UNIVERSITÀ DEGLI STUDI DI BOLOGNA
ALMA MATER STUDIORUM

DIPARTIMENTO DI SCIENZE AZIENDALI

DOTTORATO DI RICERCA IN DIREZIONE AZIENDALE - XIX CICLO

TESI DI DOTTORATO

TIME EVOLUTION OF COMPROMISE EFFECT: ESSAYS ON THE ROLE OF INFORMATION AVAILABILITY

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ANNO ACCADEMICO 2006-2007

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Acknowledgements

I wish to express my gratitude to everyone who contributed to the development and realization of this project: this work would not be possible without their help.

My advisor, Professor Elisa Montaguti actively guided me through all the steps of this research, from the idea to the final version. Her guidance contribution to this thesis and to my education as a researcher has been substantial. Her continuous support has been also essential for some particularly critical decisions, like spending a semester visiting abroad.

I also want to thank Professor Gian Luca Marzocchi, who has always been my academic "reference point". I started this PhD having his level of competence and professionalism as a standard to follow.

Thank you to Professor Angelo Manaresi, who supported me throughout the PhD program and encouraged me during my work.

Thank you to Professor Chiara Orsingher who helped me with her thoughtful advices in the initial stage of this project.

A special thank goes to the marketing faculty at Duke, who warmly welcomed me and helped me more than they could even imagine. With his lecture on experimental design, Professor John Lynch guided my attention over crucial and fascinating aspects such as external validity issues and tirelessly discussed research ideas to find new venues. Professor James Bettman taught me how to

design experimental research and changed my approach to thinking about consumer behavior problems.

Special thanks to Professor Gavan Fitzsimons, I will always remember his clear vision on the difference between moderating-mediators and mediating-moderators.

I wish to thank also the Duke PhD students who shared with me their time spend during classes and working on assignments, and introduced me to Durham life.

Thank you also to the Italian PhD students, in particular to Alessandro, who shared with me all the hardest moment of this doctoral life and to Mariachiara who has always been willing to help me. Thank you to Marco, Sara and Daniele who shared with me this PhD experience.

I am again grateful to my wonderful friends Valentina and Silvia who are the most amazing people I know: without their friendship nothing would have been possible.

A special thank to my parents who always support me in all possible ways and are always proud of me.

Finally, my most special thank goes to my husband Simone, to whom this present work is dedicated. He is THE choice of my life, without compromise.

Chapter 1

Introduction

1.1 Research Problem

Recently, research in marketing indicates that consumer preferences for different alternatives within a choice set are influenced by the composition of the choice set and more generally by the context in which decisions occur. In contrast to classic economic theory, a large body of work has shown that when individuals make choices, they are susceptible to context effects: the presence of less attractive alternatives can make a product more attractive (e.g. Payne, Bettman, and Johnson 1992). This stream of research is called Behavioral Decision Theory: Ward Edward's seminal review (1954) introduced psychologists to the economic literature on risky and riskless choices. From that contribution a large and rapid proliferation of studies analyzed the decision making process testing theories and hypotheses using experimental designs.

Those findings showed the relevance of choice context and in particular proved that the composition of the choice set can affect preferences distribution. The expression *context effect* refers to the influence exercised by the peculiar characteristics of the choice set (e.g. Huber, Payne

and Puto, 1982). Individuals are influenced by the composition of the choice set so that, while making a decision they take into consideration characteristics of other alternatives instead of focusing on the alternative under exam.

One of the most important result emerging from behavior decision theory (henceforth BDT), is the occurrence of loss aversion. Loss aversion, or extremeness aversion when it is applied to attributes and product alternatives, states that "loses loom larger that gains"; in other words, consumers tend to avoid extreme alternatives which present extreme attribute values. This result implies that an alternative which presents intermediates characteristics (has median values along attributes levels) has an advantage over more "extreme" alternatives in the same choice set.

Along these lines, Simonson (1989) showed the existence of the *compromise effect*, which predicts that brands can gain share when they become intermediate options in a choice set. Compromise effect denotes the phenomenon that the share of an alternative increases when it is the middle option in a choice set and decreases when it is an extreme option. That means that the attractiveness of a product is enhanced when its position in the choice set is a "compromise" position than an "extreme position". For example, let us consider digital camera A [2 MPixel, $100] and digital camera B [3 MPixel, $130]: option B can gain share over option A if a third extreme alternative C [4 MPixel, $160] is included in the choice set. Entry of alternative C in the choice set, make option B the middle option, both in term of quality (2MP<3MP<4MP) and price ($100<$130<$160). This position in the choice set may determine an increase in option B's share.

Compromise effect is one of the most important and strong effects documented in behavioral decision research and has been observed by several researchers and across different product categories (Simonson, 1989; Chernev, 2004; Nowlis and Simonson, 2000; Dhar and Simonson

2003; Novemsky and et al. 2004; Sheng, Parker and Nakamoto 2005). The effect has been found to be highly robust and of considerable magnitude.

Much research on choice focuses on decision rules by which consumers select an option among a set of alternatives as if both choices and alternatives were completely independent of any other choice. This implies that choices are analyzed as one shot events, thus time-invariant events. Obviously this approach disregards several factors like correlation among choices (i.e. sequence of non independent decisions); dynamic nature of information availability and time-dependent relationship among alternatives within choice sets. For example it is highly plausible that a consumer faces the same buying decision more than once and that during the subsequent choices some conditions as his or her familiarity with product categories and knowledge about product characteristics hare changing.

Compromise effect has shown to systematically affect choices, but researches' attention has been limited to a single choice task: limited attention has been posted to the time evolution of the effect in order to understand if it is robust among repeated choices where the amount of information available on the number of alternatives are increased.

Interactions and weakening factors are critical aspects to understand consumer choice behavior. Context effects arise under preference uncertainty and under unclear considerations on attributes importance: the choice problem we want to analyze can be seen as study on information exposure as a way to reduce uncertainty therefore as a study on, context dependent effects.

The aim of this dissertation is to shed some light on how information availability might affect decision rules such as the compromise effect. We first argue that preferences for a particular product are influenced by its position in the choice set, as in work on compromise, then we contend

that those preferences are affected by the amount of the information made available along different choice tasks.

First of all, the present study intends to examine the role of repeated choices in influencing the magnitude of the compromise effect, analyzing if familiarity with product category moderates the probability of selecting a compromise option.

Second, as we examine choice over time, we are interested in evolving choice scenarios: for instance, when consumers face the same decision more than once, the amount and the source of information available on products are likely to vary. That could be due to a consumer's better knowledge of the product category, a greater amount of information on product attributes made available, word of mouth effect and awareness of most popular options.

Along these lines, our research analyzes the effect of two different sources of information on the strength of the compromise effect: 1) increase in information on product attributes; 2) social information on the most popular alternative.

In order to isolate the effects on compromise effect due to repeated choices and to the exposure to a greater amount of information we test the presence of each effect separately and then we examine the interaction of time with the influence of information.

The analysis of the evolution of compromise effect over repeated choices has important theoretical and managerial potential applications. We want to contribute on literature on compromise effect hat studied the phenomenon in a static perspective by adding evidence that some mediators to the effect may affect choices also in dynamic perspective.

Existing literature disregards (except for Drolet's work, 2002) to analyze the role of repeated choices on the strength of context effects: our work aims to contribute enriching the limited

literature on "dynamic" evolution of context effects showing that, over time-separated-repeated choices, compromise effect tend to decrease.

Moreover, present work intends to advance knowledge on the role of information availability in affecting the use of heuristics. Literature on information processing showed that an increase in attribute number decreases quality of choice (Lee and Lee, 2004; Lurie, 2004). More attributes to process increase confusion and uncertainty: under these conditions consumers show a less clear assessment of their preferences and tend to compromise more frequently. Our work aims to contribute to literature on context effects combining results on familiarity with product category and results on attribute number. As suggested by Bettman and Park (1980a) knowledge decreases search for highly familiar consumers when they are considering different alternatives. More familiar consumers may use their knowledge of the product class to limit their attention to information relevant to choice. Present works analyzes the variation in compromise effect due to the simultaneous influence of repeated choices (which are supposed to increase familiarity) and an increase in attributes number. Over repeated choices familiarity increases and consumers perceive to have more knowledge on product category: in this case the positive impact of attribute number on compromise effect could be overcome by familiarity.

Our work also hypothesizes that the fulfillment of social justification by information on other consumers' behavior would moderate the strength of compromise effect in favor of the most chosen alternative. By studying the influence of socially relevant information we can increase knowledge on the social component of compromise effect. The selection of the compromise option and the use of socially relevant information are both mechanisms able to fulfill the need for social justification in choice process. We therefore contribute to literature on social component of compromise effect

by showing how compromise effect is influenced by information on others' choice, both in one choice task and over repeated choices.

The relevance of our research questions is also related to their managerial relevance. Consumers often face the same decision repeatedly and the rule applied to make the decision can affect both the positioning of a brand and the communication strategy that place a certain brand in a certain choice set. Moreover, present work aims to advance knowledge on the role in information availability in affecting the use of heuristics. An increased number of product reinforces compromise effect and this has important consequences for product strategy. For very new products where level of familiarity is low and preferences uncertainty is high a compromise effect is possible: for these products the increment of the number of attributes can enhance the effect. Our findings also show that socially relevant information can affect compromise effect: the direction and the strength of this influence can give indications on the role of social sources of choices' influence, like word of mouth and advertising, on the strength of compromise effect.

1.2 Structure of the study

This dissertation is composed of 6 chapters, organized as follows.

The present *Introduction* opens the work; in this section we have just presented the structure of the problem, we want to analyze and we have outlined its main contribution.

In *Chapter 2* we present a literature overview to place our research problem in a theoretical perspective. We outline the fundamental contributions of Behavior Decision Theory and Prospect Theory with a particular focus on decision heuristics and context effects. The aim of this chapter is

to present the state of the art on this topic: in particular, several context effects in relation to choice problems and their application in different domains are examined. We also review several studies that analyze the compromise effect both from a theoretical perspective and a modeling perspective. More over, since our interests is in the analysis of repeated choices, we also present some contributions related to subsequent or contiguous choices.

In *Chapter 3* we outline our hypotheses: starting from the literature review presented in Chapter 2 we deepen different directions to articulate seven hypotheses and identify the main dimensions we want to investigate.

Chapter 4 concerns research design and methodology. A brief section on the experimental design to motivate its pertinence with the research problem examined is presented. After that there is section on participants selection, product categories and attributes. Last section of this chapter involves a brief overview of the analysis necessary to test our hypothesis.

In *Chapter 5* there is a comprehensive presentation of the 5 studies with a section on the experimental design development for each study, a section on the sample employed in each study and a section on the logical structure of every experiment. Then, we present results and discuss the direction and the magnitude of the effects detected, in relation to the hypotheses previously formulated. We present findings from the 5 experiments run, for both the product category analyzed: for each experiment we comment results in relation to the hypothesis suggested.

Chapter 6 is the conclusive section: in that part we outline our findings starting from the theoretical framework applied to generate our statements. We discuss our findings, illustrate limits and future directions of this research.

Finally, we outline some managerial implications and make some concluding remarks.

Chapter 2

Theoretical Background

2.1 Expected Utility Theory

Research in behavioral decision making has been divided in two different streams, one regarding judgments and the other regarding decisions.

Researches on judgments are characterized by similarities between perceptions and previsions and the main focus is on the key process through which infer events outcomes and consequences.

The second research stream is connected to theories on decision problems and aims to understand how individuals select their actions to reach their goals. In this sense, often, perception of rationality serves as a benchmark to evaluate decisions quality, and test if expectations, preferences and the ideal outcome are consistent.

Although research in this field is moving towards a more behavioral and psychological direction, expected utility theory has been the dominant approach for the analysis of decision making under uncertainty for several decades and it has been accepted as a normative model of rational choice under uncertainty (Keeney and Raiffa, 1976).

According to this perspective, decision makers are perfect rational agents, who have well defined preferences that are independent of alternatives presentation or selecting options methods. Every alternative has a utility subjective value which depends only on alternative's characteristics. Moreover, decision makers are seen as able to process all information on alternatives and on attributes and to compute utility scores for each option: in this way decision makers can make the optimal decision, choosing perfect alternative just by maximizing utility function. According to these assumptions, the choice context is an exogenous factor, because all elements and all information useful for decide are well known (Egidi, 2003). Maximization utility theory states that it is possible to describe every economic behavior undertaken by a rational agent through the use of some axioms (Friedman and Savage, 1948; Arrow, 1971).

In particular, Von Neumann and Morgenstern (1944) defined an *expected utility function* over *lotteries*, or gambles. In order to build a utility function over lotteries, or gambles, its necessary to make some assumptions on people's preferences. We briefly present axioms described by the authors.

1) **Completeness:** For any 2 gambles x and x' in X, either x is preferred to x' or x' is preferred to x. This means that individuals that have preferences over outcomes, can rank them all.
2) **Transitivity:** For any 3 gambles x, x', and x" in X, if x is preferred to x' and x is preferred to x", then x is preferred to x".
3) **Continuity:** This assumption states that the upper and lower contour sets of preferences over lotteries are closed. Along with the other axioms, continuity is needed to ensure that for any gamble in X, there exists some probability such that the decision-maker is indifferent between the "best" and the "worst" outcome.

4) **Monotonicity:** A gamble which assigns a higher probability to a favorite outcome will be preferred to one which assigns a lower probability to a favorite outcome, as long as the other outcomes in the gambles remain unchanged.
5) **Substitution:** When a decision-maker is indifferent between two possible outcomes, then he will be indifferent between two lotteries which offer him those outcomes with equal probabilities, if the lotteries are identical in every other way. That means that the outcomes can be *substituted*. If outcomes x and y are indifferent, then one is indifferent between a lottery giving x with probability p, and z with probability (1-p), and a lottery giving y with probability p, and z with probability (1-p). Similarly, if x is preferred to y, then a lottery giving x with probability p, and z with probability (1-p), is preferred to a lottery giving y with probability p, and z with probability (1-p). This last axiom is frequently referred to as the Independence axiom, since it refers to the *Independence of Irrelevant Alternatives* (IIA).

This perspective contributed to the development of decisional theory giving new insights for forecast consumer's choice behavior, but has some limits that is important to underline. This theoretical framework lacks of analyzing decisional process that leads to a certain choice and fails in the understanding of relations with decisional context. Moreover, expected utility theory can't explain some decisional behaviors empirically observed which deviate from some basic assumptions of the theory. In the following paragraph we introduce a new approach that starting from the empirical evidence that some behavior disregards expected utility rules, propose new way to study the decision process.

2.2 Prospect Theory

Tversky e Kahneman (1974; 1979) studied choice problems under uncertainty, showing that individuals who make choices tend to use some decision heuristics.

Heuristics are defined as simple cognitive structures which can reduce complexity due to the evaluation of every outcome and the assignment of a probability to each alternative.

Using this simplification processes, it is possible to evaluate and decide applying simpler operations. Heuristics are imperfect ways to resolve uncertainty and to reduce complexity: it is possible that different subjects explore the same situation with different tools, arriving to a different problem representation and decide to analyze the problem in different ways, without any warranty to reach the "optimal" representation or solution.

