directionally consistent with our hypothesis, although they reach only marginal levels of significance: *analytical*:  $M = 1.44$  vs.  $0.87$ ,  $F(1,103) = 3.21$ ,  $p < .08$ ; *experiential*:  $M = 1.14$  vs.  $1.66$ ,  $F(1,103) = 2.37$ ,  $p < .13$ ). Further arguing against a valence-based account, a simple effect of prime within positive-valence conditions ( $F(1,103) = 6.08$ ,  $p < .05$ ) demonstrates that positively valenced words led to more *or less* heuristic processing, depending on the processing mode to which those words applied.



**Figure 5: Study 2 - Choice of the large (non-normative) tray as a function of prime content and valence.**

As mentioned before, we measured participants’ confidence in terms of the number of times they expected to draw a winning bean. Logic dictates that participants should be less confident of winning to the extent that they chose more often from the non-normative tray. Indeed, prior research has shown clearly that individuals know the ‘right answer’ to the ratio-bias task and feel some distress when “going with their gut” by choosing the smaller tray (Denes-Raj & Epstein, 1994). However, according to the notion of ‘intuitive confidence’ (Simmons & Nelson 2006), individuals tend to be more confident in their experiential (versus analytical) judgments because ‘gut feelings’ are subjectively compelling. Consistent with the intuitive confidence argument, the data reveal a highly significant correlation between number of draws from the (experientially-

favored) large tray and expected number of wins ( $r = .28, p < .01$ ). On average, participants estimated that they would win 2.16 times – a number remarkably close to the true expected value (which differs slightly based on trays chosen). In addition, average confidence across conditions was directionally consistent with our priming manipulation:  $M_{exp-neg} = 2.19, M_{exp-pos} = 2.33, M_{ana-neg} = 2.33, M_{ana-pos} = 2.18$ ; i.e., participants for whom experiential processing was construed most favorably chose the inferior tray most often but were also the most confident of winning (however, these differences did not approach statistical reliability).

## **Discussion**

Study 2 expanded the investigation of Study 1 by including positively- and negatively-valenced primes associated with analytical processing. As predicted, the effect of valence depended on the particular processing mode being primed: when positive (negative) associations with experiential processing were made accessible to participants, they chose more (less) often from the perceptually appealing tray, but when positive (negative) associations with analytical processing were made accessible, participants chose more (less) often from the rational alternative. This pattern of results is difficult to explain by attributing the priming effects to mood or the transfer of affect to salient cues in the decision task. Instead, we believe that the data support our perceived suitability model and provide evidence that a particular processing mode will be weighted more heavily to the extent that it is associated with positive affect.

It is noteworthy that participants who chose more often from the inferior tray expressed greater (not less) confidence in winning. Certainly, a variety of individual



difference variables may attenuate this relationship. Nonetheless, the investigation of intuitive confidence in situations of simultaneous conflicting preference is worthy of further attention.

Having established that reliance on experiential or analytical processing can be influenced by accessible, valenced representations of either processing mode, the remainder of the dissertation is focused on two goals. First, we wish to demonstrate that the perceived suitability of experiential vs. analytical processing directly impacts the extent to which either mode is relied upon. Evidence to this end would bolster the arguments presented in Studies 1-2 by suggesting that individuals are not simply pursuing the favorably-primed processing mode, but rather are weighting different processing outputs in line with their perceived suitability to the decision at hand. Second, we wish to demonstrate the relevance and importance of the perceived suitability argument to consumer decision phenomena.

### **STUDY 3: CONSTRUALS OF EXPERIENTIAL PROCESSING AFFECT ATTITUDE RETRIEVAL: THE CASE OF NEW PRODUCT LEARNING**

Study 3 represented an initial attempt at pursuing both of the goals above. First and foremost, the setup for the study involved an adapted version of a sequential learning task recently popularized by Rydell and McConnell (2006). This task provided the opportunity to overlay our notion of simultaneous conflicting preferences onto a multiple-attitudes paradigm, and it also allowed for a test of our predictions in a context highly relevant to marketing theory and practice. Second, rather than utilizing semantic priming to enhance valenced associations of either processing mode, Study 3

incorporated a procedure based on metacognitive inference (Schwarz, Bless, & Bohner 1991). As described below, this manipulation provided a direct method of varying perceptions regarding the diagnostic value of ‘intuitions.’

### **Multiple Attitudes and Sequential Learning**

In the past, attitudes have commonly been conceptualized as ‘enduring propensities to respond,’ and attitude change has been assumed to involve the overwriting of a prior propensity with a new one (e.g., Anderson 1971). However, contemporary researchers have instead suggested that multiple attitudes may be held simultaneously (Wilson et al. 2000; Petty et al. 2006, Cohen and Reed 2006). Although the various approaches differ considerably, they share the notion that an existing attitude need not be overwritten by new associations or beliefs toward the attitude object. Instead, a prior-formed *implicit* attitude may continue to exist in conjunction with the newly-formed *explicit* attitude, and this implicit attitude may be brought to bear when conditions are highly favorable to its recruitment.<sup>4</sup>

An assumption frequently underlying these approaches is that implicit attitudes are held beneath conscious awareness (e.g., Banaji, Lemm, & Carpenter 2004). Despite widespread acceptance of this assumption, however, a growing body of research has questioned the extent to which attitudes labeled ‘implicit’ are in fact inaccessible to conscious introspection. In criticizing this assumption, Gawronski, Hofmann, & Wilbur

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<sup>4</sup> A great deal of controversy and disagreement surrounds the meaning and operationalization of the terms *implicit attitude* and *explicit attitude* (Fazio & Olson 2003). We use these terms both as a matter of semantic convenience and as an opportunity to address theoretical issues in the multiple attitudes literature. However, our perceived suitability model and predictions require only the notion that attitudes may be derived from either system-1, conditioned associations or from system-2, rule-based reasoning (Smith & DeCoster 2000).

(2006) distinguish between three types of attitude awareness: their *source*, their *content*, and their *impact* on other psychological processes; within this taxonomy, *content* and *impact* awareness are most relevant to our model. Notably, both types of awareness are implicated in the concept of “motivated overriding” (Wilson et al. 2000), in which individuals are (to some extent) aware of implicitly held attitudes but choose to consciously override them. Wilson and colleagues demonstrate a variety of settings in which judgments made in the absence of processing constraints are guided by explicit attitudes, whereas cognitive load induces individuals to respond in line with implicit attitudes. Indeed, a consistent finding is that explicit attitudes are highly predictive of overt judgments, choices, etc., whereas implicit attitudes tend to be more predictive of subtler, indirect judgments or behaviors (e.g., the Implicit Association Test of Greenwald and Banaji 1995, the sequential priming measure of Fazio et al. 1986).

Applying these ideas to the dual-systems paradigm, we share the conjecture of other scholars that implicit attitudes operate primarily within the experiential system, while explicit attitudes exert their influence primarily within the analytical system (Gawronski & Bodenhausen 2006). Study 3 incorporates a sequential learning procedure utilized by Rydell & McConnell (2006) to argue that implicit attitudes are shaped by the slower associative system, unaffected by explicit processing goals, and predictive of spontaneous behaviors, whereas explicit attitudes are shaped by fast-changing processes, affected by explicit processing goals, and predictive of deliberate intentions. Participants in their experiments were first exposed to a large body of valenced information about a target person (*stage-1*), followed by a smaller body of information that either confirmed or contradicted this initial impression (*stage-2*). According to Rydell & McConnell

(2006), the procedure ensured that implicit and explicit attitudes diverged for some participants (the contradicted stage-2 group), while no such divergence occurred for other participants (the confirmed stage-2 group). In a series of experiments, participants' self-reported preferences aligned strongly with the valence of stage-2 information; however, implicit measures (including IAT responses and a subtle measure of social distance) were completely unaffected by this information, reflecting only the valence of stage-1.

The present study applies a similar methodology to the acquisition of new product information by consumers. However, contrary to the conclusions of Rydell and McConnell (2006), but in keeping with others who question the conscious inaccessibility of implicit attitudes (Gawronski, Lebel, & Peters 2007), we propose that implicit attitudes formed during stage-1 may resemble 'gut instincts' which can be subject to introspective awareness and even brought to bear on explicit judgments if they are deemed appropriate. Accordingly, it should be possible to vary the extent to which implicit (vs. explicit) attitudes predict behavior by manipulating the perceived suitability of experiential vs. analytical processing.

### **A Metacognitive Approach to Manipulating Perceived Suitability**

Fundamental to Study 3 was a manipulation of the extent to which participants believe that experiential processing is suitable to the evaluative judgments at hand. Our technique for varying perceived suitability relied on the now-accepted notion that cognitions influence judgment and behavior not only by their content, but also by metacognitive inferences occurring during their production (see Chapter 1 for an overview). In particular, we adopted a procedure popularized by Schwarz et al. (1991),

based on the assumption that when individuals are asked to retrieve information, they form inferences not only from the content of the information but also from the experienced *ease of retrieval*. When retrieval is easy, individuals should assume that content to be representative of their underlying beliefs, attitudes, etc.; however, when retrieval is more difficult, individuals should be less confident in this representativeness and may disavow it altogether.

The procedure just described has most commonly been used to vary person or object attitudes (Schwarz 2004). However, other research has used the procedure as a means of manipulating broader metacognitive constructs. For example, Avnet and Pham (2007) asked participants to generate either few or many autobiographical examples in which trusting their feelings led to positive outcomes. The authors found that the experienced difficulty of generating examples led participants to weight affect more or less heavily in an unrelated evaluation task. In Study 3, we take a similar approach by asking participants to generate either two or ten instances in which they acted on experiential processing and benefited as a result. We expected that the difficulty associated with generating ten examples would lead participants to infer that experiential processing is unreliable, while participants generating only two examples would encounter little difficulty and make the opposite inference. Applied to the sequential learning paradigm outlined above, we propose that when the valence of later information is counter that of early information (leading to simultaneous conflicting preferences), metacognitive inferences about the suitability of experiential processing will affect reliance on implicit vs. explicit attitudes:

H<sub>3</sub>: Among individuals perceiving experiential processing as appropriate to an evaluation task, reported attitudes will be less affected by the valence of information encountered later in the sequence.

Note that the metacognitive procedure is a more direct manipulation of perceived suitability than the semantic priming task of Studies 1-2. In addition, because the manipulation occurs *after* the information acquisition phase, we suggest that both experiential and analytical processing of the target will have already occurred, so that effects on reported preference will be due to weighting of outputs from each system.

## **Methods**

Participants were 103 individuals recruited at a large university. The entire experiment took place on a computer, and participants were compensated \$8 for their time. The study proceeded in three phases, outlined below:

*Information acquisition phase.* Participants were first told that they would be reading and evaluating information about a product that had recently entered the market. The target product was the *Mr. Clean Magic Eraser*, a spongelike pad that performs a wide array of cleaning chores and requires only moistening. After reading an initial description of the product, participants were given a series of informational statements, one item at a time. In order to ensure that participants attended to the information, they were asked to evaluate the veracity of each item by choosing either ‘true’ or ‘false’, and they received feedback immediately upon doing so. For example, a participant might see the statement “Mr. Clean Magic Eraser is effective on outdoor furniture.” After choosing

‘true’ or ‘false’, they would then see the following feedback screen: “The statement is TRUE. Mr. Clean Magic Eraser is effective on outdoor furniture”.