Prospect theory was developed by Daniel Kahneman and Amos Tversky in 1979 as a psychologically realistic alternative to expected utility theory. Starting from empirical evidence, it describes how individuals evaluate losses and gains. In their seminal article on *Econometrica*, Kahnemann and Tversky (1979) describe how individuals evaluate losses and gains: this contribution has been revolutionary for the economic theory because the authors found several instances in which some basics axioms of expected utility theory are violated.

While expected utility theory assumes that the outcomes' utilities are weighted by their probabilities, Kahnemann and Tversky discovered empirically a series of contexts in which this assumption is systematically violated. In particular, starting form empirical observation of choices and preferences distribution, they found that individuals overestimate weight of certain outcomes, compared to probable outcomes: this effect is called *certainty effect*.

When losses are possible, preferences are reversed compared to the case where there are no losses, but only possible gains. The same negative and positive prospects have exactly a reverse preference order. This finding, implicate that risk aversion detected in positive domain, mirrors a risk seeking in negative domain: this effect is called *reflection effect*. For example, while people prefer to gain 3000 for sure than 4000 with probability 80%, they prefer lose 4000 with probability 80% than to 3000 for sure.

To simplify choice among alternatives, individuals often ignore some common characteristics and focalize only on distinctive aspects: they don't pay attention to attributes shared by all alternatives to concentrate only on peculiar attributes. That tendency can lead to inconsistent preferences because it is possible to disaggregate a couple of option in common and unique features in several different ways and different disaggregating can lead to different preferences. If for example the same choice is presented in different ways so that option presentation sequence is varied, it is possible to observe contrasting decisions. This phenomenon is called *isolation effect*. Empirical evidence of those effect leads to the formulation of a new theory: prospect theory.

In its original formulation the term prospect referred to a lottery. The theory is basically divided into two stages: early phase of editing and a subsequent phase of evaluation. In the first stage, the offered prospects are analyzed and usually ordered following some heuristic so as to let the evaluation phase be more simple. The evaluations around losses and gains are developed starting from a reference point. The value function which passes through this point is s-shaped (see figure 2.1) and, as its asymmetry implies, given the same variation in absolute value, there is a bigger impact of losses than of gains (loss aversion).

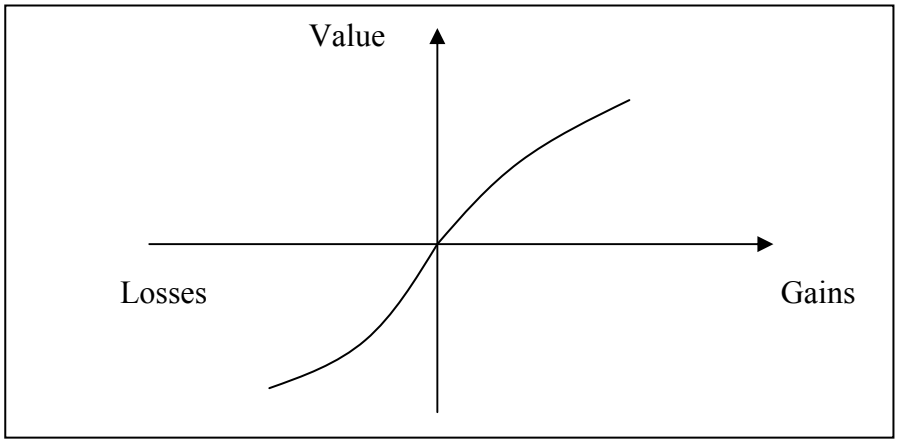

Figure 2.1: Value function

Editing consists in several operations due to organize and reformulate the alternatives so that subsequent evaluation and choice are simplified. The major operations of the editing phase are: 1) coding: that depends on the formulation of different outcomes and on the expectations of the decision maker; 2) combination: that refers to the simplification process associated with the combination of the probabilities associated to identical outcomes; 3) segregation: that refer to the separation of riskless outcomes from risky outcomes; 4) cancellation: that implies the ignorance of common components shared by different outcomes. As Kahnemann and Tversky underline, many anomalies of preferences result from the editing phase: for example, in most cases, the order of options can influence preferences distribution and the same group of alternatives could be edited in different ways depending on the context in which they appear.

Some behaviors observed in economics, like the disposition effect or the reversing of risk aversion/risk seeking in case of gains or losses (the reflection effect), can be explained referring to the prospect theory. An important implication of prospect theory is that the way economic agents subjectively frame an outcome or transaction in their mind affects the utility they expect or receive.

This aspect of prospect theory, in particular, has been widely used in behavioral economics and mental accounting.

2.3 Preferences construction

"The process of preference measurement may be more like that of an architectural project, building a defensible expression of values, rather than an archaeological project, carefully uncovering well-defined values that are there".

Gregory, Lichtenstein, & Slovic, 1993

Over last 25 years, limits to expected utility theory lead to the rise of alternative ways to study choice problems under uncertainty. Decision is just the final result of a complex process that passes through the ability of processing the information necessary to make a choice. Classical decision theory fails to recognize and trace this process.

The information processing approach is based on the concept of "bounded rationality" (Simon 1955) according to which decision makers have limited cognitive capacities and as a result, are unable to process all the information necessary to make an optimal choice.. Those limitations are either cognitive, mnemonic, and computational. In a choice problem, consumers have to decide among different alternatives described by different attributes: choice difficulties are due to alternatives number, attributes number and value and to future outcomes' uncertainty. Moreover, importance of the decision together with time pressure and different cognitive abilities can influence efficacy of choice. Along these lines, it's important to specify that research on decision making has been characterized by two different approaches: one emphasizing heterogeneity's role

and the importance of individual differences (see Shilon, Kore and Zakay, 2001), the other emphasizing the role of situational factors and context effects due to the specific composition of choice set under exam (Simonson, 1989; Huber, Payne and Puto, 1982).

Present work is focalized on the second approach and studies how context factors influence choice. Bounded rationality and limited cognitive capacities are congruent with the idea that preferences are not pre-existent to choice problem, but that are built when choice process starts (Bettman 1979; Payne, Bettman, Johnson 1992; Tversky, Sattath, Slovic 1988). Recently, decision research has focused on the concept of constructive preferences so that consumers tend to construct their preferences when they need to make a decision rather then rely on a predefined and pre-existing set of preferences. As mentioned by Gregory, Lichtestein e Slovic (1993), preference formation process involve a construction that is influenced by every choice process and every choice context. This approach is derived by the observation of distortions in decision processes that make consumers to act against the completely rational behavior proposed by the classic economic theory. It has been recognized there are limits in the cognitive capability of individuals, and there is no such thing as a "perfectly rational" decision-maker.

In other words, individuals do not (necessarily) have clear and definite *a priori* preferences which become explicit *after* choice, but rather they shape preferences while they are making the decision.. An important trait of this constructive approach is that both the preferences and the process of decision making depend upon the context of choice.

According to Simon (1991), behavior is the result form an interaction among human characteristics connected to information processing ability, choice characteristics and choice context, where decision takes place. Literature on decision making has clearly documented that under uncertainty, complexity and ambiguity individuals frequently choose the alternatives able to

simplify the choice task (Novemsky et alii, 2004; Sheng et alii, 2005). When both absolute and relative preferences are uncertain, consumers usually decide to select the option that facilitate the choice task: it is in this scenario that we can verify the presence of context effects (the relationship between the uncertainty and context effects has recently been analyzed by Sheng, Parker and Nakamoto 2005).

2.4 Context Dependent Effects

"…violations of context dependence indicate that people do not maximize a precomputed preference order, but construct their choice, in light of available options"

- Tversky, 1996, p. 17 -

The term *context effect*, as defined by Prelec et alii(1997), refers to the finding that the proportion of subjects choosing a particular product from a set is influenced by the set composition in a manner apparently inconsistent with stable preferences (p. 118). That is to say, the order of preference for different options, as well as the final choice made by the consumer, both depend upon the composition of the choice set and the presentation order of the different options.

As previously mentioned, Behavioral Decision Theory literature identified the existence of several choice behaviors in contrast with rational choice model: an important group of deviations comprehend choice situations in which preferences between two alternatives is influenced by the presence of less attractive options. The term "context effect" means that the proportion of subjects who chose a particular option within a choice set is influenced by the composition of the choice set

itself, in an way that is inconsistent with preference stability rule. Choice set composition became an aspect of primary importance because it is able to influence options' probabilities and market shares.

As consumers are not able to evaluate all the outcomes, alternatives and attributes, they use choice heuristics to simplify choice problem: in this way they usually make imperfect decisions based on limited cognitive capabilities. Selection of a compromise alternative mirrors uncertainty connected to choice process, preferences ambiguity and the impossibility of processing all the information regarding alternatives, and their attributes as well as choice outcomes. Along these lines the optimal choice is impossible to pursue: consumers evaluate the choice set available and they usually opt for a "context" decision, as the middle alternative. Compromise effect, as well as the other context effects is caused by uncertainty connected to every decision task and limited and bounded rationality.

Prelec, Wernerfelt, Zettelmeyer (1997) showed that consumers use context to make inferences on the fit between brand proposed in the choice set and their preferences: that inference is able to explain a large amount of context effects as compromise and attraction effect. In particular, authors stated that consumers are frequently uncertain about their absolute preferences (in term of attribute values they prefer) but are more certain about how their preferences compare with other consumers' preferences in population. If choice set is supposed to carry information about location of other consumes' ideal point, consumers can use this to infer they preferences location. Context is a legitimate source of information for consumers who fit their own preferences with context presented.

Simonson e Tversky (1992) schematized context dependent effects using two basic principles: **trade off contrast** and **extremeness aversion**. These principles can account for context

effects previously founded in literature as the attraction effect discovered by Huber, Payne and Puto (1982) and compromise effect observed by Simonson (1989). We briefly underline those principle to better understand the nature of context effects and in particular of compromise effect.

2.4.1 Tradeoff contrast

"the same circle appears large when surrounded by small circles and small when surrounded by large ones"

- Simonson and Tversky, 1992 -

Contrast effects are present both in judgments and perceptions. The same product can appear as attractive on the background of less attractive alternatives and unattractive on the background pf more attractive alternatives. Simonson e Tversky (1992) show that contrast effect can be applied not only to a single attribute, but also to tradeoffs between attributes.

Consider the choice between two alternatives that differ on two attributes; if none of the option is clearly better than the other, the comparison between them involves also an evaluation of differences along attributes. If option x has higher quality, while option y is more convenient, choice between x and y depends on whether the quality difference overweight price difference.
According to tradeoff contrast hypotheses, choices between x and y is a function of other tradeoffs in the choice set under consideration. Preference for option x is influenced by the possibility of making comparisons with other alternatives characterized by a higher exchange rate between price and quality than that implied by x and y. For example, consider a consumer who is evaluating two personal computers, one (x) with 1 Giga of memory and a costs of $1500 and the other (y) with 0,5

Giga of memory and a cost of $1000. The choice between x and y depends on whether consumer is likely to pay $500 for additional 0,5 Giga of memory of memory.

Consumer will be more willing to opt for option x if choice set include pairs of options for which the cost of additional memory is greater than that implied by the comparison between x and y. When choosing an option, consumers compare it with other available alternatives and with alternatives that have been encountered in the past: basing upon this distinction, it is possible to identify two kinds of effects, a local effect due to the impact of the set of available alternatives, and a background effect due to the impact of past alternatives.

Local effect: Attraction or asymmetric dominance

Huber, Payne and Puto (1982), and Huber and Puto (1983) showed that it's possible to increase market share of an option adding to the choice set an option completely dominated.
Adding to a choice set composed by two alternatives A and B a third alternative C dominated by option B, will increase the attractiveness of B relative to A: in this way the probability that the dominant alterative (B) is increased by the presence of a decoy, dominated by B by not by A. (see figure 2.1)

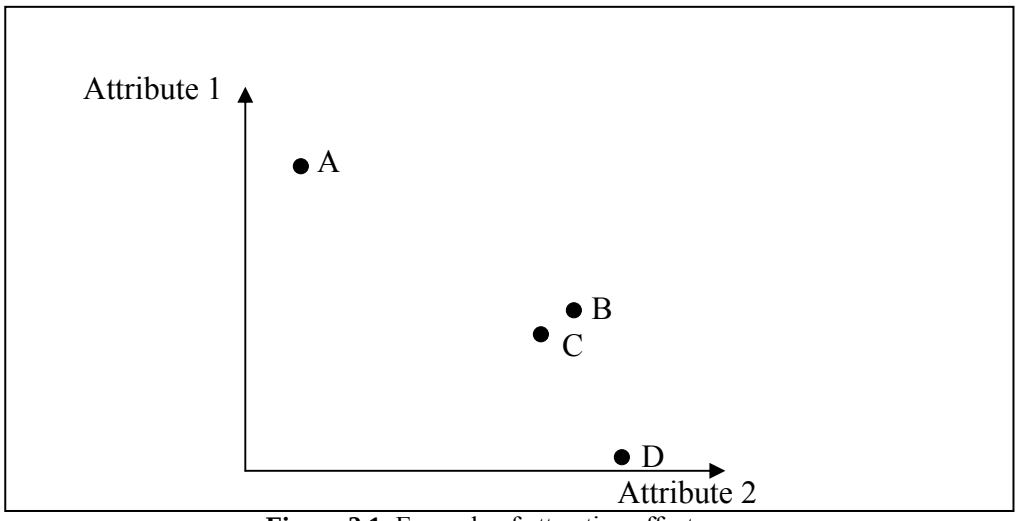

Figure 2.1: Example of attraction effect

Asymmetric advantage

Adding option D to a choice set composed by A and B will increases attractiveness of option B compared to option B because option B as a clear advantage on option D, while A doesn't.

Background effect

Simonson e Tvesky (1992) showed the existence of a particular tradeoff contrast effect, involving past exposure to other choice sets: the background contrast effect. This effect influences choice in a systematic way: alternatives considered or preferred in a choice set are able to influence choices made lately, because they create a framework for comparison.

In other words, background contrast effect occurs when the tradeoff value between attributes in a first choice influences subsequent choice. For example, consider following scenarios:

	Expensive Background	**Cheap Background**
First scenario	A: 640K a 1560$	A': 640K a 1320$
	B: 740K a 1960$	B': 740K a 1370$
	(Tradeoff 4$ for 1K of memory)	*(Tradeoff 0,5$ for1K of memory)*
Second scenario	X: 640K a 1380$	X: 640K a 1380$
	Y: 840K a 1780$	Y: 840K a 1780$
	(Tradeoff 2$ for 1K of memory)	*(Tradeoff 2$ for 1K of memory)*

Table 2.1: Background Contrast Effect

Consumers exposed to the expensive background are more prone to select the alternative characterized by higher memory because in the first scenario the cost for an additional unit of memory was 4$/1K, and in the second scenario is 2$/1K. Pc with higher memory, option Y, will be perceived as more convenient.

On the contrary, if consumers are exposed to the cheap background, when the additional cost a unit of memory is 0,5$, they will prefer option X in second scenario, because is seen as more convenient.

Recently, Priester et alii (2004) provided support for the process underling background contrast effect, providing insight into when and why the effect is likely to appear.

In particular, their research suggest that the background contrast effect emerges because thought engenders meaning by influencing the perception of applicability of the inference from the tradeoff values in the first choice on the second. According to the authors, the background contrast effect emerges because thoughtful individuals are using context in order to inform their choices. It is thought that elicits this use of context facilitating the perception of applicability. And perception on applicability causes individuals to inform their second choice from the inference available from the first.

2.4.2 Extremeness aversion

"One of the major finding that has emerged from the analysis of both risky and riskless choice is the presence of loss aversion…"

- Simonson and Tversky, 1992 -

Extremeness aversion occurs when outcomes below the reference point are weighted heavily than outcomes above the reference point. In other words, loss aversion implies that losses are evaluated heavily than gains. Loss aversion can explain a great number of phenomenon, as status quo bias, the buying selling discrepancy and the endowment effect (Kahnemann, Knetsch and Thaler, 1991; Tversky and Kahnemanmn, 1991).

To explain the presence of context effects it is possible to extend the notion of loss aversion to advantages and disadvantages defined in relation to other available alternatives instead of to a neural reference point. For example, a consumer who has to buy a DVD player and considers three alternatives that differ in terms of price and quality is likely to evaluate the advantages and disadvantages of these products in relation to each other. Assume that option A has the higher quality and higher price and option C has the lower quality and lower price and option B is the intermediate one on both attributes. The assumption that disadvantages loom larger than respective advantages tends to favor the middle option B because it has few disadvantages in relation to other options.

Along these lines, an intermediate option has higher probability of being chosen than an extreme option. This phenomenon is known as "extremeness aversion" and can generate two effects:

1. *Compromise effect*, when there's extremeness aversion on both attributes;
2. *Polarization effect*, when only one attribute is subjected to extremeness aversion. Adding third option to the choice set generate a bias towards one extreme option, but not the other.

2.4.3 Compromise effect

Compromise effect, which predicts that brands can gain share when they become intermediate options in the choice set, is one of the most important and strong effect documented in behavioral decision research: compromise effect systematically affects choice under different conditions (Simonson, 1989; Chernev, 2004; Nowlis and Simonson, 2000; Dhar and Simonson 2003; Novemsky and et al. 2004; Sheng, Parker and Nakamoto 2005).

In particular, the compromise effect denotes the phenomenon by which the share of a brand is enhanced when it is in an intermediate position into the choice set. For example, as illustrated in Figure 1, by adding to the choice set {A,B} the alternative C, (which is not clearly dominated by the existing options) the share of alternative B relative to alternative A in set {A,B,C} is enhanced. In other words, the compromise effect occurs if the choice share of option *B*, relative to alternative *A*, is enhanced when a third option C is added to the choice set making *B* a "compromise" (middle) option. This effect is a context effect because the attractiveness on an option is a function of the composition of the choice context: if that option occupies the middle position in a choice set, that option will be more likely preferred compared to the case where it occupies an extreme position.

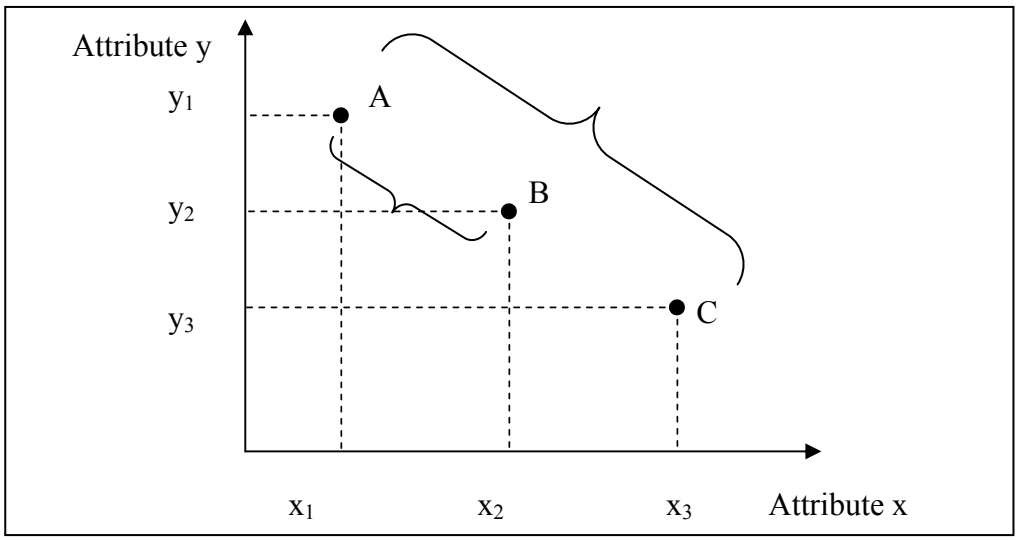

Figure 2.2: Example of Compromise Effect

In case of compromise effect, extremeness aversion affects both attributes. However, it's possible to observe a different case: extremeness aversion magnitude can influence the two attributes with different strength and so an extreme alternative is more penalized than the other. In this case we have the polarization effect.

As suggested by Kivetz, Netzer and Srinivasan (2004), compromise effect and polarization effect can be seen not as the two sole states of extremeness aversion but as the two opposite ends of a continuum. An extreme of this continuum, the polarization end, represents a case in which one or more attributes exhibit extremeness aversion and one or more attributes do not. Conversely, the opposite extreme of the continuum is the case of a purely symmetric compromise effect where all attributes exhibit extremeness aversion of equal magnitude.

In reality, it is likely that a great number of choices fall along the extremeness aversion continuum than at either end: such choices reveal significant extremeness aversion on all the attributes, but the strength of this context effect significantly varies across attributes.

2.4.4 Literature on compromise effect

Among the context effects, the *compromise effect* (demonstrated by Simonson 1989), is recently receiving increased attention (Kivetz, Netzer, and Srinivasan 2004; Dhar, Menon and Maach 2004; Novemsky and et al. 2004; Chernev 2004; Sheng, Parker and Nakamoto 2005; Carlson and Bond 2005; Dhar and Simonson 2003).

From the seminal work of Simonson (1989), in which the author introduced compromise effect in choice, several contributions explored different facets of this phenomenon.

Wernerfelt (1995) tried to reconcile compromise effect with a full rationality perspective. The main idea is that consumers make inferences from market's offer: if absolute preferences can

be unclear, relative preferences and "better" choice can be inferred form market's offerings. According to Wernerfelt, the whole market's offer reflects distribution of population's needs. Consumers use the "rank order decision rule" that suggests that choice is the result of a comparison process between an ordered set of products and the position occupied by consumers in an hypothetical order of tastes. This rule can be generated under perfect rationality assumption and, as the author show, is compatible with compromise effect.

This intuition is recalled by Prelec, Wernerfelt, Zettelmeyer (1997). Authors measure the importance of inference explanation in determining compromise effect. In particular, they state that consumers uncertain about their preferences, are more certain about "how their preferences tend to compare with other consumers in the populations" (p. 118). The "ponchos" example they report is clear and impressive. They asked to some visitors at a Boston's Museum to declare their height and to chose a poncho for rain from a set composed by three models, differentiated only by difference in length. Subjects saw only one of the sets described as follow: (32, 34, 36 inches), (34, 36, 38 inches), (36, 38, 40 inches), and (38, 40, 42 inches). The average ponchos are about 50-52 inches, so in conditions of complete information, an averaged height consumers should decide for the longest ponchos in each choice set. Only few subjects selected longest ponchos: by contrast, choice was moved by relative length. Subjects relied on product rank, without considering absolute rank as an information for choosing the best alternative: short people chose the smallest ponchos and tall people chose the big ponchos, using a small-medium-large inference to compare themselves to the hypothesized population's height distribution.

Drolet, Simonson and Tversky (2000) show that consumers do not rely on absolute preferences to make a choice, but that they rely on products positions in choice sets. Consumers accurately predict the probability of choosing a compromise alternative knowing only position

occupied in choice set and product category and ignoring attributes absolute values or the location of choice set in the markets alternatives' space. Compromise effect is consistent with the idea that consumers have knowledge regarding the shape of their indifference curve, but, the space location of that curve is not defined. Indifference curves "travel" depending on the choice set composition.

Simonson and Nowlis (2000) shift the analysis from option's choice to reason's choice. Authors studied interaction between Need for Uniqueness (Snyder and Fromkin, 1977 scale) and providing explanation for choice. Explanation and representation of reasons driving choices are usual phenomena: consumers often explain to others why they opted for a certain alternative and that can influence the decision process. Combining this mechanism with the measurement of Need for Uniqueness, authors found interesting implications for compromise choice selection.

The compromise alterative is seen a "safe choice" easy to justify in front of others and less subjected to criticisms (Huber and Puto, 1983, Simonson, 1989): selection of compromise option and reasons used to justify that choice to other is perceived as conventional, not unique or original. Simonson and Nowlis found that when consumers have to provide reasons for their choice and they are high in Need for Uniqueness, they tend to avoid the selection of compromise effect.

Similarly, Briley, Morris, Simonson (2000) analyze the interaction between choice explanation to others and cultural differences. Eastern an western culture differ in their relationship with need for justifing their choices: as authors reported "East Asian cultural heritage valorize moderation and harmony in a conflict, whereas the North American cultural heritage endorses decisions between the conflicting interests that sacrifices one for the other" (p. 158). As a result, authors found that, even if exponent of those two cultures do not differ in terms of response to the same problem when no reason is required, they differ significantly when they face a problem that

require to justify and explain their choices. In particular, under those conditions, compromise effect in enhanced for Eastern culture and weakened in American culture.

Analyzing social component of compromise effect, Hamilton (2003) showed that people build compromising scenarios when they have to influence other's choice. That means that consumers are aware of compromise potential influence, but they do not "resist" to that influence even if they believe that the choice set has been created to influence their choices.

Dhar, Simonson (2003) showed that forced choice has an impact on the likelihood of selecting middle option and as a consequence on the strength of compromise effect. Authors found that the no-choice option competes directly with options usually chosen under uncertainty, when preferences are unclear (e.g. compromise option). As compromise effect is the result of preference uncertainty and serves as a decision simplifier (middle option is seen as easy to justify and safe decision), the introduction of that no-choice option serves the same purpose, decreasing difficulties due to decision process. When no-choice option is available, compromise effect decreases.

Chernev (2004) showed how being in a middle position is not the only way for an alternative to be perceived as a compromise option. Extremeness aversion phenomenon, that generates preferences for the middle option, "is also a function of the dispersion of attribute values within each alternative" (p.213). Chernev's work questions the assumption that extremeness aversion is only based on choice set relation properties. Attributes ratings can serve to construct a reference point used to evaluate the "extremeness" of alternatives: middle option is not always the only way to compromise. An attributes balanced alternative can serve as middle option and can generate the extremeness aversion phenomenon that causes compromise effect: context effects occur also without a context. Along these lines, Chernev (2005) illustrated that the attribute-balance option serves as a reason for choice, as it happens for the middle option.

Recently, literature on compromise effect explored the possibility of modeling such effect. Kivetz, Netzer, Srinivasan (2004) proposed four choice models that account for context dependent effect, in particular, for compromise effect. Models presented consider choice as a constructive process and consumers' preferences are influenced and modified by the composition of available choice set.

Sheng, Parker and Nakamoto (2005) propose that expected loss minimization is the mechanism underling the compromise effect and try to find some moderators for that effect. Familiarity with product category, and uncertainty can vary the strength of compromise effect: when familiarity is higher, consumers are less prone to compromise, and when uncertainty is higher consumers are more prone to compromise.

Novemsky, Schwarz, Simonson analyze weather "preference fluency" affects choice: preference fluency is defined as "the subjective feeling of ease or difficulty experienced while making a decision". Authors examine the impact of this fluency effect on compromise effect and other context effects. Some alternatives are selected not because they are preferred, but because they are the easiest way to resolve the choice problem (Dhar and Simonson 2003): compromise option can be selected because represent the simpler way to resolve decision complexity. Authors directly manipulate sense of difficulty, varying subjective fluency experience with variables that are irrelevant for the context of choice (e.g. difficult to read font). Results show that compromise effect is enhanced when preference fluency is decreased.

As we mentioned, prior research on context effects focused to document the existence of these phenomena and to find explanations as well as possible moderators. (Simonson 1989; Benartzi and Thaler 2002; Chernev 2004; Dhar, Nowlis and Sherman 2000; Drolet 2002; Nowlis and Simonson 2000; Huber, Payne and Puto 1982). Although more recently the possibility of

modeling such effects has been explored (Kievetz, Netzer and Srinivasan 2004), limited effort has been made to investigate whether and how their intensity varies over repeated choices.

As shown by the examination of presented literature on compromise effect, research on context effects has extensively focused on the static nature of the phenomena, looking at how consumers react when exposed to different choice sets. In fact, most research on choice focuses on decision rules by which consumers select an option among a set of alternatives as both choices and alternatives were completely independent of any other choice. This implies that choices are analyzed as one shot events, thus time-invariant events. Obviously this approach disregards several factors like correlation among choices (i.e. sequence of non independent decisions); dynamic nature of information availability and time-dependent relationship among alternatives within choice sets. This approach, however, fails to recognize the role of the process that leads people arrive to these choices and whether time-varying conditions (i.e. information availability) can influence the consistence of these effects.

Recent work has tried to investigate how the correlation among different choice situations can influence choice tasks (Dhar and Simonson 1999; Khan and Dhar, 2005; Dhar and Novemsky, 2005) but no effort has been made to explore how time-varying conditions affect the robustness of context effects. The only exception is represented by Drolet (2002).

Drolet (2002) analyzed on the dynamic aspects of context effects, demonstrating that consumers have a tendency to vary their use of decision rules apart from options and set characteristics.

In particular, in her research the author contests the assumption that the decision process is stable over time: as options selected tend to vary over time, also decision rules applied to select preferred option are susceptible to a variety seeking behavior. Drolet tests the hypothesis that consumers look for variety not only in the context of product choice, but also in the context of

decisional rule choice. In particular the author shows that when consumers have to face contiguous choices they tend to change the decisional rule that they apply: if consumers use the compromise heuristic for deciding between 3 CD player, they'll tend to prefer the extreme option when they decide between 3 TV color, in the subsequent choice.

In the first choice task consumers tend to apply the decision heuristics demonstrated by Simonson (1989), but along subsequent decision they tend to vary the heuristic "selected" and they avoid to choose again the compromise option. In other words, for changing sake, consumers change choice behavior along subsequent choices and among different product categories, and tend to apply different heuristics. This need for change is connected with need for uniqueness: the author found that consumers who value change more because of their higher need of uniqueness show a greater inherent rule variability compared to consumers who value change less. Drolet studied the tendency in changing decision rules among different product category, which exposing consumers to different choices task in different categories. More over, her work considers only contiguous choices, defined as choices made with no time elapses between two choice tasks.

What remains not clear is what happens when people don't have clear preferences and are not sure about their favorite option. In this case, are consumers prone to change their decisions over time for sake of variety or they will rely on the same decision heuristic?

The present study focuses on the evolution of context effects, and in particular the *compromise effect*, hypothesizing an array of choices repeated in a period of time during which the consumer is subject to added information regarding the alternatives taken into consideration. More specifically, the objective of this research is to examine if the repeated exposures to the same choice set could influence the presence and the strength of the compromise effect and if there is an

interaction between the amount of information acquired at each different choice task and the evolution of the compromise effect.

The main concern of this research is to analyze the evolution of the compromise effect over time observing a panel of respondent exposed to two choice tasks on the same product category: if consumers are asked to make a choice twice over time (with a time separation between the two choice tasks) the repeated choice phenomenon is supposed to have impact on the tendency to select the compromise option because of the altered level of familiarity with product category. The increased product familiarity experienced during the second choice task will lead to a decrease in the uncertainty and in a resulting decrease in the choice if the compromise option.