Following a procedure developed by Rydell & McConnell (2006), the information acquisition phase was divided into two stages. The first stage (*stage-1*) was common to all participants and designed to induce a favorable attitude towards the product. In total, participants viewed 80 stage-1 trials, 65 of which conveyed the product in a positive manner. These positive trials were of two types: 1) statements containing favorable content (“Mr. Clean Magic Eraser was evaluated favorably by Consumer Reports”) that were labeled TRUE (n=36), and 2) statements containing unfavorable content (“Mr. Clean Magic Eraser requires practice to be used effectively”) that were labeled FALSE (n=29). In order to disguise the monotonic valence of stage-1, fifteen filler trials were inserted. Five of these filler trials conveyed the product unfavorably, via three TRUE statements and two FALSE statements (see examples below). The remaining ten filler statements contained neutral content (“Colgate-Palmolive is the parent company of Mr. Clean and the Magic Eraser.”); six were labeled TRUE and four were labeled FALSE. The order of presentation for all 80 stage-1 trials was randomized for each participant.

Following the stage-1 trials, participants encountered a second stage of 15 information statements. The content of stage-2 information varied by condition: participants in the *control* condition received 15 neutral trials (ten TRUE and five FALSE), similar to the filler trials in the preceding stage. However, participants in the *counterattitudinal* condition received 15 trials that uniformly conveyed the product in a negative manner. Specifically, counterattitudinal condition participants observed ten TRUE statements of negative valence (“Mr. Clean Magic Eraser may cause temporary

reddening of the hands”) and five FALSE statements of positive valence (“Mr. Clean Magic Eraser is safe on bare or polished wood.”) As before, the order of presentation was randomized for each participant.

*Perceived suitability manipulation.* After finishing the information acquisition phase, participants were told that “This study is about how people approach different decisions and arrive at conclusions. In general, there are two different ways that people go about this process.” The two ways were identified as “going with your gut” and “using your head”, and each was briefly defined. On the following screen, participants learned that “we would like to know how you personally have applied one of these two methods in your own life.” Those in the *two-instances* condition were asked to identify “two situations where you followed your gut to make a judgment or decision and it was the right thing to do,” while those in the *ten-instances* condition were asked to generate ten such situations. Participants were told that a few sentences per situation would suffice, and they were given a total of seven minutes to complete the task.

*Attitude measures.* Three different measures were utilized to assess participants’ opinion of the product. The first of these was a series of four 7-point semantic-differential scales (unfavorable / favorable, low quality / high quality, good / bad, unappealing / appealing). Next, participants responded to a single-item, global evaluation of their “overall opinion of the Mr. Clean Magic Eraser” (1 = “very negative”, 7 = “very positive”). Third, participants were asked to “assume that the Mr. Clean Magic Eraser was available today” and indicate how much they would be willing to pay for a box containing two of the product. An eight-point response scale ranged from “nothing” to “more than \$6.00” in one-dollar increments. Finally, participants responded to



manipulation and product familiarity checks (see below), provided demographic information, and were asked to guess the purpose of the study.

## Results

Screening of responses to the purpose question revealed no evidence of correct hypothesis guessing, so all 103 participants were included in the analyses.<sup>5</sup>

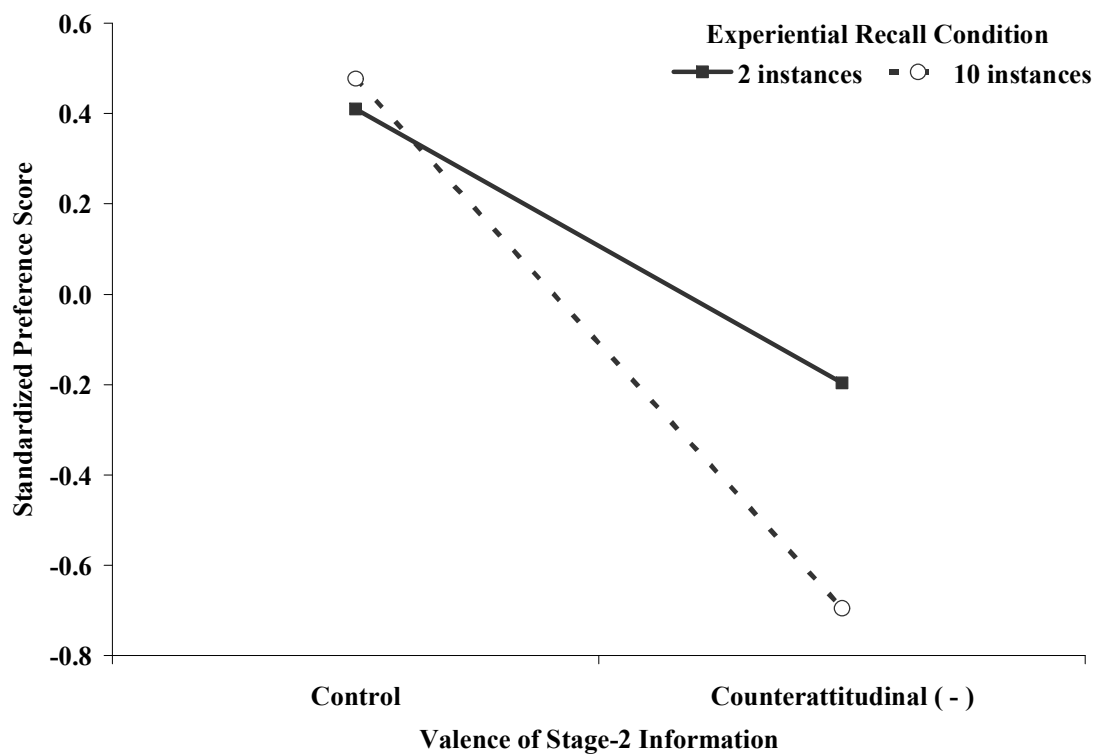
*Manipulation checks.* As a check on the manipulation of statement valence, participants were asked to estimate the percentage of all statements that were favorable towards the product. Overall, participants estimated 73.1% of the statements to be favorable. The valence manipulation impacted this estimate in the expected direction: the average was 78.0% for those in the *control* condition vs. 68.3% for those in the *counterattitudinal* condition ( $t(101) = 2.77, p < .01$ ).

As a check on the manipulation of metacognitive ease, participants were asked how difficult it was to come up with the required autobiographical examples (1 = “not at all difficult”, 7 = “very difficult”). Results showed that participants in the *ten-instances* condition found the task significantly more difficult than participants in the *two-instances* condition ( $M = 4.88$  vs.  $4.15, t(101) = 2.15, p < .05$ ). Furthermore, of 52 participants in the *two-instances* condition, only one participant failed to complete the required list, whereas 13 of 51 participants in the *ten-instances* condition failed to do so (the average list in this condition contained 8.9 items).

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<sup>5</sup>When asked about their prior familiarity with the product (1 = “not at all familiar”, 5 = “very familiar”), 25 participants responded with a four or five. All significant results in the reported analysis remain so when these high-familiarity participants are excluded, as does their pattern.

*Effects of manipulations on reported attitudes.* Initial analyses revealed that responses to the semantic differential, overall evaluation, and willingness-to-pay items were strongly correlated. Therefore, each item was standardized and then combined with the others to form an overall measure of preference for the product ( $\alpha = .91$ ). A univariate ANOVA was conducted to assess effects of the stage-2 valence and experiential suitability manipulations on this combined measure (Figure 6).



**Figure 6: Study 3 - Reported attitudes towards the target product.**

Results of the ANOVA revealed two effects of interest. Unsurprisingly, a strong main effect of valence was observed, such that participants in the *control* condition reported more positive attitudes ( $M = 0.44$  vs.  $-0.44$ ,  $F(1,99) = 41.2$ ,  $p < .01$ ). However, as predicted by our hypothesis, this main effect was qualified by an interaction of valence and experiential suitability, such that the influence of later, stage-2 information was less

pronounced when experiential processing was reinforced by the metacognitive task ( $F(1, 99) = 4.17, p < .05$ ). Follow-up comparisons indicated that participants in the control condition were essentially unaffected by the experiential suitability manipulation ( $F = .115, ns$ ). However, participants in the *counterattitudinal* condition, for whom our model predicts simultaneous conflicting preferences, were more positive towards the product when given the *two-instances* retrieval task than its *ten-instances* counterpart ( $M = -.20$  vs.  $-.70, F(1,99) = 6.55, p < .05$ ).

## **Discussion**

Study 3 expanded our theoretical model by investigating its implications within a multiple-attitudes framework. The present design supplemented that of Studies 1-2 by incorporating different manipulations of simultaneous preferences and perceived suitability. In addition, through the use of a sequential learning task to convey target information, we utilized a paradigm of considerable relevance to marketing research and practice. Confirming our predictions, a mass of early, univalenced information was found more predictive of self-reported preferences for individuals induced by metacognitive inferences to “follow their gut.”

As mentioned previously, one advantage of the present design over that of Studies 1-2 is that the manipulation of processing suitability occurred subsequent to the presentation of stimulus information. In theory, this means that the manipulation should not have affected the formation of conflicting preferences, but rather their resolution in the form of adjustments to the weighting of (implicit) ‘gut reactions’ and (explicit) ‘reasoned responses.’ In addition, our design allowed for the collection of evidence

bearing on the implicit attitudes controversy. According to the model advocated by Gawronski et al. (2007), ‘implicit’ attitudes are simply a reflection of whatever attitude-relevant concepts are immediately accessible. In our study, examination of response times for the first preference measure (‘unfavorable’/‘favorable’) revealed a marginal effect of suitability ( $F(1,99) = 3.2, p < .08$ ), such that participants responded more quickly when experiential processing was favorably construed (the effect did not interact with valence condition). Given that the preferences of this group aligned most closely with conditioned, stage-1 associations, their enhanced response times are congruent with an accessibility-based account.

#### **STUDY 4: ‘FOLLOWING YOUR GUT’ OR ‘USING YOUR HEAD’?: LAY THEORIES ABOUT THE SUITABILITY OF EXPERIENTIAL & ANALYTICAL THOUGHT**

The studies thus far demonstrate that evaluative assessments of experiential or analytical processing produce downstream consequences on choices involving conflict among those systems. However, the manipulations in those studies are best understood as manipulations of the general diagnosticity of one or the other processing mode. That is, both the supraliminal priming manipulation in Studies 1-2 and the metacognitive retrieval task in Study 3 were incidental to the decision task in which their effects were tested. Although these external manipulations provide a valuable means of testing the effects of experiential/analytical construals, a worthwhile supplement would be the utilization of factors inherent to consumer decisions that produce similar effects. Therefore, Studies 4-6 were directed at two goals: 1) identification of variables commonly studied in consumer decision making that may influence the perceived suitability of either mode, and 2)

experimental investigations of identified variables in paradigms relevant to consumer research.

As a means of addressing the first goal, Study 4 involved a direct assessment of lay theories regarding the use of experiential vs. analytical processing in consumer judgments. We presented individuals with a broad sample of common consumer decisions and measured both 1) participants' beliefs about the justification of experiential vs. analytical processing for each decision and 2) their perceptions of each decision on a variety of underlying dimensions. By analyzing the resulting data, we were able to test for systematic variance in the judged appropriateness of either processing mode. More importantly, we were able to identify particular decision characteristics that may affect this tradeoff, and, in doing so, provide candidates for future experimental investigation.

## **Method**

*Pretest: Creation of a Consumer Decision Set.* In constructing stimuli for Study 3, the first task was to generate a set of sample consumer decisions that would form the basis for the study. Two requirements dictated the generation process: first, that the set of decisions be realistic and familiar to the participant population, and second that the set of decisions vary on dimensions that might be of interest in examining perceived suitability. In order to accommodate the first requirement, we derived our sample set from lists of actual decisions made recently by college undergraduates (see below). In order to accommodate the second requirement, we developed a list of eight decision characteristics. As our objective was exploratory, we selected characteristics that either

represent popular constructs in consumer decision research or seem particularly relevant to the assessment of perceived suitability:

*Time Horizon.* We defined short-term decisions as those whose consequences will mainly be experienced in the present, and long-term decisions as those whose consequences will mainly be experienced in the future. Temporal construal theory (Trope and Liberman, 2003) suggests that compared to far-term events are mentally represented by a few high-order features containing the ‘essence’ of the event, while near-term events are represented by specific and incidental details (note that construal typically concerns the period in which a decision takes place).