Moreover we want to analyze how the exposure to different degree of information, acting upon the uncertainty tied to a choice task, contributes to strengthen or weaken the intensity of the context effects, depending up on the nature of the information provided. In this study, we analyze two different sources of information that represent two of the most studied aspects of the compromise effect: information about the number of product attributes examined and the information about social behavior. These two components are also logically two of the principal source of information to which consumers are exposed in real choice situations especially if choices are repeated over time.

Our expectations are that giving more information about the alternatives taken into exam, in terms of number of attributes with which products are described, will lead to and overload of information to process and will increase confusion connected with choice; under this conditions our expectations are to observe a stronger compromise effect. If information added is about social behavior and in particular about the preferences showed by other consumers, we hypotheses that the

compromise effect will be weakened because this new information is capable of driving choice and make the decision process easier.

Chapter 3

Research Objective and System of Hypothesis

3.1 Overview

In this research we want to study how compromise effect evolve over repeated choices. Together with this objective, we are interested in understanding if the amount of information available at the time of the choice can affect the presence and vary the magnitude of compromise effect. As third objective, we want to combine both the effect due to repeated choices and the effect due to the amount of information availability: we want to study if additional information acquired over repeated choices change the compromise pattern.

It's highly plausible that over time, consumers are exposed to an increasing amount of information: while undertaking first choice task in a product category consumers are usually characterized by limited stock of information both on product attributes and on other consumers' preferences. While time goes by, consumers become more "experienced" and have more information on product characteristics, for instance, as a result of advertising exposure, and are more aware of others' preferences as a results of word of mouth and brand popularity.

We want to study, both in static and dynamic perspective, the impact of increased attribute number and information on social behavior on the strength of compromise effect.

The present study is organized in three essays to study three possible source of influence for compromise effect: 1) repeated choices; 2) increased attribute number; information on social behavior.

First essay aims to examine time evolution of compromise effect and to understand if the effect is stable, reinforced or diminished over repeated choices. This essay represents a base line for the following studies.

The purpose of second essay is to analyze the impact of information on product attributes on the strength of compromise effect. To isolate the effect due to repeated choices and the effect due to the increased number of attributes, we run two studies that we identify as "static" and "dynamic". The static experiment does not involve repeated choices: we test if different groups of consumers exposed to different choice sets characterized by a different number of product attributes show different patterns of choice with respect to compromise effect. The dynamic experiment involves repeated choices: the same group of consumers evaluates over time different choice sets, characterized by different number of product attributes.

Third essay studies the impact of information on social behavior on compromise effect. We want to understand if information congruent with compromise scenario contributes to enhance this effect, compared to information inconsistent with compromise scenario. Again we want to separate the impact of repeated choices form the impact of information on social behavior. To do so, we run two studies, one involving repeated choices and one involving just one shot decision. The so called static experiment analyzes the effect of information on social behavior affect the presence and the strength of compromise effect. We analyze two cases: 1) when information on others' choice

behavior regards the compromise option and thus is consistent with the compromise scenario (social behavior is on socially justifiable compromise option); 2) when information on others' choice behavior regards about the extreme alternative and is in contrast with the compromise scenario. In the dynamic experiment consumers are exposed to information on social behavior only after an initial choice characterized by absence of information on other consumers' preferences.

Essays	Description
Essay 1: COMPROMISE EFFECT OVER TIME	- "Dynamic" study with repeated choices
Essay 2: INCREASED ATTRIBUTE NUMBER	- "Static" study with increased attribute number - "Dynamic" study with increased attribute number over time
Essay 3: INFORMATION ON SOCIAL BEHAVIOR	- "Static" study with information on social behavior (preferred choice is either option A or option B) - "Dynamic" study with information on social behavior (preferred choice is either option A or option B)

Table 3.1: Summary of Essays' structure

3.2 Essay 1: Compromise effect over time

Literature on compromise effect documents that when consumers have uncertain preferences and make decisions between different options, they tend to prefer the middle option. This study

wants to analyze what happens during a second choice task, when consumers make a similar choice with a time elapses.

Some evidence has shown that consumers are aware that context effects may take place and that some choice sets could be manipulated so that one option can result as the more attractive compared to the others. As a result, people predict that others may choose the middle option from a choice set (Nowlis and Simonson, 2000), and more over, people who are aware of the possibility that the choice set is built to facilitate the selection of the compromise option seem not to resist from choosing the middle option (Hamilton, 2003).

In the marketing literature, there is a lack of research regarding the evolution of preferences and heuristics over repeated choices; the most relevant contributions are focused on subsequent choices or on contiguous choices.

Dhar and Simonson (1999) argue that within the same consumption episodes there is a tendency of highlighting vs. balancing decision behavior as a function of the attributes taken under consideration. Building on a distinction between goals and resources the authors propose that in episodes involving a trade off between a goal and a resource (i.e. pleasure and monetary cost) consumer tend to highlight selecting similar attribute levels for items consumed in the same episode. Otherwise, when each choice involves a trade off between two goals (pleasure and health) consumer tend to balance attribute levels. The authors define consumption episodes as "a set of items belonging to the same vent and occurring in temporal proximity". Another important finding of that research is that there is a tendency toward balancing in episodes involving two identical items (cigars – enjoyable and expensive vs. less enjoyable and cheap) and any tendency found is a function of temporal proximity of the two episodes. In particular, there is independence if two choice decisions are separated temporally and if two choice decisions are logically unrelated.

In a different context, Drolet (2002) contests the assumption that the decision process is stable over time and test the hypothesis that consumers look for variety not only in the context of product choice, but also in the context of decisional rule choice. In particular the author shows that when consumers have to face contiguous choices they tend to change the decisional rule that they apply: if consumers use the compromise heuristic for deciding between 3 CD player, they'll tend to prefer the extreme option when they have to decide between 3 TV color. In the first choice task consumers tend to apply the decision heuristics illustrated by Simonson (1989), but along subsequent decision they tend to vary the heuristic applied and they avoid choosing again the compromise option. In other words, for the sake of variety, consumers change choice behavior along subsequent choices and among different product categories, and tend to apply different heuristics.

This need for change is connected with need for uniqueness: the author found that consumers who value change more because of their higher need for uniqueness show a greater inherent rule variability compared to consumers who value change less. That research is one of the few studies that analyzes the dynamic evolution of the decision process and in particular the stability of the heuristic applied in choice. Drolet's results are particularly important because they shift the focus from the stability of product choice over time, to the stability of the decision heuristic over time: the research represents a first contribution to understand how the decisional rules vary over time and to understand if context effects are stable among subsequent choices. The notion of contingent decision making may apply to decision processes as well as to decision outcomes and most important, the prevalent view that preference are constructed can be broadened since also decision process seems to be constructed.

Even if extremely important, this work is limited to the analysis of different product categories: the author focuses her attention on contiguous choices that are subsequent choices of different products.

To better understand the evolution of the heuristics is necessary to expand the focus of the analysis and center the attention on repeated choices in which the same consumer is called to decide between different choice sets over time. Beside the cases in which consumers have to chose and buy the same product more than once in their lives, like in the case of buying for substitution or in case of buying non-durable goods, consumers are often called to make choices within the same product category when they have to buy presents for family or friends.

The present research want to explore how people use decisional rules over repeated choice tasks, but within the same product categories. The relevance of this application lasts in the fact that consumers have often to make purchase decisions within the same product category over time. Understanding how repeated choices can influence the evolution of the heuristic applied over time, could spread some light on dynamic evolution of preferences, and could give important indications about products positioning strategies.

Studying determinants for compromise effect, Sheng, Parker and Nakamoto (2005) pointed out that when evaluating a focal alternative, individuals take into consideration comparative characteristics of other alternatives rather than only the features of the focal alternative, complicating the decision-making process: context effects are less likely to play a role when consumers have established preference structure.

The authors found that when consumers are uncertain about values of alternatives, they are more likely to use the context in decision making (Simonson & Tversky,1992). Moreover, a results of their research is that compromise effect is moderated by the level of product familiarity: the more

familiar is an individual with a product, the less likely will choose the compromise alternatives. When consumers are less familiar with or less knowledgeable about a product category, they will be more likely to choose the compromise option.

Consumers' familiarity with products or brands plays a critical role in information processing and brand evaluation (Alba, Hutchinson,1987; Fazio,1986; Johnson, Russo, 1984). As pointed out by Sheng et alii (2005), familiarity can be used to reflect a consumer's knowledge: following the authors, we use the same measure of familiarity with product category as a proxy on consumer's knowledge. In particular, we analyze how changes in perceived familiarity affect the probability of choosing the compromise alternative. Increased familiarity leads to better developed knowledge structures about the product: these knowledge structures often include evaluative criteria and rules, which facilitate consumer's judgment of superiority of certain products in a choice set and subsequent development of preferences (Marks and Olson, 1981). Under those circumstances, an option is less likely to become a consumers choice simply because is the compromise.

Since one of the key element of this study is the analysis of the compromise effect over time, the concept of product familiarity gains a central role for two main reasons: the concept of familiarity is connected with the concept of compromise effect in a way that the first one is a moderator by the second one; moreover the concept of familiarity has a dynamic nature, as is connected to repeated exposure to the product category. In other words it is something that a consumers acquire over time through experience. This learning process plays a critical role in the comprehension of the dynamic evolution of the compromise effect over time , and even more when there is an increase in the amount of information available over repeated choice experience. We

briefly analyze different operationalization of the concept of product familiarity and review the main contributes on the argument.

3.2.2 Familiarity with product category

Over the last decade, several studies have focused on the role of prior product knowledge on the use of information and in product choice. As recalled by Rao and Monroe (1988), in the marketing literature, when referring to prior knowledge, the terms expertise, familiarity and experience have been used in an interchangeably way. Alba and Hutchinson (1987) proposed a differentiation identifying two separate components: familiarity and expertise. Familiarity is defined as the number of product-related experiences accumulated by a consumer, whereas expertise is defined as the ability to perform product-related tasks successfully. Along this line, the concept of experience is a necessary but not sufficient condition for expertise.

Rao and Monroe (1988) define prior product knowledge (or familiarity) in terms of what people perceive to know about a product or a product class. This definition encompasses the subjective knowledge people perceive to know and is composed by what they actually know and by their self-confidence in the amount and type of knowledge held in memory (Park and Lessing, 1981). Decision maker's current knowledge of a topic affects the processing of new, topic related information.

In consumer behavior literature, knowledge of a product class and product familiarity are used as synonymous and have been a feature of both traditional (Howard, 1977) and more recent information processing theories of consumer choice (Bettman, 1979).

Johnson and Russo (1981) examine two plausible and conflicting hypothesis to describe the relationship between learning and information process. The "enrichment" hypothesis suggests that existing knowledge facilitates the learning of new information: prior knowledge of the domain

facilitates learning according to the "rich get richer" alikeness proposed by the authors. That relationship would generate data similar to an exponential curve. The second hypothesis suggests that prior knowledge as an inverted U effect, and in contrast to the enrichment hypothesis suggests that highly familiar consumers may search less information than those who are moderately familiar. Results in support of the inverted U hypothesis are applied to the search of external information: Bettman and Park (1980a) found such a pattern in consumers acquisitions of information about microwave ovens, and Miyake and Norman (1979) found that the number of questions asked about a new domain has an inverted U relationship with familiarity with similar domains. But it's possible to extend that hypothesis also to describe the amount of knowledge remembered after search , predicting a curvilinear relationship between existing product knowledge and the amount of new information learned about product class.

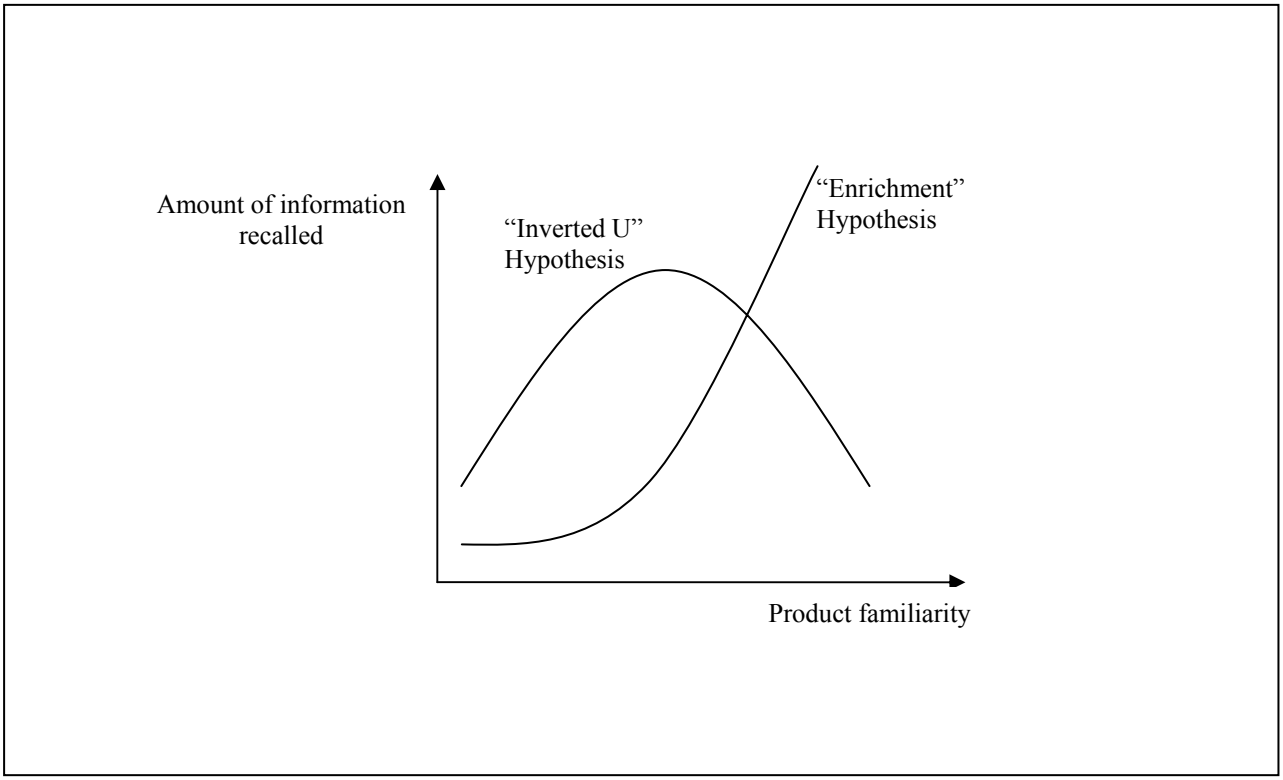

Figure 3.1: Familiarity

In a later study (1984) Johnson and Russo try to reconcile the different predictions that derive from the enrichment hypothesis and the inverted U hypothesis: they propose the existence of a mediator that will produce a different outcome from the relationship between familiarity and information earning. In particular, the authors show how familiarity with a product class could affect consumers' information processing skills in different ways. First of all, familiar consumers have a superior knowledge of existing alternatives: highly familiar consumers will be more likely to know specific facts concerning existing alternatives. As suggested by Bettman and Park (1980a) knowledge decreases search for highly familiar consumers when they are considering different alternatives. Moreover, familiar consumers may develop knowledge about the plausible relationship among elements of a product class: this knowledge allows familiar consumers to encode information about new alternatives more efficiently and, as suggested by the enrichment hypothesis, causes an increasing in learning.

Additionally, familiarity can lead to superiority in processing of both novel and existing products; a key facet of expertise, is the ability to select relevant information while ignoring information irrelevant to the task at hand (Larkin et alii, 1980). More familiar consumers may use their knowledge of the product class to limit their attention to information which is important to choice. At the same time, their superior encoding skills mat be offset by their superior ability to separate relevant from irrelevant information: when the external information contains irrelevant information, experts may search and remember less of the externally available information.

According to the authors, the impact of familiarity may depend upon the relative importance of the three skills discussed above, and to understand that relationship is important to focus on the "relative importance of superior encoding skills versus superior information selection skills" (p.543).

The core of Russo and Johnson's investigation lasts in the analysis of a possible mediator to the familiarity-learning relationship: the mediator of the familiarity effect taken into consideration is the task consumers are called to perform for measuring consumers preferences. They distinguish between a choice task, defined as "choosing an alternative from a set", and a judgment task, defined as "constructing an overall evaluation of an alternative". A large body of research (e.g. Bettman and Park, 1980b; Johnson and Russo, 1978) reports evidence that some alternatives are eliminated quickly on the basis of few values and not examined further. That kind of search is selective and as a consequence, consumers often have less knowledge of the eliminated brands. By contrast, judgment requires a rating of each product on a scale of overall preferences and therefore overall judgments are made for each alternatives: the same amount of information is examined for each alternative (Payne, 1976). The main difference between the two tasks that is relevant in this context, is the amount of knowledge and information required to perform the evaluations.

According to their results, in the case of judgment, the superior encoding ability of more familiar consumers should dominate producing a monotonic relationship between familiarity and learning, showing the presence of the enrichment effect. In case of choice, contrarily, the information election skills of the most experienced consumers dominate their superior encoding ability producing a decrease in the external and subsequent learning: in this situation a highly familiar consumer's ability to select information should cause a decrease in the learning of new information that characterize the inverted U hypothesis.

Those results are particularly interesting for the present research because we concentrate on the choice task and we are interested in the analysis of the product familiarity on compromise effect. If we introduce the time element, the shape of the relationship between learning and familiarity gains a focal importance.

Since consumers are often called to make the same decision more than once, one of the purposes of the present study is to understand how the compromise effect is affected by repeated choices within the same product category, for example consumers may have to buy another CD player to substitute an old one, or to put the new one in another place, or make a gift.

In this situation, the determinants of the compromise effect, preferences uncertainty and familiarity with product category, become a function of the repeated choice. Consider the possibility to detect compromise effect during the first choice task (at time 1) as a result of preferences uncertainty: in the second choice task consumers already had a previous experience and so they are more familiar with the product category and they chose an alternative, so they are less uncertain about their preferences.

Our expectations are that the compromise effect will decrease along the two choice trials as a result of an increase in familiarity with the product category (familiarity is defined as the number of product-related experience that have been accumulated by the consumers, Alba and Hutchinson, 1987) and a decreased uncertainty about their preferences. Over time and within the same product category the compromise will decrease.

H_1: Compromise effect diminishes over repeated choices (with a delay on time) into the same product category.

3.3 Essay 2: Number of product attributes

Dhar and Simonson (2003) showed that some options are selected not because they are preferred but because they help resolve a difficult decision. In particular, many consumers who select a compromise option find the decision to be difficult and view the middle option as a way to resolve this difficulty (Simonson, 1989). So, it is possible that when choices become more difficult, options viewed as able to resolve conflict and more easily justifiable will gain share.

Choice sets that encompass more information tend to result in lower quality of the choice being made, lead consumers to be more selective in the information acquisition, thus to process less data (Lurie 2004). In particular the structural approach to information "suggests that are multiple dimensions determining the amount of information that consumers should be processing when making choices among given set of alternatives these are the number of alternatives, the number of attributes, the number of different attribute levels and the distribution of attribute levels across alternatives" (Lurie, 2004 p.474). Basing on this approach, the increase in the number of attributes being processed may represent a dimension of information availability and of information availability change when such number varies.

Different studies have shown that when the number of attributes presented in the choice set increases, the quality of choice being made diminishes (Jacoby et al. 1974; Keller and Staelin 1987; Malhotra 1982). In fact, the augmented number of attributes and their relative levels expand the information pool that a consumer has to process, leading to a higher level of uncertainty associated to the explicitness of preferences (Lurie 2004; Lee and Lee 2004). The increase in the number of attributes influences consumers' computational effort, complicates the decision task, and raises the underlying uncertainty. As a result under similar conditions we expect a strengthening of the context effects.

$H_{2:}$ Compromise effect is enhanced when the number of product attributes increases

In real consumption experience, consumers are exposed to an increasing amount of information over time: when they have to make the same choice twice, it's plausible that the second time they have to process more information, because new product characteristics are highlighted by the producers. When more information is added over time, consumers face an interaction between two effects: on one side, a repeated choice within the same product category generates a sense of familiarity with the product category, on the other side, the increased amount of information can rise more confusion and uncertainty.

Under those conditions we face two different effects that have different signs: increased product familiarity leads to a decrease in the strength of the compromise effect, while increased amount of information leads to an increase in the strength of the compromise effect. To better understand the nature of that interaction is important to analyze in more details the nature of the effect of the increasing amount of information.

Contrarily to the static condition in which two different groups of consumers are called to make two choices one characterized by limited information on product attributes and the other characterized by more information about product attributes, here we have the same consumers exposed to an enrichment of the choice information: the second choice setting is characterized by more product attributes.

Under those circumstances, we can not expect to face the same level of confusion experienced in case of one shot choice: even if the number of attribute is increased consumers made a very similar choice and the familiarity acquired can overcome the uncertainty. In particular, the previously cited the inverted U relationship between familiarity and learning within a choice task

(Johnson, Russo, 1984): the amount of information recalled during a choice task is a function of familiarity and the shape of that function is an inverted U. This means that experienced consumers use their knowledge of the product class to limit the search of information and that this decrease could be due to prior knowledge of information presented in the environment (Bettman and Park, 1980). More interesting, Johnson and Russo (1984) found that experienced consumers have an increased encoding ability and develop knowledge of efficient decision procedure: they would ignore some attributes because they realize that those attributes are simply the combination of other known information.

Along these lines, the familiarity acquired during the first choice task will reduce the complexity connected to the increased number of attributes that characterize the second choice (for example let's say that the increased number of attributes is 4): consumers will process only the information that they judge relevant reducing the confusion and the uncertainty that is typical of a one shot decision in which products are described by the same number of attributes (4 attributes). The effect of the uncertainty is mitigated by the past experience and so, the compromise effect will decrease by the effect of a higher familiarity with the product category.

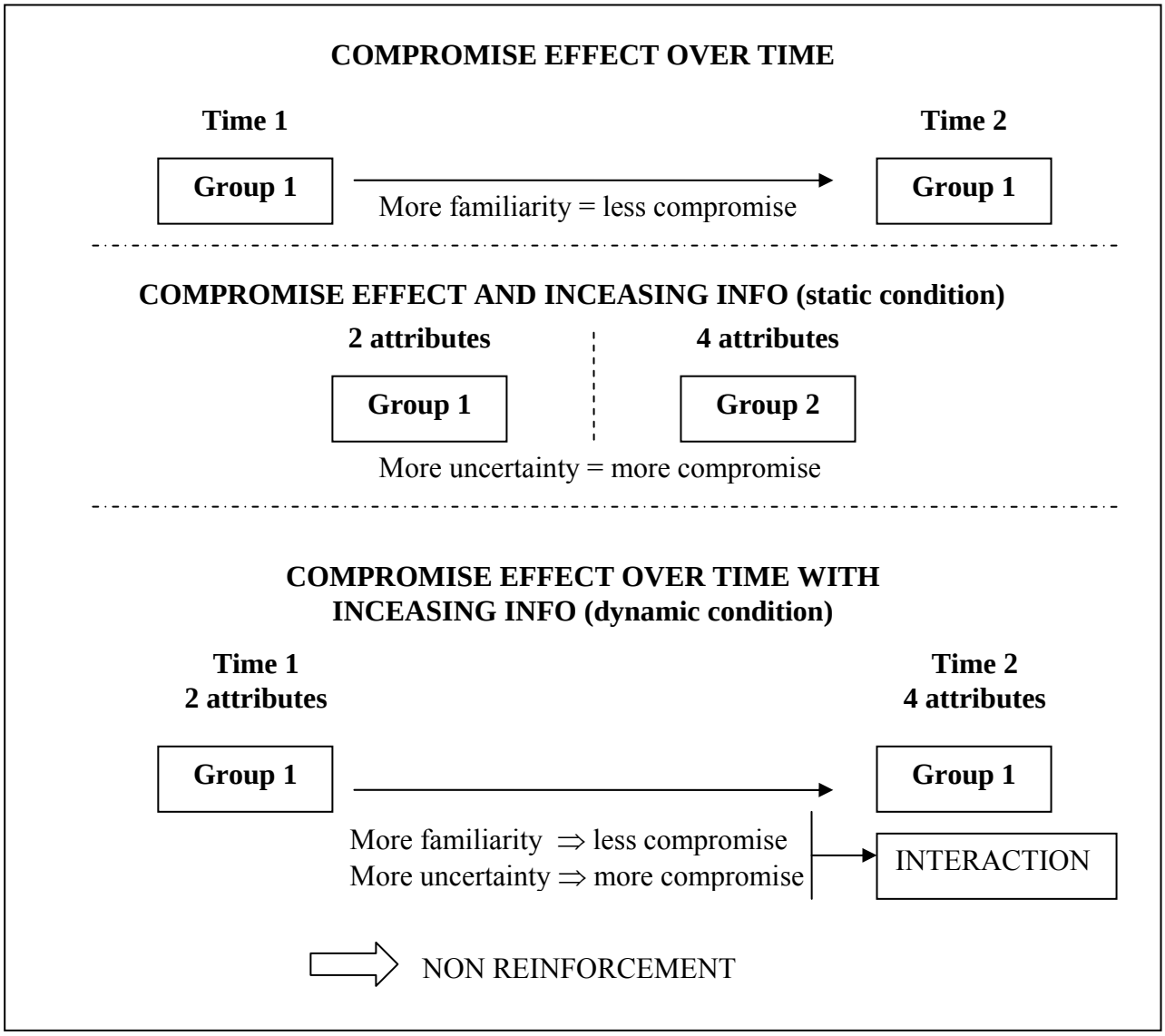

Figure 3.2: Structure of Experiment 3

The effect that we anticipate in case of the same amount of information over time (first section) influences also the choice in case of an increased information: at time t2 when the consumers face again a decision within the same product category, the amount of information has changed and consumers have to re-elaborate the decision.

In this situation, the familiarity effect (partially) overcomes the difficulties experienced in the processing of the bigger amount of information, resulting at least in a non-increasing of the compromise effect.

$H_{3:}$ *Compromise effect is not enhanced when the number of product attributes increases along repeated choice tasks (dynamic condition).*

$H_{4:}$ *When the number of product attribute is increased, compromise effect is stronger for consumers who made only one decision (with more than 2 attributes) than for consumers that previously made a decision with few attributes. (comparison)*

3.4 Essay 3: Information on Social Behavior

According to Simonson (1989), consumers choose the compromise alternative because they search an alternative that is easily justifiable and because they need to be favorably evaluated by others. More generally, it is shown that context effects are characterized by a strong social component (Simonson 1989; Prelec, Wernerfelt and Zettelmeyer 1997). Choices made under uncertain preferences can be argued to be influenced by choices made by other individuals. Nowlis and Simonson (2000) have documented that having to foresee the choices of others, individuals tend to mainly select the middle option (compromise effect). Consumers are aware of the fact that compromise effect is an "easy-to –justify" choice and hence predict that other people would opt for the compromise alternative. If the context alternatives are seen as more socially justifiable, the

availability of information concerning other consumers' choices can minimize the need for further "social justification" and facilitate the selection of the alternative that has already been selected by others. Giving information regarding choices of others, we expect a decrease of the *compromise effect*.

The main idea that drives this section is that a piece of information that is socially relevant is able to drive the decisions made for preferences uncertainty from the compromise option to the most chosen alternative. In other words, if consumers are informed that one alternative is the most chosen by other consumers, they may use this piece of information to drive their choice especially if they are uncertain about their preferences: in this case, the mechanism that usually would drive to the selection of the compromise option may in this case, drive to the selection of the most chosen alternative.

We distinguish the two cases when social relevant information is about the compromise alternative (option B) or about the extreme alternatives (option A).

In particular, when extreme option A is the most chosen alternative, we hypothesize that this cue on social preferences fulfill need for justification: under those conditions, compromise effect decrease and option A become the most chosen option. We contend that:

> $H_{5a:}$ *When extreme alternative A is the most chosen by other consumers, compromise effect is strongly reduced.*

On the other hand, when information is about the compromise alternative B, that option become the preferred alternative. Similarly to the previous case, piece of information on other consumers' choice serves as socially justification for choice: middle option B is the most chosen as

in case of compromise effect, but in this case is social information that influences preferences for that option. Compromise effect is computed as delta share of option B over extreme option A when they are part of a binary set (A,B) compared to the situation in which they are part of a ternary set (A,B,C).

When option B is also the most chosen by others, it is preferred option both in the binary set and in the ternary set: delta between those conditions is strongly reduced as compromise effect. In particular, in one shot decision, we content that:

H_{5b} : When compromise alternative B is the most chosen by other consumers, it's share increases, but compromise effect is diminished.

As for information on product attributes, also in this case we want to combine the effect due to repeated choices with the effect due to social information. We hypothesize a realistic scenario where consumers learn about others preferences over time and we want to study whether this information enrichment affect compromise effect.

To test this assumption we measure consumers' choice at time t_1 giving no information on others' preferences: we add information on preferred alternative only in time t_2, when consumers already made a first choice within the same product category. In this way we have the interaction on two effects: repeated choices effect and others' choice information effect.

As for hypothesis *H_1*, we assume that over time compromise effect decreases as a result of a reduced uncertainty and increased familiarity with product category. This effect is combined with the decrease in compromise effect due to the presence of a source of information able to fulfill the

need for social justification. As a result we expect to find a strong decrease in compromise effect, both when information is on compromise option and when is on extreme option.

And along repeated choices, we contend that:

$H_{6a:}$ Along repeated choices, when extreme alternative A is the most chosen by other consumers, compromise effect is annulled.

$H_{6b:}$ Along repeated choices, when compromise alternative B is the most chosen by other consumers, its share increases, but compromise effect is diminished.

As along repeated choices there is the double decreasing effect due to: 1) repeated choices; 2) presence of another source of information able to drive uncertain preferences. Comparing results from the "static" condition, where consumers have to make only one choice and are exposed to social information to "dynamic" condition, where have to make two choices and are exposed to social information only during the second choice task, we expect to find a stronger decrease in the "dynamic" condition.

$H_{7:}$ When information on social behavior is provided, compromise effect is stronger for consumers who made only one decision (static condition) than for consumers that make repeated choices (dynamic condition). (both when information is on extreme option A and when is on middle option B).