*Goal Type.* We defined experiential decisions as those focused on feelings, sensations, or enjoyment, and functional decisions as those focused on practicality, usefulness, or accomplishing something. Given the natural association between hedonic (vs. functional) decisions and consummatory (vs. instrumental) goals (Pham 1998), this characteristic appears to map nicely onto features associated with experiential and rational processing (See Study 5 for an elaboration of this argument).

*Abstractness.* We defined concrete decisions as those dealing with issues that are specific, vivid, or tangible, and abstract decisions as those dealing with issues that are general, imprecise, or intangible. One possibility is that a minimum level of concrete detail is necessary to provide material for consideration by the analytical system (i.e., to arrive at an answer that logically “makes sense”).

*Target (self vs. other).* We defined self-focused decisions as those whose outcome affects the decision maker a great deal but has little effect on others, and other-focused decisions as those whose outcome has little effect on the decision maker personally but

affects others a great deal. The inclusion of this variable was justified by its special relevance to the domain of consumer decisions (e.g., gift-giving). In addition, participants in the ratio-bias task are much less likely to exhibit the bias when choosing on behalf of others (Denes-Raj et al., 1995).

*Emotionality.* We defined emotionally negative decisions as those for which it is unpleasant, distressing or unenjoyable to consider options pursuant to a choice, and emotionally positive decisions as those for which it is pleasant, enjoyable, or satisfying to consider options pursuant to a choice. A broad range of findings in the affect literature has supported the tendency of individuals to process more effortfully in the presence of negative mood (Bless et al. 1990), although dissenters have argued that positive mood facilitates more open and variegated processing strategies (Isen, Daubman, & Nowicki 1987). In consumer decision-making, stressful decisions are known to invoke heuristic choice strategies (Luce, 1998), but it is unclear how these strategies map onto experiential vs. analytical processing.

*Importance.* We defined unimportant decisions as those whose outcome has little effect on matters considered substantive by the decision maker (goals, values, people, etc.), and important decisions are those whose outcome has a strong effect on matters considered substantive. Attitude researchers have long been aware that decisions assigned greater importance or involvement by the individual will be subject to greater cognitive elaboration (Cacioppo and Petty, 1982; Eagly & Chaiken 1993), although it is not clear what the downstream consequences of importance are for *confidence* in decision-relevant thoughts (Petty, Briñol, & Tormala 2002).

*Difficulty.* We defined easy decisions as those for which the choice is fairly clear without requiring much thought or reflection, and difficult decisions as those for which the choice is fairly unclear even with thought or reflection. On the one hand, simplification strategies typically associated with decision complexity (Payne, Bettman, & Johnson 1988) are themselves examples of rule-based reasoning; on the other hand, difficult decisions may foster a heuristic to “do what feels right”, given that “doing what makes sense” does not result in an obviously better choice.

*Frame (loss vs. gain).* We defined loss-focused decisions as situations where the primary focus is minimizing losses or “taking the lesser of two evils”, and gain-focused decisions as situations where the primary focus is maximizing gains or “making the most of it”. Although loss/gain framing is clearly related to emotionality, the two are separable; e.g., regulatory focus theory suggests that negative and positive affect can result from either promotion or prevention pursuits (Higgins 2001). However, the theory provides no clear prediction as to processing style preference as a function of regulatory concerns. Prospect theory predicts that individuals are risk-seeking in situations involving losses and risk-averse in situations involving gains (Tversky & Kahneman 1981), but it is not clear which frame induces more ‘rational’ responding, nor is it obvious that either frame should invoke reliance on experiential or analytical processing.

In order to construct a set of consumer decisions that varied across these eight characteristics, a pretest was conducted at two large universities. 94 participants responded to a pen-and-paper questionnaire in exchange for monetary compensation. The questionnaire first defined consumer decisions broadly and then asked respondents to list any such decisions they could remember making in the recent past. Next, the



questionnaire listed each of the eight characteristics and described them according to the definitions above. Respondents were asked to list decisions from their own lives which represented high and low levels of each characteristic (e.g. ‘concrete’ vs. ‘abstract’, ‘emotionally negative’ vs. ‘emotionally positive’), for a total of 16 separate decisions.

Pretest responses were utilized to construct a set of 25 sample decisions for the main study. First, all listed items were grouped into *decision categories* representing conceptually similar decisions (e.g. “romantic relationship decisions”, “vacation/travel decisions”). Next, 25 of these categories were chosen based on their listing frequency within at least one characteristic. The set of categories was constructed so that high and low levels for each of the eight characteristics were represented by at least 3-4 categories. Certain popular decision categories overlapped multiple dimensions, and the selection criteria did not prohibit inclusion of such categories. After determining these 25 categories, one decision from each category was selected based on popularity and theoretical representativeness. Sample decisions include “deciding which brand of cereal to buy,” “deciding whether to help a friend with money problems”, and “deciding where to buy gasoline.”

*Main Study: Obtaining Ratings for the Decision Set.* Participants in the main study were 33 undergraduates at one of the universities from which pretest data were drawn. The study was conducted via computer, and participants were compensated \$10 for their time.

The main study presented participants with the entire list of 25 decisions and assessed their perceptions of each decision in two respects: 1) the suitability of each processing mode for that decision, and 2) ratings of that decision on each of the eight

dimensions listed above. The perceived suitability judgments occurred first and were counterbalanced such that judgments of experiential or analytical processing suitability came first. In order to obtain suitability ratings for the experiential mode, participants were asked to rate the extent to which “following my gut” is appropriate for each of the 25 decisions. Items were randomized across participants, and ratings were obtained on a 9-point scale (1 = “not at all appropriate”, 9 = “extremely appropriate”). The suitability ratings for the rational mode were obtained in a similar manner, except that participants were asked to rate the extent to which “using my head” is appropriate for each decision. Next, perceptions of relative suitability were assessed on a single comparative scale: participants were told to imagine that in the process of making each decision, “you are faced with a dilemma: the option that seems best when you 'use your head' is different than the option that is best when you 'follow your gut'.” They were asked to resolve this dilemma by choosing from a 9-point scale (1 = “definitely use my head”, 9 = “definitely follow my gut”).

After providing their responses on the perceived suitability items, participants were asked to rate each of the 25 decisions in terms of the eight dimensions cited above (time horizon, goal type, concreteness, etc.). Ratings were assigned on a nine-point scale (e.g., 1 = “not at all difficult”, 9 = “extremely difficult”), and all of the decisions were rated on one dimension before moving on to the next. The order of presentation of dimensions was fixed, but order of decisions within each dimension was randomized. Finally, participants completed the Rational-Experiential Inventory (REI - Pacini & Epstein 1999), a self-report measure of tendency to utilize each processing mode.

## Results

Response time data indicated that five participants took inordinately little time to assign ratings (i.e., consistently rating all 25 decisions in less than one minute). Data from these individuals were not analyzed, leaving a total of 28 respondents.

Because the objective of the study was exploratory, analysis began with the computation of simple correlations, computed with decision items as the unit of observation. The simple correlations revealed three points of interest. First, a high level of intercorrelation was found across the eight dimensions. Given the method by which the stimuli were constructed, this collinearity is unsurprising and may in fact reflect the presence of similar correlations among ‘real-world’ decisions.

**Table 1: Study 4 - Simple correlations of experiential/analytical suitability and 8 tested characteristics.**

|  | relative suitability<br>(higher = more<br>experiential) | experiential<br>suitability | analytical<br>suitability |
|--|---|-----------------------------|---------------------------|
| relative suitability<br>(higher = more experiential) | 1   | .395(**)                    | -.524(**)                 |
| experiential suitability                             | .395(**)  | 1                           | -.050                     |
| analytical suitability                               | -.524(**)   | -.050                       | 1                         |
| time horizon<br>(higher = more long-term)            | -.343(**)   | -.004                       | .377(**)                  |
| goal type<br>(higher = more functional)              | -.561(**)   | -.239(**)                   | .531(**)                  |
| abstractness<br>(higher = more abstract)             | .391(**)  | .167(**)                    | -.345(**)                 |
| target<br>(higher = more other-focused)              | .323(**)  | .185(**)                    | -.252(**)                 |
| importance<br>(higher = more important)              | -.400(**)   | -.040                       | .513(**)                  |
| emotionality<br>(higher = more positive)             | .309(**)  | .123(**)                    | -.307(**)                 |
| difficulty<br>(higher = more difficult)              | -.151(**)   | .055                        | .200(**)                  |
| frame<br>(higher = more gain-focused)                | .336(**)  | .212(**)                    | -.223(**)                 |

\*\* Correlation is significant at the 0.01 level (2-tailed).

Second, as evidenced by Table 1, the correlation between experiential and analytical appropriateness was nearly nonexistent ( $r = -.05$ ). In other words, the extent to which a decision was deemed suited to “following my gut” revealed little about the extent to which that decision was deemed suited to “using my head.” This finding is especially interesting in light of research finding small positive correlations among individual difference measures of experiential and analytical processing (Epstein 2003). Meanwhile, both appropriateness measures correlated with the ‘forced tradeoff’ question in the expected manner.

Third, the table reveals an interesting set of relationships between the perceived suitability of either processing mode and each of the eight characteristics. In keeping with the lack of correlation among individual experiential and analytical ratings, a number of characteristics showed significant correlations with only one of these two assessments (most notably time horizon and importance). In addition, every characteristic showed stronger correlations with analytical than experiential suitability. However, we focus here on the relative question, which operationalizes the resolution of simultaneous conflicting preferences. All eight dimensions were significantly correlated with participant responses to this question, and many of these correlations were sizable in magnitude. Most notably, experiential/functional goal type by itself accounted for 30% of the variance in tradeoff judgments. In order to test the effect of characteristics more meaningfully (accounting for the within-subjects design and intercorrelation among various characteristics), additional analyses were conducted.

The first analysis examined the unique effects of each dimension directly; again we focus on relative suitability as the dependent measure. First, a repeated-measures

ANOVA confirmed that across participants, certain decision items tended to be judged as more experientially suited and others as more analytically suited ( $F(24,648) = 17.09, p < .01$ ). Average ratings for each item are given in Table 2.

**Table 2: Study 4 – Mean relative suitability for each decision item.**

|   | Mean (higher =<br>more experiential) | Std.<br>Deviation |
|---|--------------------------------------|-------------------|
| Deciding which friends to spend time with                   | 6.54                                 | 1.6               |
| Deciding what movie to see with family members              | 6.36                                 | 1.2               |
| Deciding whether to go to an upcoming concert               | 6.29                                 | 1.4               |
| Deciding when to call a girlfriend/boyfriend at night       | 6.21                                 | 1.8               |
| Deciding on a birthday gift for a close friend              | 6.14                                 | 2.2               |
| Deciding what clothes to wear to a party                    | 6.11                                 | 1.8               |
| Deciding which restaurant to try out with friends           | 6.11                                 | 1.6               |
| Deciding which brand of cereal to buy                       | 5.93                                 | 1.8               |
| Deciding where to go on an outdoor day trip                 | 5.46                                 | 1.8               |
| Deciding whether to return an item of clothing to the store | 5.18                                 | 2.0               |
| Deciding which days to visit an amusement park              | 4.89                                 | 2.1               |
| Deciding when to do laundry                                 | 4.82                                 | 1.6               |
| Deciding where to study during the school year              | 4.64                                 | 2.0               |
| Deciding whether to help a friend with money problems       | 4.39                                 | 2.3               |
| Deciding what major to pursue                               | 3.93                                 | 2.4               |
| Deciding which digital camera to buy                        | 3.82                                 | 2.1               |
| Deciding whether to drop a course                           | 3.32                                 | 2.3               |
| Deciding what kind of career to pursue                      | 3.29                                 | 2.6               |
| Deciding whether to stay in because money is tight          | 3.21                                 | 2.1               |
| Deciding how many hours to work at a summer job             | 3.21                                 | 1.7               |
| Deciding where to buy gasoline                              | 3.11                                 | 1.7               |
| Deciding which bill to pay first                            | 2.93                                 | 1.8               |
| Deciding which credit card to use for an expensive purchase | 2.46                                 | 1.5               |
| Deciding whether to invest money in the stock market        | 2.32                                 | 1.8               |
| Deciding whether to drive after drinking                    | 2.21                                 | 2.4               |

Next, a generalized linear modeling procedure was performed: subject and decision item were entered as random effects to account for correlated variability among these variables, and the eight characteristic ratings were entered as continuous covariates (no interactions were included in the model.) Type 3 sums-of-squares were examined to

identify only unique effects for the decision characteristics. Resulting parameter estimates for each dimension are depicted in Table 3.