3.5 Summary of Hypotheses

Summarizing, we want to analyze three major areas:

1) first area of analysis regards the evolution of compromise effect over time. This question is translated in hypothesis H_1.

2) second area of analysis regards the impact of increased information on product attributes. We test that impact in a static way, measuring difference between groups exposed to different number of attributes, in H_2. We also test that impact a dynamic way adding that piece of information during second choice task, in H_3. Moreover, we aim to understand the different incidence on compromise effect of the static versus the dynamic conditions, comparing the strength of the effect caused, in H_4.

3) third area of analysis regards the impact information on social behavior. We want to test the impact of information on other people choice on the strength of compromise effect. We analyze the case of extreme option A as preferred option in H_{5a}, and the case of middle option B in H_{5b}. We also test that impact a dynamic way adding that piece of information during second choice task, in H_{6a} (when option A is the most chosen) and H_{6b} (when option A is the most chosen). Moreover, we aim to understand the different incidence on compromise effect of the static versus the dynamic conditions, comparing the strength of the effect caused, in H_7.

Hypotheses		**Conditions**
H_1	*Compromise effect diminishes over repeated choices (with a delay on time) into the same product category.*	Dynamic condition
H_2	*Compromise effect is enhanced when the number of product attributes increases*	Static condition
H_3	*Compromise effect is not enhanced when the number of product attributes increases along repeated choice tasks*	Dynamic condition
H_4	*When the number of product attribute is increased, compromise effect is stronger for consumers who made only one decision (with more than 2 attributes) than for consumers that previously made a decision with few attributes.*	Comparison condition
$H_{5a:}$	*When extreme alternative A is the most chosen by other consumers, compromise effect is strongly reduced.*	Static condition
H_{5b}	*When compromise alternative B is the most chosen by other consumers, it's share increases, but compromise effect is diminished.*	Static condition
H_{6a}	*Along repeated choices, when extreme alternative A is the most chosen by other consumers, compromise effect is annulled.*	Dynamic condition
H_{6b}	*Along repeated choices, when compromise alternative B is the most chosen by other consumers, its share increases, but compromise effect is diminished.*	Dynamic condition
H_7	*When information on social behavior is provided, compromise effect is stronger for consumers who made only one decision (static condition) than for consumers that make repeated choices (dynamic condition). (both when information is on extreme option A and when is on middle option B)*	Comparison condition

Table 3.2: Hypotheses summary

Chapter 4

Research Design and Methodological Section

4.1 Experimental design

"…experiment is the single best method for explicating cause-effect relationships."

Aronson, Ellsworth, Carlsmith and Gonzales (1990)

John Stuart Mill formalized that a causal relationship exists if: 1) the cause preceded the effect; 2) the cause was related to the effect; 3) we an find no plausible explanation for the effect other than the cause.

According to Shadish, Cook and Campbell (2001) those three characteristics "mirror" what happens in an experiment. In fact, in an experiment: 1) it is possible to manipulate the presumed cause and observe an outcome later; 2) it is possible to observe if variation in the cause is related to variation in the effect; 3) it is possible to use various methods to reduce the plausibility of other

explanations for the effect. The authors state that "no other scientific method regularly matches the characteristics of causal relationships so well".

We decided to use experimental designs to test our causal relationship: we could randomly assign subjects to all the experimental conditions, so we used a randomized experiment (also known as true experiment, Rosental and Rosnow, 1991). In this way the probability of each subject to receive the treatment or be part of the control group is completely random: random assignment creates groups of units that are probabilistic similar to each other on the average. Any outcome differences that are observed between those groups at the end of a study are likely to be due to treatment, not to differences between groups that already existed before the measurement.

We used a *between subjects*[1] design to test the presence of compromise effect: different groups of consumers evaluate either a binary (A,B) choice set, or a ternary (A,B,C) choice set. In this way we can control for potential intervening variables with out the risk of "carry over effect": in this phase we are not interested in the effect of prior choices, we only want to measure compromise effect. We overcome the random error due to individual differences by randomly assign respondents to control and experimental groups.

We used a within subject design to evaluate variations in compromise effect over time: same groups of consumers made similar choices over time. In this situation, we want to measure variation in choices over time, so a within subjects design is the most appropriate.

[1] See Aronson, Ellsoworth, Carlsmith and Gonzales (1990) for references on within and between subjects design.

4.2 Respondents

Participants in the experiment are students form a major Eastern Europe University. Students are asked to participate to the experiment as a requirement for the marketing class. All the experiments are run in a "laboratory setting" that in the present case is a classroom, during a marketing class: subjects are asked to simulate a decision task using a paper-pencil work.[2]

Using students and a laboratory setting is possible to control for all the other variables that we don't want to let vary and is possible to enhance the likelihood that the results are due to the treatment applied. Procedure of using students and laboratory setting is often questioned; if results come from students it is possible to generalize those results to other populations? Are relations and cause-effect relationship detected in laboratory setting extendible to real world choice settings? External validity of an experiment run on students is frequently questioned (e.g. Sears, 1986). Campbell and Stanley (1976) introduce the concept "External validity asks the question of generalizability: to what populations, settings, treatments variables, and measurements variables can this effect be generalized?" (p.5).

Mook (1983) distinguish two levels of generalizability application: generalizability of findings and generalizability of theoretical conclusions. It is possible to extend results at the levels of constructs: the sample selected serves to falsify a theory. According to the author (see also Calder, Phillips and Tybout, 1981) results from experimental settings and students are not generalizable to real world situations. This approach abilities experiments run on students in lab settings to be generalized only on theoretical level.

[2] Appendix reports instructions and questionnaires used.

A different position is expressed by Lynch (1982; 1999). External validity can only be assessed and never increased, because it is a characteristic of the model of behavior under exam. The focal point is to understand if the variable involved in the causal relationship studied interact with some moderator variables typical of the setting and sample selected. The concern in on theoretical level: field and lab provide results equal in terms of generalizability. In both cases external validity depends upon whether "background" factors that are held constant interact with the manipulated variables.

Following this perspective, we can asses external validity of our experiments analyzing on theoretical level the appropriateness of both setting and sample in terms of interaction with variables manipulated. To the best of our knowledge there is no reason to think that the setting (an university classroom) and the characteristics of the subjects selected (university students) could interact whit the relation under investigation. There is no former evidence that students characteristics, or classroom characteristics could moderate the relationship between the strength of compromise effect and the amount of information provided. In absence of these moderators, external validity couldn't be undermined by the experimental decisions.

4.3 Product categories

In a preliminary study we asked 30 students to express their degree of knowledge about several product categories. In order to include only product categories familiar to student and product attributes relevant to students (Simonson, 1989), we made a pretest in which each respondents were asked to rate their familiarity (on a 0-10 scale) with seven different product categories. The list of product presented was built starting from categories used previously in literature to measure compromise effect (e.g. Drolet, 2002, Simonson and Tversky, 1992).

Product categories	Familiarity
Mobile phones	9,3
MP3 Players	7,2
Digital Cameras	6,9
DVD Players	6,2
Laptops	5,9
Printers	5,8
Microwaves	4,7

Table 4.1: Product categories familiarity

Basing on the results of the pretest, we selected two products: Digital cameras and MP3 Players. As we are interested in a potential variation of familiarity over repeated choices, we eliminated 'mobile phones', as level of familiarity is too high.

For product categories selected we asked to indicate the importance of different attributes (on a 0-10 scale). Table 4.2 reports, in order of importance, attributes selected.

Digital Cameras	MP3 Players
Camera's resolution	Price
Price	Capacity/Memory
Zoom (optical)	Display dimension
LCD Monitor dimension	Weight
Camera's size/weight	Colors/Models available

Table 4.2: Attributes selected

In order to avoid potential bias due to inferences on other products characteristics, we used fictitious brand names to identify products. At time t_1 In Digital Cameras category we used: 1)

PhotoFlash; 2) Star Picture; 3) One Click. In theMP3 Players category we used: 1) Music One; My Music; Avant sound. At time t_2 In Digital Cameras category we used: 1) Camera Plus; 2) Image X; 3) Digital Pix. In theMP3 Players category we used: 1) M-system; Hi Music; Sound Star.

4.4 Analysis

To test the presence of compromise effect we use different techniques. First of all we analyzed aggregate data and we compared choice percentages using a t-test on proportions. In this phase we are interested to compare option B share (compromise option) to option A share (extreme option) when they are part of a binary choice set and when they are part of a ternary choice set. Compromise effect is the result of a shift in preferences from option A to option B when option C (extreme alternative) is added to the choice set. To catch this effect we depurated the ternary set (A,B,C) from preferences expressed for option C and we recomputed A and B percentages.

In addition, we run the SAS CATMOD CONTRAST procedure to compare differences in binary and ternary choice sets among repeated choice tasks and experimental conditions. In this way we can test the significance of variations in compromise effect and we can compare the experimental conditions in terms of preferences accorded to the middle option.

Finally, we want to analyze the impact of familiarity with product category on compromise choices. Because the dependent variable is binary, we applied a Logistic Regression, using SPSS software. In particular, we are interested in examining the influence of familiarity (measured before choice 1) on the probability of selecting option B for choices made at time t1. Similarly we want to analyze the influence of familiarity (measured before choice 2) on the probability of selecting option B for choices made at time t2.

Chapter 5

Experiments and Analysis of Results

The aim of this of this dissertation is twofold. First we want to analyze the evolution of compromise effect over time, to understand if the tendency to compromise is invariant to repeated choices or if it is affected over time by some changes in uncertainty and familiarity.

Experiment 1 is run to verify the presence of a relation between the strength of compromise effect and repeated choices.

Second we are interested in understanding the impact of additional amount of information on the probability to select the middle option. In particular, we want to explore the impact of two different sources of information: a) information on products, operationalized by an increasing attributes number; b) information on other people behavior (social influence), opertionalized by adding information on other consumers' choices.

Experiment 2 and Experiment 3 have the purpose to test the impact of the first source of information: they analyze the case where consumers have to evaluate products described by more than two product attributes. More specifically, Experiment 2 tests a "static" condition where two different groups of respondents are exposed to two choice sets where products are described by

either two or five attributes. Experiment 3 tests a "dynamic" condition where the same group of consumers evaluate, over repeated choices, two different scenarios: the first one (at time t_1) is characterized by the presence of two product attributes, while the second one (at time t_2) is characterized by the presence of five product attributes. In this way we can compare the effect due to the increased number of attributes to the effect due to a progressive increasing in knowledge on product characteristics.

Experiment 4 and Experiment 5 investigate the impact of the second source of information on compromise effect: the influence of socially relevant information (others' choice) on compromise effect. In particular, Experiment 4 considers a "static" condition where two different groups of respondents are exposed to two choice sets where their either are or aren't provided with information on others' choices. If consumers are provided with this information, it could regards: 1) an extreme option (the extreme option results to be the most chosen); 2) the middle option (the middle option B is the most chosen).

Experiment 5 tests a "dynamic" condition where the same group of consumers evaluate, over repeated choices two different scenarios: the first one, at time t1 is characterized by the absence of information on social behavior, while the second one, at time t2, is characterized by the presence of information on either compromise option B or extreme option A. In this way we can compare the effect due to the effect of social choice behavior to the effect due to a progressive increasing in knowledge on others' preferences.

In this chapter we present structures of five experiments we run, and we discuss for each experiment:

1. Purpose of the experiment
2. Structure of the experiment

3. Results for both digital cameras and MP3 players
4. Summary of the Experiment

For each experiment, we present a brief analysis of aggregate data, where the effects are tests on percentages using a t-test, and a more articulated section where analyze raw data and we compare changes in the strength of compromise effect over time and between groups using contrasting B delta share over different conditions. To obtain those comparisons we used the SAS CATMOD procedure. Finally we run a logistic regression to test the impact of familiarity on compromise choices.

Table 5.1 report a summary of experiments we run.

Essays	Description
Essay 1: COMPROMISE EFFECT OVER TIME	EXPERIMENT 1
Essay 2: INCREASED ATTRIBUTE NUMBER	EXPERIMENT 2
	EXPERIMENT 3
Essay 3: INFORMATION ON SOCIAL BEHAVIOR	EXPERIMENT 4
	EXPERIMENT 5

Table 5.1: Essays and Experiments

5.1 Essay 1 – Experiment 1: Compromise effect over time-

5.1.1 Purpose of Experiment 1

The aim of Experiment 1 is to better understand the evolution of the compromise effect over time when the same group of respondent make repeated choices. Sheng Parker and Nakamoto (2003) showed that familiarity with product category impact the strength of compromise in one shot decision: compromise effect decreases when familiarly increases. The authors defined familiarity as "the number of product-related experiences accumulated by a consumer" (Alba and Hutchinson 1987). In present study, our expectation are that familiarity influences compromise effect over time acting upon a reduction of uncertainty: over repeated choices consumers have more "product-related experiences" and become more familiar with product category. As a result, we expect to find an increasing level of familiarity over time among repeated choices.

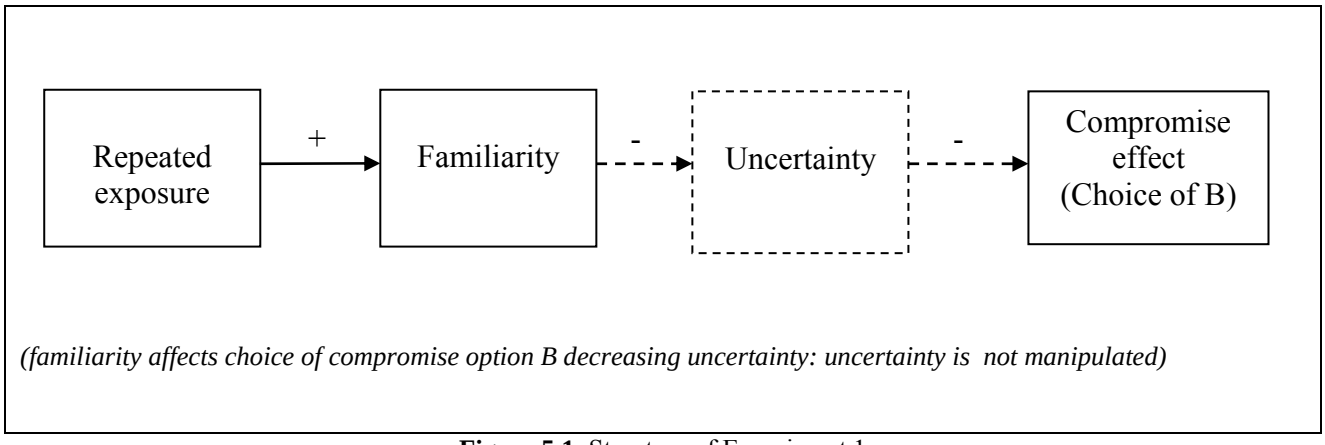

Figure 5.1: Structure of Experiment 1

Consequently, compromise effect decreases as a result of increased level of familiarity with product category. In H_1 we hypothesized that the strength of compromise effect will decrease over

repeated choices (with a delay on time) into the same product category as an effect of the increased product category familiarity.