**Table 3: Study 4 - Parameter estimates for unique effects of each decision characteristic.**

| Parameter                              | B      | Std. Error | t      | Sig. | Partial Eta Squared |
|--|--------|------------|--------|------|---------------------|
| time horizon (higher = more long-term) | -0.079 | 0.04       | -2.010 | 0.04 | 0.006               |
| goal type (higher = more functional)   | -0.187 | 0.04       | -4.959 | 0.00 | 0.037               |
| abstractness (higher = more abstract)  | 0.092  | 0.03       | 2.871  | 0.00 | 0.013               |
| target (higher = more other-focused)   | 0.073  | 0.04       | 1.835  | 0.07 | 0.005               |
| importance (higher = more important)   | -0.186 | 0.05       | -4.009 | 0.00 | 0.024               |
| emotionality (higher = more positive)  | -0.089 | 0.04       | -2.096 | 0.04 | 0.007               |
| difficulty (higher = more difficult)   | -0.016 | 0.04       | -0.429 | 0.67 | 0.000               |
| frame (higher = more gain-focused)     | 0.146  | 0.04       | 3.830  | 0.00 | 0.022               |

A positive coefficient indicates that experiential processing was deemed more suitable for decisions high on the relevant parameter.

Examination of the table reveals several significant effects, despite the presence of high intercorrelation among characteristics. When confronted with conflicting experiential and analytical outputs, participants were more likely to “go with their gut” to the extent that a decision was: short-term, experiential, concrete, unimportant, emotionally positive, and gain-focused. The effect for decision difficulty was not significant, and that for decision target was marginal. Notably, perceptions of *goal type* explained considerably more unique variance than did perceptions of other characteristics, complementing results from the correlational analysis.<sup>6</sup>

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<sup>6</sup> A second analysis accounted for intercorrelation among decision characteristics by examining their underlying factor structure. A principal components analysis of the characteristic ratings, performed using varimax rotation and participant-items as the unit of observation, revealed that data were best fit by a two-factor solution. One factor was represented largely by emotionality, goal type, frame, target, and abstractness; this factor was labeled *decision hedonics*. The other factor was represented largely by time horizon, importance, and difficulty; this factor was labeled *decision significance*.

In order to test the unique effects of *decision hedonics* and *decision significance* on the relative suitability measure, factor scores were substituted for individual characteristics in the model described above. Analyses revealed that both factors exhibited significant and substantial influence: participants rated

## Discussion

Study 4 provided an initial exploration of decision variables that might influence consumers faced with competing intuitive and rational responses. Participants were found to exhibit considerable variance in the way they resolved this tradeoff, confirming the notion that individual difference variables must be supplemented by a consideration of decision context. Furthermore, although the design was correlational, a variety of analyses suggested that distinct aspects of a decision situation have systematic effects on the resolution of simultaneous conflicting preferences. Correlational and regression approaches both identified specific decision characteristics that may be particularly important (*goal type, importance, concreteness, and loss/gain frame*).

As the purpose of Study 4 was exploratory, its findings are best viewed as a starting point for future investigation. An obvious way of following up on these findings would be the use of experimental designs to: 1) manipulate decision dimensions revealed here to influence the perceived suitability of each processing mode, and then 2) measure their influence on actual decision situations involving simultaneous conflicting preferences. Studies 5 and 6 pursue this approach by focusing on one of the dimensions – *experiential/functional decision goal* - found to be most impactful in the current study.

### STUDY 5: PERCEIVED SUITABILITY IN BRAND EVALUATIONS OF HEDONIC AND UTILITARIAN GOODS

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experiential processing as more suitable to the extent that an item was high on the hedonic factor ( $B = .76, t = 6.59, \eta^2_{\text{partial}} = .063$ ) and low on the significance factor ( $B = -.75, t = 6.69, \eta^2_{\text{partial}} = .065$ ).

In Study 4, we identified a number of variables that may affect the ‘fit’ of experiential and analytical processing within a particular consumer decision context. Consistent with the notion that decision processing can be directed by the alignment of metacognitive goals and task variables (e.g., Higgins 2000), our model suggests that certain decision settings are compatible with reliance on system-1, experiential output, while other settings are more compatible with reliance on a system-2, analytical alternative. The goal of Study 5 was to test this proposition empirically by manipulating one of the characteristics identified in the previous study – *goal type* (experiential vs. functional) – in a consumer decision involving simultaneous conflicting preferences.

### **Hedonic Goals and Intuitive Processing**

Study 5 manipulated the extent to which a focal decision was hedonic or utilitarian in nature. Researchers examining the processing consequences of this distinction have noted that hedonic goals of consumption or enjoyment lead individuals to consult their feelings in order to determine an appropriate response, as long as feelings are diagnostic in distinguishing the alternatives (Pham 1998; Okada 2005). Applying these ideas to the context of our model, we postulate that hedonic choice domains are more conducive to holistic, ‘gut-based’ decisions, while rational analysis will be viewed as less appropriate for these domains. In other words, heightened reliance on feelings in hedonic domains can be viewed as an increase in the weight assigned to experiential output. Conversely, reliance on ‘instinct’ will seem awkward or ill-suited to utilitarian domains, but reliance on rule-based, logical thought will be considered more appropriate, resulting in increased weighting of analytical output. The correlational analyses reported



in Study 4 lend credence to this proposition, but the current study provided a means of verifying that prediction experimentally.

### **Manipulating Implicit/Explicit Attitudes**

Following up on arguments advanced in Study 3, the current study again positioned the notion of simultaneous conflicting preferences within the framework of multiple-attitude models (Wilson et al. 2000). As before, the most relevant assertion of these models for current purposes is that a prior-formed *implicit* attitude may continue to exist in conjunction with a newly-formed *explicit* attitude, and that implicit attitudes may affect judgments when conditions are highly amenable to their doing so. Based on our earlier argument that implicit attitudes operate primarily within the experiential system, while explicit attitudes exert their influence primarily within the analytical system (Gawronski & Bodenhausen 2006; Rydell & McConnell 2006), we again predicted that implicit attitudes will impact even overt, explicit behaviors to the extent that a situation is highly conducive to reliance on intuition.

Our method for inducing attitude change was similar in concept to that of Study 3, in that attitudes formed at an initial stage were updated with new information. However, instead of manipulating attitudes solely on the basis of explicit information, Study 5 incorporated a technique introduced by Petty et al. (2006). Using a classical conditioning procedure, participants were endowed with a moderately positive or negative attitude towards two target brands; next, they encountered explicit information which either agreed with or contradicted their conditioned associations. In the person perception studies reported by Petty et al. (2006), reported judgments were predicted solely by the

content of explicit information, regardless of the conditioning procedure. However, to the extent that implicit and explicit attitudes are a function of distinct underlying systems, our model predicts that conflict in these attitudes creates simultaneous preferences for each alternative. Therefore, the suitability attached to experiential and analytical outputs should be a critical determinant of evaluations.<sup>7</sup> In order to vary perceived fit, we adopted the Petty et al. (2006) procedure to a brand-evaluation setting and manipulated the product category (*hedonic or utilitarian*) to which target brands belonged. In the *utilitarian* condition, where reliance on rule-based analysis feels like an appropriate strategy, we expected reported judgments to be primarily a function of explicit attitudes. However, in the *hedonic* condition, where reliance on instincts and feelings is inherently natural, we expected that implicit attitudes would exert an influence on reported judgments:

H<sub>4</sub>: Prior-conditioned brand associations will have more impact on explicit evaluations involving hedonic product categories than on explicit evaluations involving utilitarian product categories.

## **Method**

Ninety-eight participants at a large university took part in the study and were paid \$7 for their time. The study utilized a between-subjects design with three factors: conditioned preference (brand1 vs. brand2), objective information (brand1 vs. brand2 superior) and product domain (hedonic vs. utilitarian).

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<sup>7</sup> Neither Petty et al. (2006) nor Rydell and McConnell (2006) address the issue of perceived suitability. As elaborated in the discussion, we suggest that their designs were conducive to reliance on analytical processing, inhibiting effects of implicit attitudes on self-report measures.

*Conditioning Procedure.* After agreeing to take part in the study, participants were situated at the computer and told that they would engage in a task of ‘visual memory.’ They were then presented a series of images drawn from the Affective Picture System (Lang, Bradley, & Cuthbert 1995), a database of 960 images varying in emotional content. Based on calibrations obtained by Ito, Cacciopo, and Lang (1998), we selected 120 images from the database that are rated strongly positive, strongly negative, or neutral in valence (40 each), and roughly equivalent on other dimensions. The selected images were presented, one at a time, for 1 second each.

Prior to the presentation of each image, two items appeared on the screen sequentially. First, in order to enhance the cover story for the procedure, the word ‘focus’ appeared for 500 ms. Second, one of twelve brand names was presented on the screen for 500 ms. Two of these names (*Ares* and *Rival*) were target brands which were also used in the second phase of the study. Results of a separate pretest (n=102) determined that these target names evoked neutral evaluative reactions in the sample population ( $M = 4.1$  and  $3.9$ , respectively, on a 7-point scale). In order to condition favorable or unfavorable associations to the two target brands, *Rival* and *Ares* were each paired with exclusively positive or negative images (counterbalanced). The other ten brand names were used as fillers to disguise the purpose of the conditioning procedure; filler brands were paired randomly with positive, negative, or neutral images. Each target brand name was presented twenty times (along with its paired images), and filler brand names were presented between five and ten times apiece. Order of presentation for both images and brand names was randomized, with the constraint that target brand names were always

separated by at least two fillers. In total, the conditioning procedure lasted approximately six minutes.

Afterwards, participants rated all twelve brand names, in random order, on two attitude measures of favorability adopted from Petty et al. (2006). To provide a context, participants were told that the names were being considered by a major consumer products company. The product category was either *utilitarian* or *hedonic*: based on prior taxonomies of hedonic and utilitarian products (Voss et al. 2003; Batra and Ahtola 1990), the *utilitarian* category consisted of alkaline batteries, while the *hedonic* category consisted of chocolate candy bars. For each brand, participants rated how *good* they expected that brand to be (defined as “high quality, good value, and satisfied customers”), and how *bad* they expected that brand to be (defined as “low quality, poor value, and dissatisfied customers”). In addition to providing a check of the conditioning manipulation, these attitude questions directly measured system-1 associations and were used as a covariate in the later analysis.

*Exposure to Explicit Information.* Participants were told that their next task was to evaluate information about two consumer products, and they were provided with two paragraphs of summary information about each of the target brands. These paragraphs were carefully constructed to objectively favor one of the two target brands, though only to a moderate extent. The first paragraph contained a few sentences of intentionally uninformative ‘filler’ information providing vague descriptions of the brand, and the second paragraph provided objective quality information. Specifically, participants in the *chocolate bar* conditions read about the results of a Food Network taste-test in which the two brands finished fifth and seventh, respectively, out of twenty-five brands;

participants in the *battery* condition read the results of Consumer Reports testing in which the brands were also ranked fifth and seventh. Stimuli were counterbalanced so that the target brands – *Ares* and *Rival* – were favored equally often by the objective information. Essentially, the crossing of the conditioning and explicit information procedures resulted in two *conflicting* conditions, in which objective information favored the brand that had been negatively conditioned on the prior task, as well as two *non-conflicting* conditions, in which objective information favored the brand that was positively conditioned.