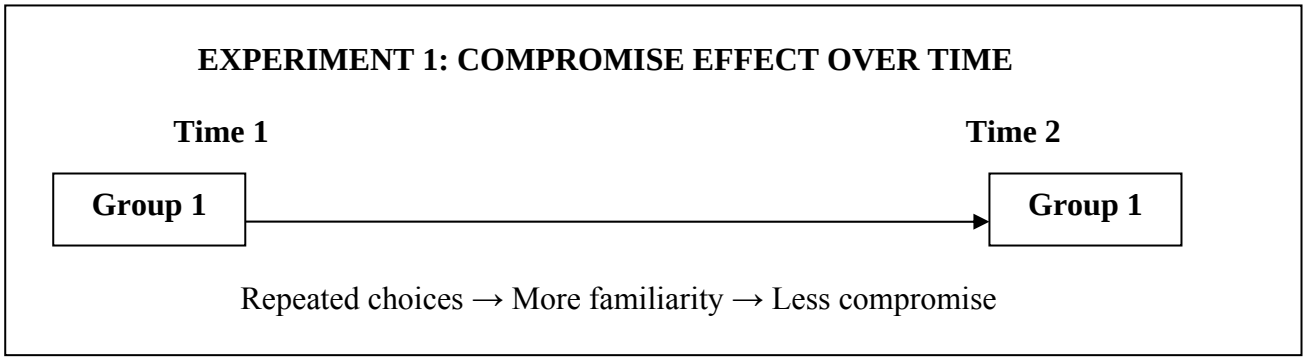

Figure 5.2: Schematization of Experiment 1

5.1.2 Structure of Experiment 1

Experiment 1 is run between subject and each product presented is described by two attributes: a quality attribute, and price. Participant in the experiment are 73 students from University of Bologna, who participated to the experiment as a requirement for a marketing class.

The same group of subjects makes a choice twice: Group 1 is asked to chose among alternatives A and B, and Group 2 is asked to chose among alternatives A, B and C. During the second choice task each respondent makes a further choice within the same product category: the only difference between time t1 and time t2 is the time delay. Before each choice, we measured product category familiarity.

The delta share of B among group 1 and group 2 gives the magnitude of the compromise effect. We expect to find a stronger compromise effect in time t_1 than in time t_2.

Groups	**Time 1**	**Time 2**
Group 1	A B	A'B'
Group2	A B C	A'B'C'

Table 5.2: structure of study 1

In this experiment we have 2 conditions: 2 alternatives vs. 3 alternatives. Participants are randomly assigned to one of these two experimental conditions.

5.1.3 Results: Digital Camera and MP3 Player

To test the presence and the strength of compromise effect, we first perform a t-test analysis on proportions. We compare share of option B in choice set (A, B) with share of B in choice set (A,B,C): in other words we want to compare choice percentages for option B between Group 1 and Group 2, to test the presence of compromise effect.

Table 5.3 shows that at time t_1, when we test just the presence of compromise effect, the share of alternative B significantly increases when it is part of a ternary choice set (Group 2). For example, for Digital Cameras share of B on A goes from 0. 44% to 0,69%, and for MP3 Players goes from 0.58% to 0,83%.[3]

Digital Camera						
	Time t_1			**Time t_2**		
	A	**B**		**A**	B	
Group 1	0,56	0,44	t=2,65	0,50	0,50	t=1,32
Group 2	0,31	0,69	Sign. 0,05	0,33	0,67	Not sign.
MP3 Player						
	Time t_1			**Time t_2**		
	A	B		A.	**B**	
Group 1	0,42	0,58	t=2,12	0,44	0.56	t=1,92
Group 2	0,17	0,83	Sign. 0,05	0,21	0,79	Sign. 0,1

Table 5.3 : Aggregate results for Experiment 1

[3] As we mentioned, "share of B on A" is just the choice percentage of option B in the binary choice set, while is the proportion of preferences for option B discounted by the presence of alternative C, in the trinary choice set. In the second case we are interested in the share gained by option B on option A when option C is added: to understand this effect we have to delete to our computation preferences for option C.

Both for Mp3 Players and Digital Cameras, compromise effect is significant. In time t_2, the same respondents undertake the same choice task for the second time: strength of compromise effect diminishes and the effect is not significant for Digital Cameras, and only moderately significant for Mp3 players.

A better analysis of the strength of compromise effect, involves a comparison between raw data and not just between choice percentages.

- Digital Cameras -

To compare how share of option B varies between (A,B) choice set and (A,B,C) choice set, we run the SAS CATMOD procedure. In this way, after deleting preferences for option C, we can compare share of compromise option both between different groups and between different choices for the same group of respondents (e.g. compare choice made in t_1 with choice made in t_2).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.2785	0.2475	1.27	0.2605
Gruppo	1	0.5017	0.2475	4.11	0.0427

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	4.11	0.0427

Table 5.4: Contrast between Group 1 and Group 2 at time t_1

Table 5.4 shows that compromise effect is significant at 0.04% .

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		0.0270	0.2341	0.01	0.9081
Gruppo	1	-0.0270	0.2341	0.01	0.9081

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	0.01	0.9081

Table 5.5: Contrast between Group 1 and Group 2 at time t_2

As we expected, in time t_2, compromise effect is no more significant: when respondents face the same choice twice, they are less willing to opt again for the compromise option (Table 5.5). Difference in the magnitude of compromise effect between time t_1 and time t_2 is shown in table 5.6.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.3125	0.1808	2.99	0.0838
Gruppo	1	0.5357	0.2982	3.23	0.0724
	2	-0.4676	0.3146	2.21	0.1371
	3	0.3125	0.2970	1.11	0.2927

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	2.50	0.1140

Table 5.6: Contrast between Time 1 and Time 2

Chi-square is quite significant (0,11%), showing a difference between time t_1 and time t_2 in the strength of compromise effect: the decrease in the effect showed previously is significant. This suggests that time has a negative impact on the strength of compromise effect: therefore H_1 is supported by our results. We now test the impact of familiarity measured before choice made at time t_1 on compromise choices. By analyzing means in Table 5.7 we can see that familiarity with both product category increases over repeated choices.

OVERALL	**Digital camera**			**MP 3Player**		
	T1	T2	Sign. t-test	T1	T1	Sign. t-test
Familiarity	3,98	4,43	0,066	4,79	5,24	0,084

Table 5.7: Familiarity with product category

If we classify familiarity as "low" and "high", where low includes 1 to 4 ratings and high 5 to 7 ratings, we can plot differences in compromise choices for the two level of familiarity with product category. Compromise choice is classified as 1 if consumers selected the middle option B, and 0 otherwise.

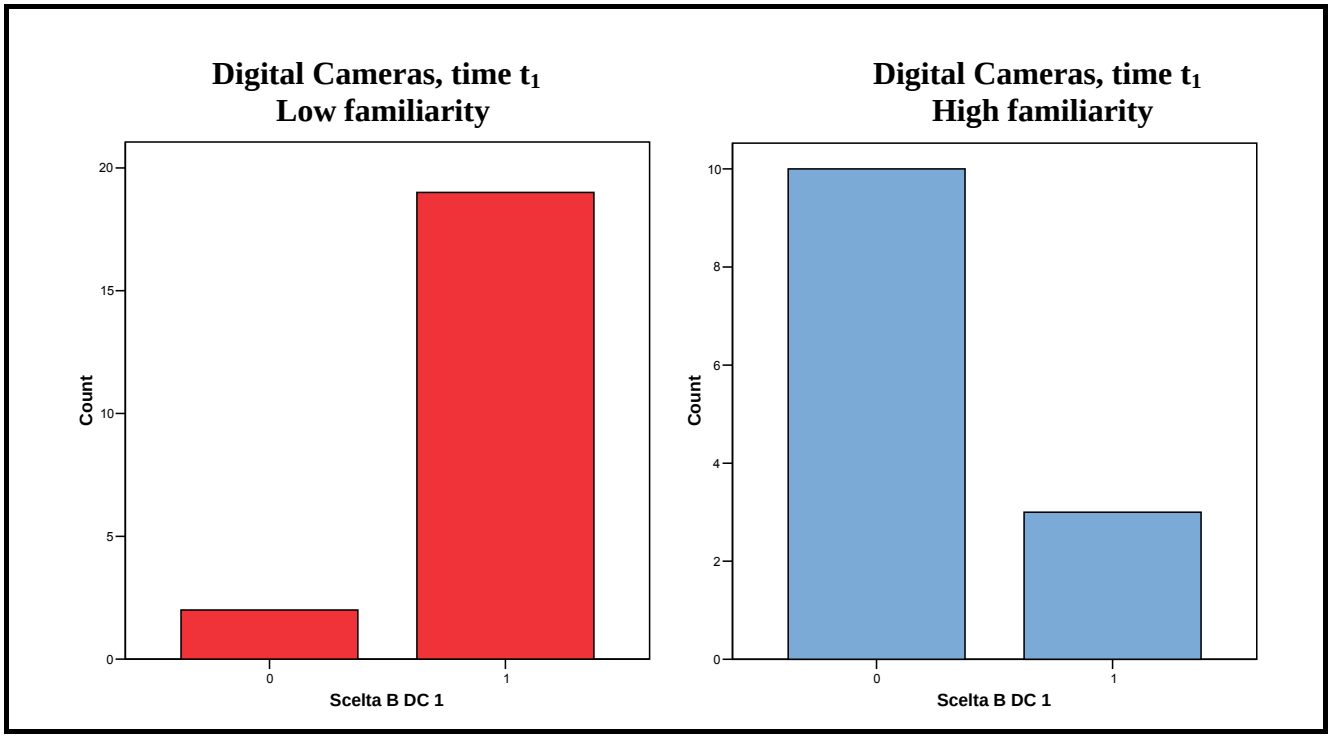

Figure 5.3: familiarity and compromise choice-Digital Cameras time t_1

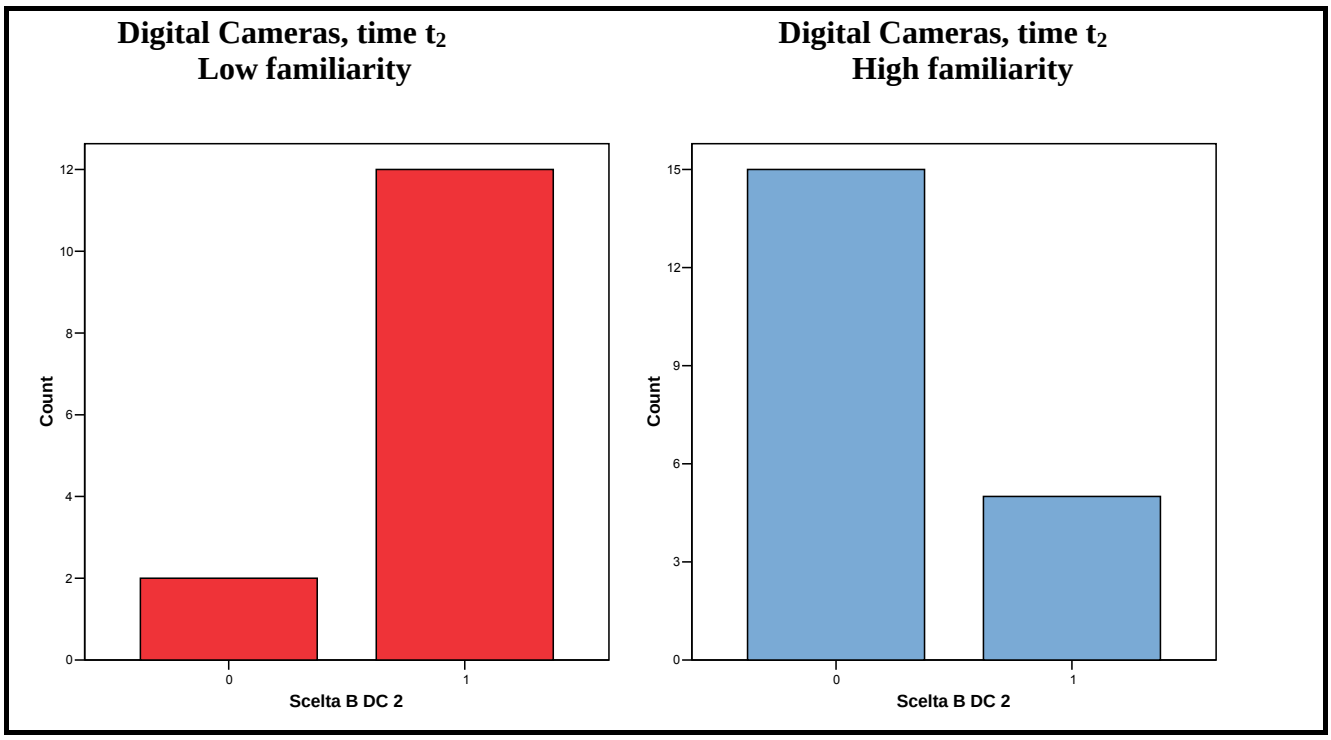

Figure 5.4: familiarity and compromise choice-Digital Cameras time t_2

Both in time t_1 and at time t_2 we can notice a difference: consumers who opt for the compromise alternative are less familiar with product category, both in time $t_1$and in time t_2.

To test the significance of this tendency, we run two logistic regressions: the former (Table 5.8) describes the impact of familiarity with product category measured before first choice on the likelihood of selecting the compromise in time t_1, while the latter (Table 5.9) examines the impact of variations in familiarity with product category measured before second choice on the likelihood of selecting the compromise in time t_2. Table 5.8 displays results from logistic regression run on digital cameras in time t_1.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Fam_DC_1	-1,219	,387	9,907	1	,002	,296
	Constant	5,890	1,807	10,623	1	,001	361,241

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	25,882	,416	,572

Table 5.8: Logistic regression: familiarity and compromise choice-Digital Cameras time t1

Table 5.8 shows that familiarity with product category has a significant impact on the probability to select the compromise option. In time t_2, we test the impact of variation in familiarity with product category between time t_1 and time t_2 (ΔFam_DC_t2) on choice made in time t_2: again familiarity negatively affects the tendency to compromise (Table 5.9).

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	ΔFam_DC_t2	-,799	,302	7,016	1	,008	,450
	Constant	3,673	1,473	6,220	1	,013	39,365

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	37,243(a)	,252	,337

Table 5.9: Logistic regression: Δ familiarity and compromise choice-Digital Cameras time t2

- MP3 Player-

Mp3 Players category shows similar results. At time t_1, compromise effect is only marginally significant (p= 0,15); the cause is probably a specific characteristic of the sample interviewed (Table 5.10).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.1347	0.2544	0.28	0.5966
Gruppo	1	0.3578	0.2544	1.98	0.1596

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	1.98	0.1596

Table 5.10: Contrast between Group 1 and Group 2 at time t_1

Even if in time t_1 the effect is only marginally significant, in time t2, during the second choice task, compromise effect is clearly not significant (p=0,79), as shown in Table 5.11.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.3031	0.2370	1.64	0.2009
Gruppo	1	0.0799	0.2370	0.11	0.7359

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	0.11	0.7359

Table 5.11: Contrast between Group 1 and Group 2 at time t_2

The decrease in the strength of compromise effect is significant also for MP3 Players, as shown by the contrast of the differences in Table 5.12.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.8569	0.2062	17.26	<.0001
Gruppo	1	0.5204	0.3157	2.72	0.0993
	2	-0.7117	0.4042	3.10	0.0782
	3	0.6337	0.3143	4.07	0.0438

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	5.11	0.0238

Table 5.12: Contrast between Time 1 and Time 2

Also for Digital Cameras, we want to analyze the impact of familiarity on compromise choices.