*Preference and Follow-up Measures.* After reading both sets of information, participants rated the two target brands on the same two attitude measures described above. In addition, they indicated which of the brands they would prefer to own according to a continuous, nine-point scale. Next, participants completed two scales included as possible mediators of the product category manipulation. The first of these was the Task-Specific-Thinking-Style (TSTS) Questionnaire of Novak and Hoffman (2006), a twenty-item, Likert-type measure intended to capture the extent to which respondents engage in experiential and/or analytical processing during a particular task. Based primarily on Epstein's (1991) dual-systems conceptualization, the scale includes such items as "I trusted my hunches" and "I figured things out logically." Second, participants completed the 5-item Heart vs. Mind scale (Shiv & Fedorikhin 1999), which assesses experiential or analytical processing in a binary fashion. Each item on the Heart vs. Mind scale begins with the statement "My final decision was driven by ..." and presents a 7-point response scale with endpoints representing each processing mode (e.g., "my thought / my feelings.").

As a check of the objective information manipulation, participants were asked to recall which of the two brands was rated objectively superior. Next, as a measure of attention during the conditioning procedure, participants were shown a series of 12 images and asked to indicate whether or not they had been presented earlier, using a 3-point scale (“no,” “yes,” “unsure). A series of subsequent items collected a variety of demographic information. Finally, participants completed the Rational-Experiential Inventory (Pacini & Epstein 1999) utilized in Studies 1-2.

## **Results**

*Manipulation Checks.* Initial screening revealed seven participants who did not follow directions or skipped portions of the procedure, leaving a sample of 90 participants. As a first step in the analysis, we sought evidence that the implicit conditioning procedure was successful. First, we examined scores on the image memory test as a sign that adequate attention was paid during the task. On average, participants scored remarkably well on the memory test ( $M = 21.18$  out of 24 possible;  $\text{min} = 15.0$ ), generally answering all but two or three questions correctly. Average performance was considerably higher than the score that would be obtained by guessing alone ( $12.0$ ;  $t(90) = 38.90, p < .01$ ).

Next, we examined ratings assigned to the two target brands immediately after the conditioning task. For each brand, the ‘good’ and ‘bad’ measures were combined to form a rating of brand attitude. A *conditioned preference* variable was formed by subtracting the rating assigned to *Rival* from that assigned to *Ares*. Analysis of conditioned preference was performed using univariate ANOVA, with product domain and the

conditioned leader (*Ares* or *Rival*) as predictors. As expected, the results showed a strong main effect of implicit leader ( $F = 20.91, p < .01$ ), and this main effect did not interact with domain ( $F = 1.36, ns$ ). When *Ares* was favored by the conditioning process, it was rated an average of 3.72 points higher than *Rival*; however, when *Rival* was favored instead, it rated .74 points higher than *Ares*. In sum, the implicit conditioning procedure was successful.

Finally, we wished to ensure that participants were aware that one of the target products was ascribed objective superiority during the explicit information phase. In response to the question asking which brand was rated higher, only 1 participant chose the incorrect brand (that participant was excluded from further analysis).

*Reported Preferences.* As a result of the procedure, participants were endowed with both an instinctive ‘tug’ towards one of the brands (based on prior conditioning) and a rational assessment which may or may not have contradicted that ‘tug,’ depending on condition. Our hypotheses involve the extent to which prior-formed attitudes are brought to bear on the decision. The data provide three dependent measures relevant to the hypotheses, and each is described below. Independent variables consisted of the conditioned preference between the brands (entered as a continuous measure), objective information (*Ares superior* vs. *Rival superior*), and product domain (*hedonic* vs. *utilitarian*). Our model predicts a two-way interaction between conditioned preference and product domain: in *utilitarian* domains, the conditioned ‘tug’ should have little (if any) effect on final attitudes, but conditioned preferences should exert a much stronger influence in *hedonic* domains.

As our first dependent measure, we formed a *final preference* variable based on responses obtained after exposure to the brand information. In a manner similar to the conditioned preference variable, we first combined the ‘good’ and ‘bad’ questions to create a rating of attitude towards each brand, and then subtracted the rating assigned to *Rival* from that assigned to *Ares*. As a second dependent measure, we utilized responses to the continuous (9-point) *choice* question assessed at the end of the evaluation task. Because the final preference and choice measures are both thought to represent the same underlying construct, we considered the possibility of combining them to form a third dependent measure. Analysis of correlations made this possibility feasible (Cronbach’s  $\alpha = .73$ ), so the two items were standardized and averaged together to form a single *combined preference* variable.

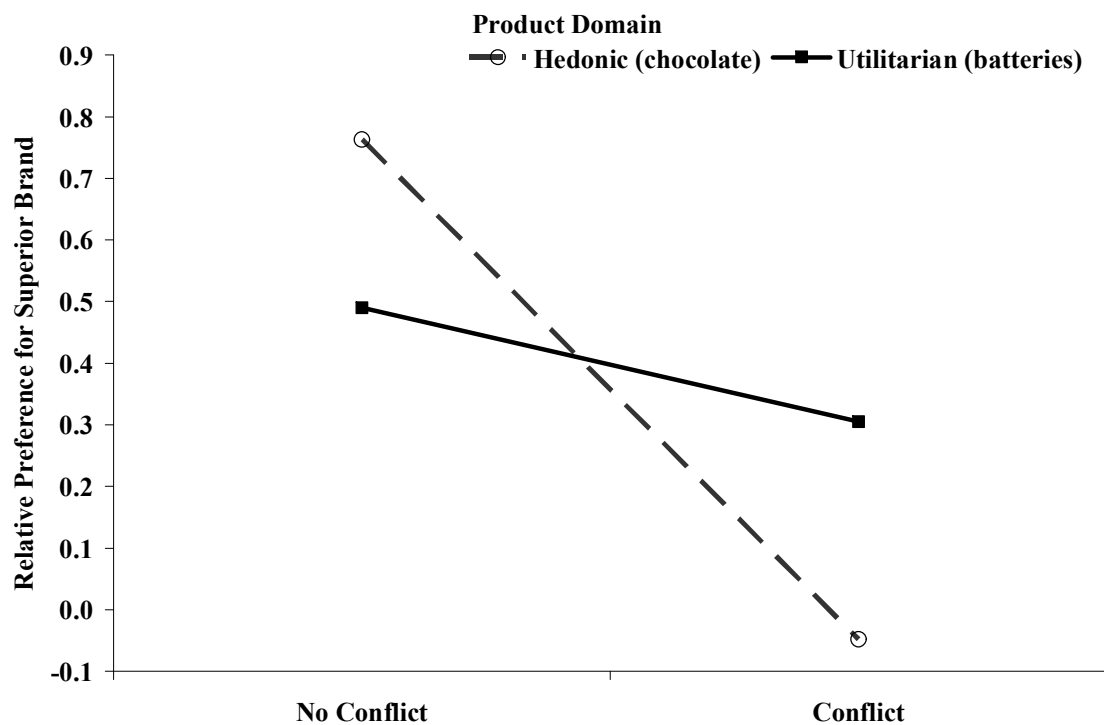
**Table 4: Study 5 - ANOVA results for combined preference measure.**

| Source                   | Type III Sum of Squares | df | Mean Square | F      | Sig.  | Partial Eta Squared |
|--------------------------|-------------------------|----|-------------|--------|-------|---------------------|
| Corrected Model          | 25.050                  | 7  | 3.579       | 6.509  | 0.000 | 0.354               |
| Intercept                | 0.846                   | 1  | 0.846       | 1.540  | 0.218 | 0.018               |
| domain                   | 3.087                   | 1  | 3.087       | 5.615  | 0.020 | 0.063               |
| excond                   | 10.508                  | 1  | 10.508      | 19.113 | 0.000 | 0.187               |
| impdif                   | 5.790                   | 1  | 5.790       | 10.531 | 0.002 | 0.113               |
| domain * excond          | 0.016                   | 1  | 0.016       | 0.030  | 0.863 | 0.000               |
| domain * impdif          | 2.610                   | 1  | 2.610       | 4.748  | 0.032 | 0.054               |
| excond * impdif          | 0.668                   | 1  | 0.668       | 1.215  | 0.274 | 0.014               |
| domain * excond * impdif | 0.547                   | 1  | 0.547       | 0.995  | 0.322 | 0.012               |
| Error                    | 45.634                  | 83 | 0.550       |        |       |                     |
| Total                    | 70.683                  | 91 |             |        |       |                     |
| Corrected Total          | 70.683                  | 90 |             |        |       |                     |

The dependent measure, combined preference, represents the average of the standardized choice and final preference ratings. Domain is the product category (hedonic/utilitarian), obj\_info is the objectively superior brand (Ares or Rival), and cond\_pref is a continuous variable representing the difference in attitude towards the two brands following the conditioning procedure.



Effects of the predictors on this combined preference variable were examined via univariate ANOVA, and results are reported in Table 4. The data reveal a pattern of results consistent with Hypothesis 4: in addition to main effects for conditioned preference, objective information, and domain, a significant domain\*conditioned preference interaction was obtained ( $F(1,83) = 4.75, p < .05$ ). Importantly, this predicted interaction was not qualified by any higher-order effects ( $F(1,83) = 1.0, ns$ ).



**Figure 7: Study 5 - Combined preference for objectively superior brand.**

The dependent measure, combined preference, represents the average of the standardized choice and final preference measures (collapsed over brand). The measure has been rescaled so that higher scores represent greater preference for the objectively superior brand.

For ease of exposition, Figure 7 presents these results in terms of the brand that was objectively superior (collapsing across brand name) and the presence or absence of

conflict between conditioned attitudes and objective information. As demonstrated by the figure, the conflict and domain variables interacted to affect relative preference ( $F(1, 87) = 3.83, p = .05$ ). In the utilitarian (battery) domain, where experiential processing does not ‘fit’ with the decision task, participants preferred the objectively superior brand regardless of their conditioned attitude ( $F(1,87) = 0.64, ns$ ). However, preferences in the hedonic domain were dramatically affected by conditioned attitudes ( $F(1,87) = 13.64, p < .01$ ), to the point that participants facing conflict showed a slight preference for the objectively *inferior* brand. In sum, these data provide evidence supportive of our hypotheses: the effect of conditioned associations was strong in a hedonic domain, where reliance on experiential processing is natural and appropriate, but negligible in a utilitarian domain, where reliance on ‘instincts’ is seemingly incompatible.<sup>8</sup>

In the conflict conditions, where experiential and analytical processing are assumed to produce opposing outputs, the Task-Specific Thinking Style (TSTS) and Heart vs. Mind measures were examined as potential mediators for the effect of product domain. Analyses were performed on the combined preference measure described above; as in Studies 1-2, REI scores were used as a covariate to remove any effects of trait processing style. First, the TSTS was converted to a difference measure by subtracting scores on the *rational* subscale from those on the *experiential* subscale. Analyses indicated that mediation criteria were met for this measure: 1) product domain was a

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<sup>8</sup> Models using *final preference* and *choice* as individual dependent measures provided similar results. The three-way interaction did not approach significance in either model. For the model using *choice*, the conditioned preference\*domain interaction was significant ( $F(1,83) = 20.10, p < .05$ ), as were main effects for conditioned preference and objective information. For the model using *final preference*, the conditioned preference\*domain interaction was marginally significant ( $F(1,90) = 2.82, p < .10$ ), as were main effects for conditioned preference and objective information.

significant predictor of combined preference ( $F(1,45) = 7.05, p < .05$ ); 2) product domain was a significant predictor of reported thinking style ( $F(1,46) = 5.46, p < .05$ ); 3) when both variables were entered together, thinking style remained significant ( $F(1,44) = 6.25, p < .05$ ), while domain did not ( $F(1,44) = 2.05, p > .15$ ). Results of a Sobel test revealed the  $F_{\text{drop}}$  to be significant ( $Z_{\text{Sobel}} = 1.98, p < .05$ ). Similar analyses using the Heart vs. Mind scale satisfied the three criteria above, though the Sobel test was only marginally significant ( $Z_{\text{Sobel}} = 1.71, p = .09$ ). Together these analyses bolster our argument that the product domain manipulation exerts its effects on evaluation by altering the perceived suitability of experiential and rational processing.

## **Discussion**

At a fundamental level, the results of Study 5 demonstrate that previously-held attitudes can influence overt judgments when the context is highly suited to reliance on intuition. These findings converge with those reported in Study 3 and our proposed mapping of implicit and explicit attitudes onto experiential and analytical processing routes (see also Gawronski & Bodenhausen 2006). However, both results stand in contrast to prior literature documenting the supremacy of explicit vs. implicit attitudes in predicting overt behaviors (Petty et al. 2005; Rydell & McConnell 2006). It is important to note that reported preferences in our studies were in fact heavily influenced by explicit information (objective brand information in the current study, stage-2 information in Study 3), regardless of suitability condition; the observed interactions simply revealed this influence to be attenuated in situations conducive to reliance on ‘gut-based’ responses. One possibility is that prior research has tended towards settings which

emphasize the suitability of analytical over intuitive processing. As a result, ‘gut-based’ responses may in fact be accessible during the preference elicitation task, but the perceived inappropriateness of these responses leads to their suppression (Wilson 2000).

Following this logic, our results can be reconciled with recent theories of attitude recruitment. According to a model advocated by Gawronski et al. (2007) and discussed in Study 3, implicit attitudes are best understood as whatever concepts are most accessible in an initial evaluation, and self-reported attitudes are the result of any validation processes that subsequently occur. Applied to the consumer context, these validation processes may be less likely to occur -- or less thorough -- in situations where analytical processing is deemed unsuitable (e.g., hedonic domains). Another relevant model, introduced by Cohen and Reed (2006), describes a series of “sufficiency checks” whereby a recruited attitude is evaluated as a guide to behavior. In particular, “functional sufficiency” describes the extent to which the attitude is considered adequate for the particular task at hand (c.f., Lynch et al. 1988). Using this terminology, we postulate that conditioned associations are considered more functionally sufficient in hedonic than utilitarian domains. Chapter Three provides a more thorough discussion of these issues.

Study 5 demonstrated a predicted divergence in the effects of evaluative conditioning across decision domains providing more or less ‘fit’ with reliance on experiential processing. In addition, process measures provided direct evidence that our perceived suitability model could account for the divergence. However, the design of the study did not preclude other possible explanations, particularly considering that the hedonism/utilitarianism of target stimuli may have been confounded with other relevant

variables that varied across the two product classes. Study 6 attempts to remedy this concern and provide further support for our conceptualization.

### **STUDY 6: MANIPULATING HEDONIC AND UTILITARIAN FRAMES**

Results of Study 5 indicated that individuals are more likely to be affected by conditioned prior attitudes for judgments in hedonic domains than those in utilitarian domains. These findings corroborated our explanation that hedonic decision domains activate consummatory rather than functional goals (Pham 1998) and hence provide better ‘fit’ with experiential processing as a basis for decisions. As a test of our model, however, the paradigm of Study 5 is subject to the same criticism as Studies 1-2, in that the key manipulation (product domain) occurred prior to exposure to the alternatives. Therefore, the observed effects of product domain may have been due to a variety of factors independent of our model; most notably, the domain manipulation may have affected participants’ engagement in experiential or analytic processing during the presentation of brand information itself, rather than their subjective weighting of each output during the evaluation task. As demonstrated by Study 3, one way of addressing this concern is to present the weighting manipulation *after* processing of alternatives has occurred. Therefore, the ambitions of Study 5 were threefold: 1) replicate the finding that implicit attitudes are “brought to bear” more forcefully for decisions involving hedonic than utilitarian alternatives, 2) manipulate product domain subsequent to the processing of decision-relevant information, and 3) do so while holding other variables constant. In order to accomplish these three goals, Study 6 incorporated an entirely different domain manipulation.

### **Product Domain as an Endogenous Variable**

The product categories of Study 5 (chocolate and batteries) were chosen because they have been identified as clear exemplars of hedonism and utilitarianism (Voss et al. 2003). However, these product categories may in fact differ on a number of dimensions unrelated to our theory; in fact, Study 3 identified a number of characteristics which seem to correlate with the functional/experiential distinction in real-world decisions. On the other hand, certain product categories present a more ambiguous mix of hedonic and utilitarian dimensions. Utilizing these more flexible categories, we should be able to manipulate construals of the same product class across individuals by asking them to focus on its hedonic or utilitarian aspects. Study 6 pursued this approach by means of an open-ended essay task. Our key prediction was that the domain framing manipulation would interact with brand conflict to influence participants' evaluations of the target brands. For focal decisions occurring within a utilitarian frame, individuals should perceive experiential processing as unsuitable and place little or no weight on implicit reactions. However, when the same decision occurs within a hedonic frame, individuals should view reliance on instincts as a reasonable basis for judgment, so that reported attitudes will be influenced by both objective information and prior conditioning:

H<sub>5</sub>: The effect of conditioned (vs. explicit) attitudes on reported preferences will be strongest when target options are mentally construed in hedonic terms.

## Methods

Participants in Study 6 were 88 students at a large university who took part in exchange for \$8 compensation. The procedure involved four stages, three of which replicated portions of Study 5: participants underwent an evaluative conditioning procedure, read information about two brands, and provided their evaluations of the brands. New to Study 6 was a domain construal stage (described below), in which the domain manipulation was applied. The conditioned leader factor of Study 5 was dropped; i.e., the conditioning procedure favored the same brand for all participants. Therefore, the design of Study 5 included two manipulated, between-subjects factors: objective information (brand1 superior vs. brand2 superior) and product construal (hedonic vs. utilitarian).

*Evaluative Conditioning.* The conditioning procedure followed the format outlined in Study 5. Under the guise of a “visual memory task,” participants viewed a series of 120 image-brand combinations. Two of these brands, *Ares* and *Matrix*, served as the target brands for the study. Results of a separate pretest ( $n=22$ ) indicated that these target names evoked fairly neutral and equivalent evaluative reactions in the sample population ( $M = 4.23$  and  $4.77$  on a 7-point scale,  $t(21) = 1.21$ ,  $ns$ ). The composition and timing of stimulus presentation were identical to that of Study 5. For all participants, the procedure was designed so that *Matrix* was conditioned favorably (paired with exclusively positive images) and *Ares* was conditioned unfavorably (paired with exclusively negative images). As before, ten filler brands were paired randomly with positive, negative, and neutral images. After the sequence was complete, participants

responded to the same manipulation check as that of Study 5 (two 7-pt attitude measures for each of the twelve brands), and they were given the same image recognition test.

*Explicit Information.* Upon completing the conditioning procedure, participants encountered information about the target brands. Unlike Study 5, the product category to which these brands belonged – LCD televisions – can be characterized by both hedonic and utilitarian aspects. Based on existing taxonomies which utilize a two-dimensional approach to hedonism and utilitarianism (Batra and Ahtola 1990; Voss et al. 2003), the television category was chosen for its high loadings on both dimensions.<sup>9</sup> As before, the explicit information consisted of both generic “filler” information and objective quality information that was carefully constructed to favor one of the two target brands. Specifically, participants learned that the objectively superior brand (*Ares* or *Matrix*) was “rated 5<sup>th</sup> out of 25 brands on overall quality” by a consumer magazine, while the objectively inferior brand was rated 8<sup>th</sup>. Unlike Study 4, participants were not asked for brand evaluations or choices at this stage.

*Domain Construal Manipulation.* After reading the brand information, participants responded to a single essay question regarding their impression of the product category. The question was designed to induce a hedonic or utilitarian mindset by asking participants to focus on uses of the product that are conducive to consummatory or functional goals. Participants in the *hedonic frame* condition read the following:

“LCD televisions can serve many different purposes, and one of these purposes is to be fun and exciting. In what ways do you think LCD televisions can be fun and

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<sup>9</sup> The original design included an additional between-subjects factor, product category, such that either televisions or denim jeans served as the target options. However, early analyses indicated that the conditioning procedure was ineffective for the jeans category, so this factor was dropped and all subsequent participants were assigned the television condition.



exciting? In your own words, please describe ways in which these products provide pleasure and enjoyment to their owners.”

In contrast, participants in the *utilitarian* condition read the following:

“LCD televisions can serve many different purposes, and one of these purposes is to be practical and functional. In what ways do you think LCD televisions can be practical and functional? In your own words, please describe ways in which these products provide sensible value and helpful benefits to their owners.”

Beneath the question was a blank screen for participants to provide their responses.

Although no time limit was specified, participants were asked to spend a few minutes formulating their answers.

*Preference and Follow-up Measures.* Having finished the domain construal task, participants completed the same attitude and choice measures administered in Study 4. After deciding, they were asked to describe how they formed their evaluations by responding to the Task-Specific Thinking Style (Novak & Hoffman 2006) and Heart vs. Mind (Shiv & Fedorhikin 1999) scales. Next, participants were given the 10-item HED/UT measure of Voss et al. (2003), which contains separate subscales to assess perceived hedonic and utilitarian dimensions. Finally, they completed the Rational-Experiential Inventory (Pacini & Epstein 1999), provided demographic information, and were asked to guess the purpose of the experiment.

## **Results**

*Manipulation Checks.* Initial screening revealed that four participants incorrectly identified the objectively superior brand and one participant accurately guessed the

hypothesis, leaving a sample of 83 participants<sup>10</sup>. As in Study 5, we examined scores on the image memory test to ensure that adequate attention was paid during the conditioning procedure. Participants again scored remarkably well on the test ( $M = 21.12$  out of 24) and considerably higher than chance (12.0;  $t(82) = 34.5, p < .01$ ). Next, we again created a *conditioned preference* variable by subtracting the rating assigned to *Matrix* (the favorably conditioned brand) from that assigned to *Ares* (the unfavorably conditioned brand). As expected, *conditioned preference* was on average considerably negative ( $M = -2.92$ ) and reliably lower than zero ( $t(82) = 6.34, p < .01$ ), affirming the success of the conditioning procedure.

Two methods were utilized to gauge the effectiveness of the construal manipulation. Scores on the HED/UT scale did not reliably differ among participants in the hedonic and utilitarian conditions, although their pattern was in the right direction ( $M = 0.18$  vs.  $0.54$ , respectively;  $t(82) = .648, ns$ ). However, the HED/UT scale was administered at the end of the experiment, and thus it seemed possible that the construal manipulation had faded over time. As an alternative check on the construal instructions, two independent coders rated the content of participants' essays for both hedonic and utilitarian content. Each sentence was rated separately, and scores were combined for each participant based on the formula:  $(\text{hedonic score} - \text{utilitarian score}) / (\text{hedonic score} + \text{utilitarian score})$ . Comparison of the average combined scores revealed a considerable effect of construal frame in the expected direction ( $M = -0.15$  vs.  $-0.61$  for hedonic and utilitarian conditions;  $t(81) = 4.2, p < .01$ ).

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<sup>10</sup>The reported analyses are not meaningful if the objectively superior option varies across participants. We note for completeness that analysis of the entire sample results in the following: *construal\*conditioned preference* interaction -  $F(1,80) = 2.92, p < .10$ ; *conflict\*construal* interaction -  $F(1,84) = 2.31, p < .05$ .

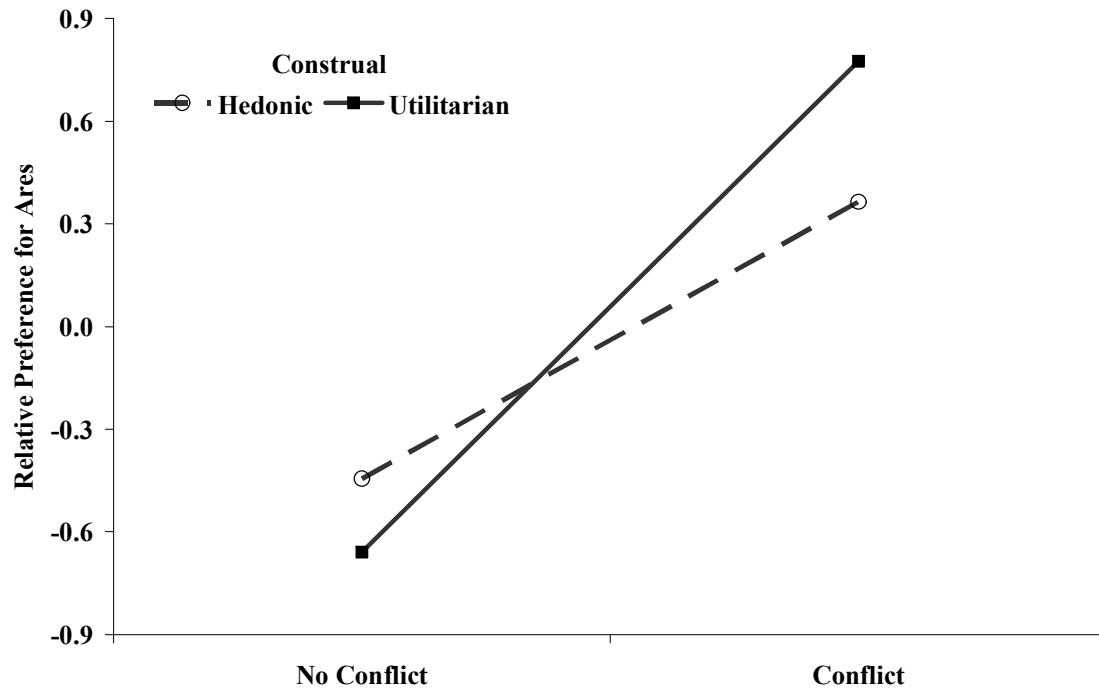
*Reported Preferences.* As before, we first computed a *final preference* variable by subtracting the average rating assigned to *Matrix* from that assigned to *Ares*. Because the final preference measure was highly correlated with choice, we combined their standard scores to form a single *combined preference* variable (Cronboch's  $a = .83$ ). Independent variables consisted of the conditioned preference score (entered as a continuous measure), objective information (*Ares superior* vs. *Matrix superior*), and product construal (*hedonic* vs. *utilitarian*). Our perceived suitability argument predicts that the implicit 'tug' resulting from the initial conditioning procedure should have a much stronger influence under hedonic than utilitarian construals. This hypothesis was tested via univariate ANOVA, and the results are reported in Table 5.

**Table 5: Study 6 - ANOVA for combined preference measure.**

| Source                         | Type III Sum of Squares | df | Mean Square | F      | Sig.  | Partial Eta Squared |
|--------------------------------|-------------------------|----|-------------|--------|-------|---------------------|
| Corrected Model                | 32.728                  | 7  | 4.675       | 9.416  | 0.000 | 0.468               |
| Intercept                      | 0.127                   | 1  | 0.127       | 0.255  | 0.615 | 0.003               |
| construal                      | 1.516                   | 1  | 1.516       | 3.053  | 0.085 | 0.039               |
| obj_info                       | 9.912                   | 1  | 9.912       | 19.962 | 0.000 | 0.210               |
| cond_pref                      | 0.367                   | 1  | 0.367       | 0.740  | 0.392 | 0.010               |
| construal * obj_info           | 0.686                   | 1  | 0.686       | 1.381  | 0.244 | 0.018               |
| construal * cond_pref          | 2.077                   | 1  | 2.077       | 4.182  | 0.044 | 0.053               |
| obj_info* cond_pref            | 2.354                   | 1  | 2.354       | 4.741  | 0.033 | 0.059               |
| construal * obj_info*cond_pref | 0.428                   | 1  | 0.428       | 0.861  | 0.356 | 0.011               |
| Error                          | 37.242                  | 75 | 0.497       |        |       |                     |
| Total                          | 69.970                  | 83 |             |        |       |                     |
| Corrected Total                | 69.970                  | 82 |             |        |       |                     |

\*The dependent measure, combined preference, represents the average of the standardized choice and final preference ratings. Construal is the product construal (hedonic/utilitarian), obj\_info is the objectively superior brand (Ares or Matrix), and cond\_pref is a continuous variable representing the difference in attitude towards the two brands following the conditioning procedure.

In addition to a main effect for objective information and an interaction between objective information and conditioned preferences, the data reveal a significant construal \*conditioned preference interaction ( $F(1,75) = 4.12, p < .05$ ). This finding is consistent with Hypothesis 5 and was not qualified by any higher order interactions.



**Figure 8: Study 6 - Combined preference for Ares brand.**

The dependent measure, combined preference, represents the average of the standardized choice and final preference measures. Higher scores represent greater preference for Ares (the negatively conditioned brand).

Figure 8 presents the results in terms of the relative preference for Ares under the presence or absence of conflict between conditioned attitudes and objective information (recall that Ares was conditioned unfavorably for all participants). As demonstrated by the figure, the conflict and domain construal variables interacted to affect preference ( $F(1,79) = 3.83, p = .05$ ). When implicit associations and objective information favored

the same option, preference was not affected by the construal manipulation ( $F(1,79) = .909, ns$ ). Under conditions of conflict, however, a marginal effect of construal was obtained: ( $F(1,79) = 3.28; p = .07$ ): the negatively conditioned brand was rated higher under hedonic construals (for which experiential processing is deemed appropriate) than under utilitarian construals (for which “following your gut” is deemed unsuitable).

## **Discussion**

Study 6 replicated the effects of product domain obtained in Study 5 while holding constant the product category to which target options belonged. Given that different construals of the same product category led to distinct effects of implicit attitudes on brand judgments within that category, we see these data as evidence that our results are not dependent on the particular categories or product descriptions utilized.

Furthermore, by placing the framing manipulation subsequent to the presentation of explicit information, Study 6 provided further evidence that the domain manipulation does not operate (solely) through differential processing of information about the alternatives. Instead, we suggest that participants experience simultaneous conflicting preferences upon encountering explicit information that is contrary to their conditioned attitudes, and that product construal is an important contextual variable affecting the way that this conflict is resolved.

## **SUMMARY AND IMPLICATIONS OF THE MODEL**

The decision settings addressed by this dissertation can be characterized by the following: 1) experiential and analytical processing modes are both engaged by an

evaluation task, and 2) the two systems sometimes produce conflicting response tendencies. The central argument of our model is that in situations involving conflicting experiential and analytical outputs, responses are affected by subjective impressions regarding the suitability of each processing mode as a basis for deciding (“How should I think about it?”). Together, the empirical studies in Chapter 2 present a set of findings congruent with the predictions of our model. In tasks designed to elicit contradictory outputs from experiential and analytical processing routes, decisions were found to align with the system made subjectively suitable by our manipulations. These results were obtained within a variety of decision settings, utilizing diverse methods to manipulate experiential/analytical processing outputs and perceived suitability.

### **Contributions to Existing Theory**

The introduction to this dissertation cited numerous consumer phenomena in which reason and intuition are brought into conflict (self control, perceptual illusions, brand equity, etc.) Prior research has examined these phenomena under the rubric of dissociated processes, but much of that research has focused on moderators affecting the *engagement* of each processing mode (i.e., the extent to which each system is utilized). In one common approach, a particular bias is postulated as a function of the experiential system, and this claim is verified with various demonstrations that the bias is enhanced by “switching off” deliberative analysis via cognitive constraint. In another approach, researchers have demonstrated that individual differences on a particular measure of thinking style (need for cognition, faith in intuition, etc.) are correlated with to particular patterns of information processing. Rather than focusing on processing engagement

directly, this dissertation expands on prior work by examining *output selection* in situations where the experiential and rational systems produce viable but contradictory implications.

By conceptualizing the resolution of *simultaneous conflicting preferences* according to the perceived suitability of experiential and analytical outputs, we provide a useful framework for understanding how the problem will be resolved. In addition, although we acknowledge that individual differences or cognitive constraints may affect the conflict resolution process, we introduce additional specific variables that impact the extent to which ‘reason’ or ‘gut instincts’ are relied upon. These variables include factors that are incidental to the decision at hand (e.g., valenced associations with one or the other processing mode) and factors that are integral (e.g., hedonic or utilitarian properties of alternatives). The common thread underlying our studies is that trust in intuition or analysis as a basis for decisions is temporary, malleable, and systematically predictable. We believe this to be a provocative notion that has been underexplored in consumer behavior.

Considered individually, each of the studies presented here has implications beyond the particular domain examined. For example, the lottery task of Studies 1-2 can be viewed in light of a variety of consumer biases in which the “right answer” does not necessarily “feel right” (e.g., the direct distance bias – Raghurir & Krishna 1996, price discounts and deal inference – Darke et al. 1995). We suggest that by varying the affective associations of experiential and analytical processing, researchers may be able to enhance or diminish such effects.

## **Implications for Multiple-Attitude Models**

Three of the studies presented in Chapter Two applied our model to paradigms involving dissociated ‘implicit’ and ‘explicit’ attitudes. The attitude literature has been subject to considerable controversy and disagreement, particularly regarding the defining characteristics (and even the existence) of implicit attitudes (Fazio & Olson 2003; Gawronski et al. 2006). On the one hand, results of our studies may be seen as supplementary to existing evidence that prior-held and newly-formed attitudes may co-exist for a particular attitude object (Wilson et al. 2000). Under this conceptualization, we offer an important caveat to the thrust of prior research, which has shown implicit attitudes to exert their influence primarily on subtle, indirect measures (Petty et al. 2006; Rydell & McConnell 2006). In contrast, our data show that implicit attitudes may in fact be brought to bear on even overt, explicit judgments, so long as “following your gut” is deemed appropriate to the decision. Therefore, a highly relevant question is the extent to which individuals consciously suppress their implicit attitudes when experiential processing is deemed unsuitable. In raising this question, our findings are pertinent to the notion of “motivated overriding” (Wilson et al. 2000) and to a variety of topics where suppression may be implicated (stereotyping, categorization, attitude ambivalence, etc.).

If individuals in the relevant conditions of our studies were in fact consciously suppressing implicit attitudes deemed inappropriate to the situation, then to what extent should those attitudes be labeled ‘implicit’? An increasing number of empirical investigations have questioned whether attitudes captured by indirect measures necessarily operate beneath conscious awareness (Hofmann et al. 2005). In an attempt to sidestep this controversy, we acknowledge that our data can be interpreted without



resorting to assumptions regarding the existence of implicit attitudes. One relevant model, proposed by Gawronski et al. (2007), suggests that ‘implicit attitudes’ are better understood as whatever stimulus-relevant associations are immediately accessible, and that these associations are then subject to validation processes which may hinder their influence on self-reported attitudes. Although Studies 3, 5, and 6 in Chapter Two were predicated on the co-existence of distinct, conflicting attitudes, our model can be integrated with alternative paradigms. Within the Gawronski et al. (2007) approach, perceived suitability may act as a proxy for validation (see also the “functional sufficiency check” of Cohen and Reed 2006). For example, during the assignment of ratings in Studies 5-6, conditioned brand associations may have come to mind readily and then been subject to validation only for participants in the utilitarian-framed conditions. The interplay of conscious awareness, simultaneous preferences, and perceived suitability is a complex issue that merits further attention.

### **Perceived Suitability, Accessibility and Diagnosticity**

Setting aside the implications of this work for the multiple-attitudes debate, our perceived suitability paradigm may be considered in light of broader approaches to memory-based judgment. In particular, the accessibility-diagnostics approach of Feldman and Lynch (1988) proposes an anchoring-and-adjustment decision process in which specific inputs from memory (beliefs, evaluations, etc.) are brought to bear on a target decision to the extent that they are more accessible and diagnostic than competing inputs. With little difficulty, it is possible to recast Studies 3, 5, and 6 of Chapter Two (adopted from Rydell & McConnell 2006, Petty et al. 2006) in terms of this framework.

Recall that in each study, stimulus presentation occurred over two sequential stages. The first stage involved a conditioning procedure (using either factual statements or evaluative conditioning), which presumably resulted in the formation of an evaluative summary judgment. At the second stage, target-relevant information was introduced, and the evaluative implications of this information either agreed or conflicted with that of the first stage. Thus the two stages each produced inputs pertaining to the decision; to the extent that subsequent judgments result from retrieval and integration of these inputs, ‘simultaneous conflicting preferences’ are the result of conflicting inputs being retrieved from each stage. Phenomenologically, these inputs represent association-based, time-1 ‘feelings’ and rule-based, time-2 ‘facts’, and (Smith & DeCoster 2000).

Applying the accessibility-diagnostics approach, we start by assuming that time-1 (‘gut’) information tends to come to mind more readily by virtue of its strong set of associations (i.e., it is more accessible). More important for present purposes is the notion that diagnostics is inherently tied to situation-specific processing goals (Lynch et al. 1988). Therefore, our moderators of perceived suitability represent specific factors influencing the diagnostics of retrieved inputs, and there are two mechanisms by which this influence may occur. First, perceived suitability may affect the ‘cumulative diagnostics threshold’ required before processing is deemed complete. Individuals who perceive experiential (vs. analytical) processing favorably may require a lower diagnostics threshold, such that the decision goal of ‘following your gut’ is analogous to that of effort conservation (Payne et al. 1988). Although the reaction time data reported earlier were directionally supportive of this possibility, we believe that individuals in each study was sufficiently motivated to retrieve both time-1 (experiential) and time-2

(analytical) inputs. Most applicable to our studies is a second type of diagnosticity by which individual inputs are diagnostic to the extent that they meet specific decision objectives (Lynch et al. 1988). Applying this principle to the perceived suitability of each processing mode, inputs are more or less diagnostic to the extent that conclusions drawn from those inputs alone would accomplish the goal of “following your gut” or “using your head”. Specifically, inputs perceived to result from experiential processing (time-1 evaluative judgments) will be more diagnostic in the former case, and inputs perceived to result from analytical processing (time-2 factual information) will be more diagnostic in the latter case.

Considering our model in accessibility-diagnosticity terms allows for a variety of interesting predictions. For example, the diagnosticity of an input (vs. competing inputs) should not be dependent on the serial order in which that input was stored in memory. Therefore, if the sequence of presentation in Studies 5-6 were reversed, such that objective, factual brand information preceded the brand-image pairings, we would expect our domain manipulation to produce a pattern of effects very similar to that of the present studies. Second, as noted by Lynch et al. (1988) diagnosticity may by itself influence accessibility, because goal salience acts as a retrieval cue for goal-relevant information (Higgins and King 1981). The objective information in our studies was highly accessible due to its presentation immediately before the judgment task, but an interesting case arises when this information is harder to retrieve. Specifically, objective ‘facts’ about the target brands may not be retrieved at all, unless participants are invoked to “use their head” through one of our suggested mechanisms. Finally, although prevailing dual-system theories agree that experiential processing is generally faster than analytical

processing, there may be cases where the latter system retrieves inputs more quickly (e.g., where experiential processing involves slow-forming, ‘higher-order’ emotions – Shiv & Fedorikhin 2002). In these intriguing situations, an accessibility-diagnostics perspective predicts that the manipulation of perceived suitability will produce competing effects. For example, enhancing the salience of “following your gut” as a decision goal should simultaneously lower the cumulative diagnostics threshold (favoring analytical inputs) and alter item-specific diagnostics assessments (favoring experiential inputs).

### **Future Directions**

Looking forward, one possibility for expanding on the ideas presented here is to consider other incidental and integral factors that may affect the perceived suitability of experiential and analytical routes to a decision. Among integral factors, Study 4 identified a variety of decision characteristics that appear to be correlated with perceived suitability. Given that Studies 5-6 focused on the hedonic/utilitarian dimension, future experimental investigations could supplement their results by focusing on other identified characteristics. Based solely on the effect sizes reported in Study 4, the most promising of these characteristics may be decision importance. Our prediction is that when other variables are held constant, increasing the perceived importance of a decision will enhance the extent to which analytical processing is deemed appropriate. Such a result would also follow from considerations of justifiability (see below) and the oft-replicated finding that important decisions are subject to greater elaboration (Petty et al. 1983).

Beyond the decision characteristics considered in Study 4, other integral factors present themselves as candidates for investigation. One such candidate is the extent to

which an individual is required to justify their decision to others. Prior research has demonstrated that justification requirements promote the selection of decision strategies supported by clear and compelling reasons: e.g., compromise and attraction affects (Simonson 1989) or variety-seeking (Ratner & Kahn 2002). In general, experiential processing outputs (“it just feels right”) may provide less suitable justification for a decision than analytical processing outputs (“it makes sense”). If so, our model predicts that individuals will weight the latter outputs more heavily in situations invoking the need to justify. Such a finding would be an interesting extension to existing literatures on reason-based choice.

Another candidate for future research is the relationship between perceived suitability and affective implications of processing outputs for the individual. Research using the “affect as information” paradigm (Schwarz & Clore 1983) has documented that individuals may consider the informational value of their affective reactions as an input to decisions they face. Applied here, this suggests that positive or negative affect resulting from use of a particular processing mode may be misattributed to the suitability of the processing mode itself. For example, if experiential processing leads one to accept information that is pleasant or self-affirming, whereas rational analysis suggests discounting this information, the former route may be deemed more appropriate. A similar conclusion is suggested by motivated reasoning (Kunda 1990), which illustrates that individuals are highly sophisticated at mobilizing beliefs and processing strategies in order to support desired conclusions. The beliefs of interest to our model deal directly with reliance on instinct (e.g., “follow your heart”) or reason (e.g., “facts are facts”), and the relevant strategy is a motivated shift in the relative weighting of each output. Thus,

recruitment of the belief that “facts are facts” as a means of reaching desired conclusions would illustrate the influence of motivated reasoning on perceived suitability.

### **Practical Implications**

By focusing on the perceived suitability of (and reliance on) underlying systems of judgment, our relative weighting model provides a variety of potential applications for marketing communications, positioning, and branding. In addition, the model carries implications for consumer well-being that may interest those with a public policy perspective.

As illustrated repeatedly in the dissertation, consumers commonly face a dilemma between intuition and reason. By applying variables postulated in the model, marketers may be able to enhance reliance on either approach. For example, a common concern in designing marketing communications is that consumers are aware that they are being manipulated (e.g. Wright 2002). The resultant consumer skepticism may be seen as a form of system-1, gut-reaction against the message and its source. Facing such awareness, marketers might apply various aspects of our model to lessen reliance on the ‘heart’ in favor of reliance on the ‘head’. For example, messages may be designed to create temporary, negative representations of experiential processing (e.g., “you can’t trust your instincts ....”). Alternatively, communicators may highlight the utilitarian (rather than the hedonic) aspects of the choice.

In other cases, marketers may seek to promote heavier weighting of experiential output: for instance, a firm enjoying strong brand equity may seek to expand into a new product category. To the extent that brand equity represents a set of instinctive, positive

associations towards the brand (Keller 1993), the implications of our model would be essentially opposite those described above. For example, the firm may wish to communicate its message regarding the brand extension in media where feelings and intuition are highlighted: fantasy or science fiction TV shows may be an appropriate vehicle, while newspapers may be less appropriate. In a similar manner, Studies 5-6 carry implications for competitive entry: to the extent that brand equity has a more pervasive impact on consumer decision-making in hedonic versus utilitarian product categories, new entrants in the latter categories may face less of a challenge in overcoming entrenched leaders. Note, however, that the implications of the perceived suitability model extend to brand associations that are not inherently evaluative. For example, in order to expand its market coverage, a firm (e.g., Volvo) may introduce a new product (a sporty roadster) that does not adhere well to consumers' existing brand-attribute associations. Promotional efforts surrounding the new product might incorporate factors from our model to inhibit the perceived suitability of these gut-level brand associations.

Scholars and practitioners interested in consumer welfare may derive particular benefit from the framework we present. Obviously, to the extent that marketers manipulate reliance on 'intuition' or 'reason' as a tool for persuasion, consumer advocates may wish to counteract these tactics. However, two other applications merit special attention. One is the extent to which many consumer 'vices' (cigarette smoking, impulsive purchasing, etc.) can be seen as a self-control failure involving overweighting of experiential output: doing what "feels good" even when you "know better" (Baumeister 2002). In dealing with these problems, policy makers and responsible marketers may consider using the variables we describe to increase reliance on analytical

processing among susceptible consumers. Conversely, an opposite situation sometimes occurs whereby consumers rely too heavily on rational analysis, to the detriment of long-term satisfaction. This outcome is especially common in situations where individuals are concerned with justifying their decision (Wilson et al. 1993) or avoiding future regret (Kivetz & Keinan 2006). Recent evidence regarding “unconscious thought” suggests that intuitive processing may also be advisable for highly complex decisions, provided that a sufficient period of time has elapsed (Dijksterhuis 2004). By applying the moderators that we have proposed, consumer advocates might enable individuals facing any of these situations to “trust their instincts”, and, perhaps, improve the quality of their decisions.

## **Conclusions**

In keeping with a recent explosion in dual-systems approaches to judgment, this dissertation sheds light on situations where instincts and reason produce contradictory responses. We have created a framework for understanding how situational factors influence the perceived suitability of each processing mode, and we have developed a series of studies to test these factors. An overarching theme of the present research is that temporary, malleable construals of experiential and analytical processing are important determinants of consumer decision making. Consequently, our contributions should prove beneficial to a broad array of scholars interested in the “instincts vs. reason” tradeoff as it pertains to consumer behavior and broader social cognition.



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## BIOGRAPHY

Samuel Devere Bond was born in Birmingham, Alabama, to Betty and Devere Bond, in 1976. He grew up in Birmingham with three siblings, Chris, Zac, and Andy (his twin). Samuel left home to attend Rhodes College in Memphis, TN, where he obtained BAs in Business Administration and Mathematics in 1998 and met his future wife, Christina Moore.

Samuel developed an interest in human behavior late in his undergraduate tenure. After graduating, he pursued a range of psychology courses at the University of Alabama - Birmingham, North Carolina State University, and the University of North Carolina – Chapel Hill. While at UNC, Samuel worked as a research assistant to Drs. Thomas Wallsten, Rebecca Ratner, and Gal Zauberaman. This experience provided initial exposure to the field of consumer behavior and led him to apply to the PhD program in Business Administration at the Fuqua School of Business, Duke University.

At Duke, Samuel has nurtured his interest in consumer psychology and social cognition. He has published a number of academic papers with a variety of coauthors: “Improving preference assessment: Limiting the effects of context through pre-exposure to attribute levels” in *Management Science*, “Information Distortion in the Evaluation of a Single Option” in *Organizational Behavior & Human Decision Processes*, and “Generating objectives: Can decision makers articulate what they want?”, also in *Management Science*.