Figure 5.5 displays different levels of compromise choices corresponding to different levels of familiarity with product category. Almost all low familiar consumers prefer the compromise option, while high familiar consumers prefer either the middle or the extreme option.

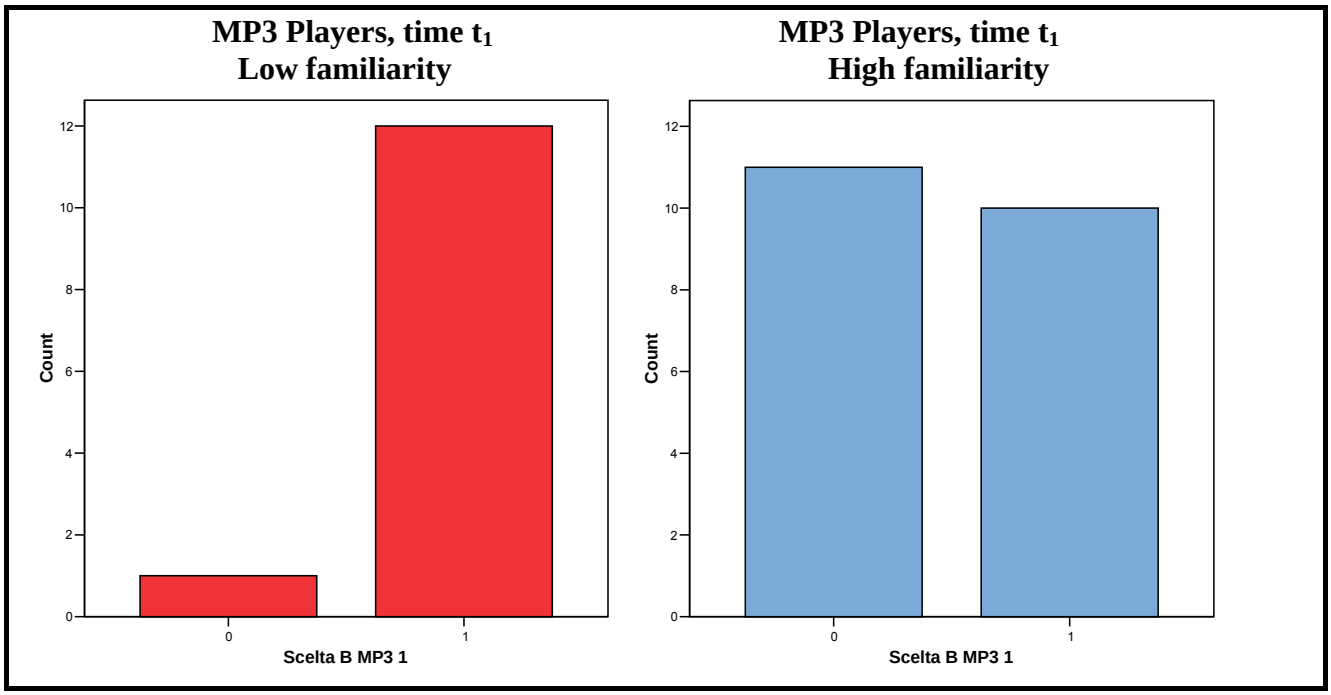

Figure 5.5: Familiarity and compromise choice-MP3 Players time t_1

At time t_2, we have similar results: as we can see in figure 5.6 when familiarity is low, consumers strongly prefer the compromise option, while when familiarity is high, compromise decisions and extreme decisions are almost equal in frequency.

Familiarity with product category seems to have a negative impact on compromise effect.

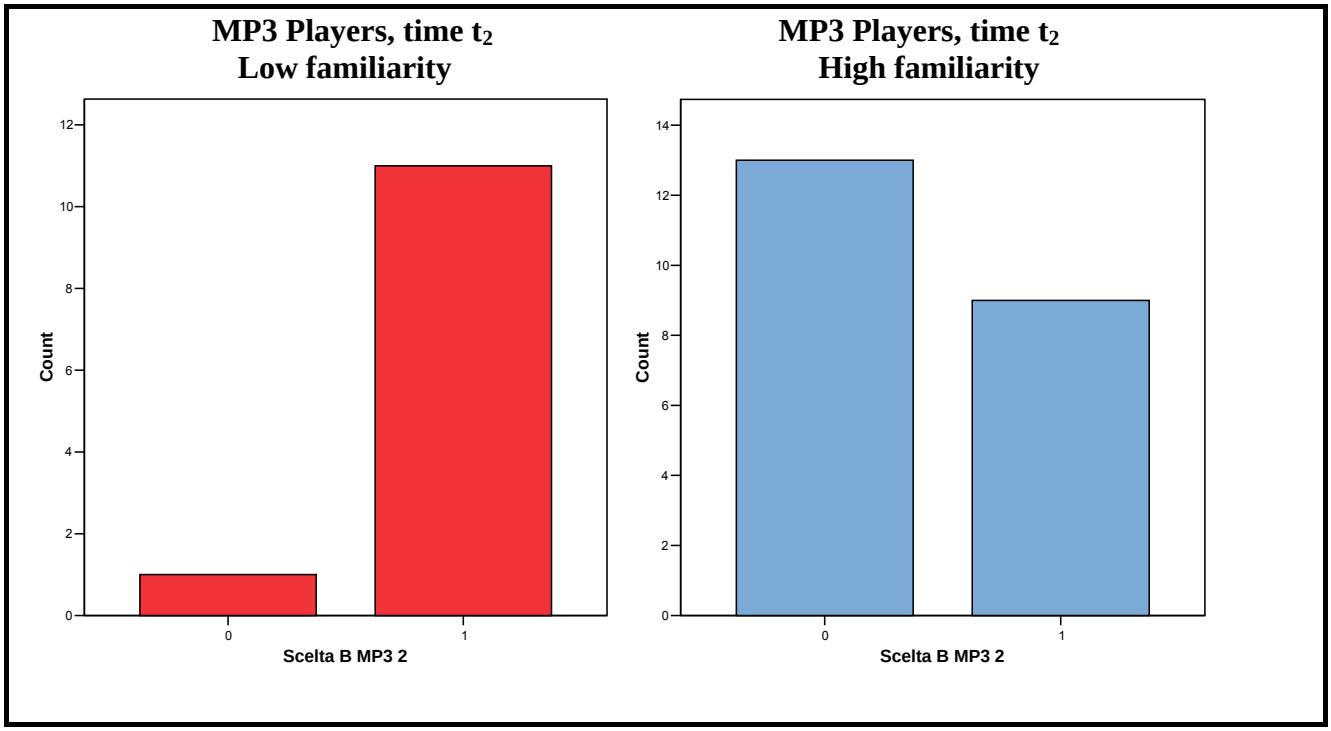

Figure 5.6: Familiarity and compromise choice-MP3 Players time t_2

The tendency showed by figures 5.5 and 5.6 is that consumes tend to compromise when they have low familiarity with product category. Results from logistic regression confirm the significance of these findings.

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1	Fam_MP3_1	-,850	,332	6,542	1	,011	,427
	Constant	5,192	1,952	7,072	1	,008	179,843

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	34,111(a)	,256	,352

Table 5.13: Logistic regression - Familiarity and compromise choice-MP3 Players time t1

Also at time t_2 delta familiarity with product category has a negative impact on compromise effect, as shown in table 5.14.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	ΔFam_MP3_2	-1,068	,379	7,927	1	,005	,344
	Constant	6,102	2,166	7,937	1	,005	446,908

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	33,410(a)	,311	,419

Table 5.14: Logistic regression - Familiarity and compromise choice-MP3 Players time t2

5.1.4 Summary for Experiment 1

The purpose of Experiment 1 is to test hypothesis H_1. Our results found support for H_1: compromise effect decreases over repeated choice for both Digital Cameras and MP3 Players. More over, our findings show that familiarity with product category significantly affects the selection of compromise alternative. Only consumes with low familiarity with digital cameras or MP3 Players decide for the compromise option: choice made at time t_2 is influenced by the variation in the level of familiarity over repeated choices.

5.2 Essay 2 : Experiments 2 and 3 - Number of product attributes -

5.2.1 Purpose of Experiment 2

The aim of this study is to understand whether a different amount of information on product attributes influences the strength of compromise effect.

Different studies have shown that when the number of attributes presented in the choice set increases, the quality of choice diminishes (Jacoby et al. 1974; Keller and Staelin 1987; Malhotra 1982). In fact, the augmented number of attributes and their relative levels expand the information pool that a consumer has to process, leading to a higher level of uncertainty associated to the explicitness of preferences (Lurie 2004; Lee and Lee 2004). The increase in the number of attributes influences consumers' computational effort, complicates the decision task, and raises the underlying uncertainty. As a result under similar conditions we expect a strengthening of the context effects.

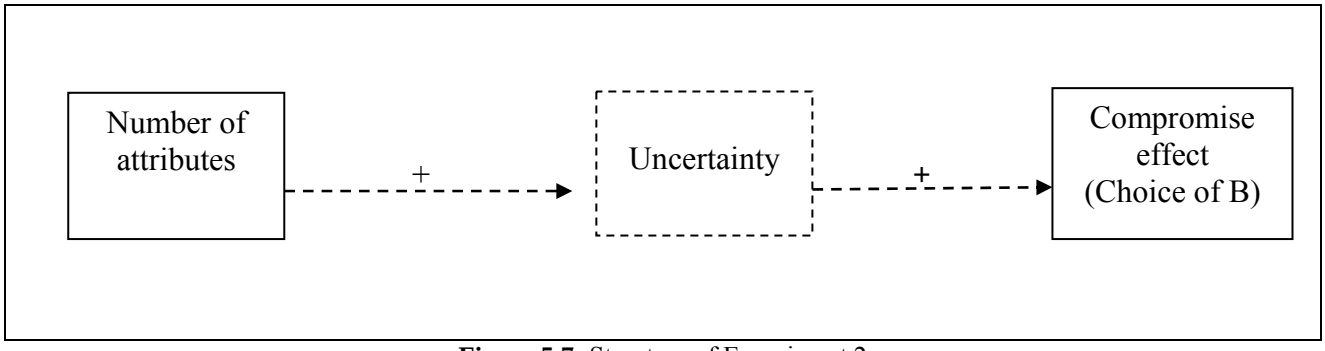

Figure 5.7: Structure of Experiment 2

In $H_{:}$ we hypothesizes that the compromise effect is enhanced when the number of product attributes increases as an effect of increased uncertainty with choice.

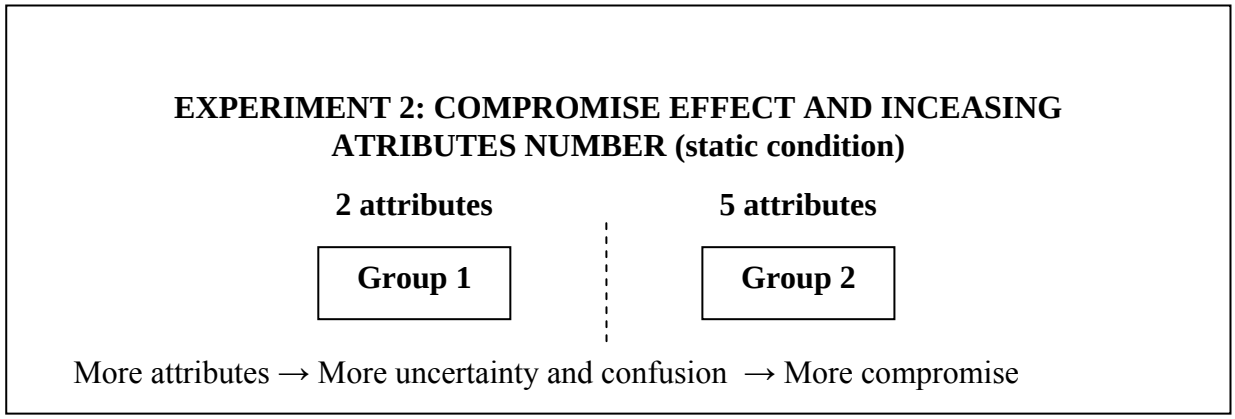

Figure 5.8: Schematization of Experiment 2

5.2.2 Structure of the experiment

The purpose of study 2 is to test the effect of an increasing number of product attributes on consumer choice and in particular on the strength of the compromise effect.

As in study 1, two different groups of respondents are exposed to different scenarios: 1) to Group 1 is presented a choice set in which products are described by two attributes; 2) to Group 2 is presented a choice set in which products are described by five attributes. Again for both Group 1 and Group 2 there is a control group of consumers that evaluates a choice set made of two products (one described with 2 attributes and the other one described with five attributes). The experiment is run between subject and is a 2 (set size: two vs. three product alternatives) X 2 (number of attributes: two; vs. five attributes) factorial design.

Participants in the experiment are 141 students from University of Bologna, who participated to the experiment as a requirement for a marketing class. Participants are randomly assigned to one of the four experimental conditions. The delta share of B among Group 1 and Group 2 and among Group 3 and Group 4 gives the magnitude of the compromise effect.

We expect to find a stronger compromise effect between groups 3 and 4 (that are exposed to 5 attributes) than between groups 1 an d 2 (that are exposed to 2 attributes).

Groups	Choice set
Group 1 (2 attributes)	A B
Group 2 (2 attributes)	A B C
Group 3 (5 attributes)	A B
Group 4 (5 attributes)	A B C

Table 5.15: Structure of study 2

5.2.3 Results: Digital Camera and MP3 Player

As we can see in table 5.16, increasing the attribute number from two to five, strengthen the compromise effect both for digital cameras and for MP3 players. For example, share of option B over option A increases from 0,66% to 0,77% when respondent have to consider five attribute numbers in digital cameras category.

	Digital Camera			**MP3 Player**		
	A	**B**		**A**	**B**	
Group 1 (2 attributes)	0,57	0,43	t=1,92	0,40	0,60	t=1,62
Group 2 (2 attributes)	0,34	0,66	Sign. 0,1	0,22	0,78	not sign.
Group 3 (5 attributes)	0,53	0,47	t=2,34	0,38	0,62	t=1,92
Group 4 (5 attributes)	0,23	0,77	Sign. 0,05	0,17	0,83	Sign. 0,1

Table 5.16: Aggregate results for Experiment 2

- Digital Camera -

Table 5.17 reports results for control groups: contrast between Group 1 and Group 2 measures compromise effect. Also in this case, we find a strong compromise effect: consumers tend to select the middle option when the extreme alternative C is available.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.3623	0.1901	3.63	0.0567
Gruppo	1	0.6500	0.3074	4.47	0.0345
	2	-0.2883	0.3155	0.84	0.3608
	3	0.4801	0.3085	2.42	0.1197

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	3.62	0.0572

Table 5.17: Contrast between Group 1 and Group 2 (2 attributes)

Experimental groups are exposed to choice sets where products are described by five attributes: in this case, compromise effect is strong and more significant than in the former case, where case of products are described by only two attributes (Table 5.18). Chi-square is equal to 5,22 and p-value is equal to 0,023.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.3623	0.1901	3.63	0.0567
Group	1	0.6500	0.3074	4.47	0.0345
	2	-0.2883	0.3155	0.84	0.3608
	3	0.4801	0.3085	2.42	0.1197

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	5.22	0.0223

Table 5.18: Contrast between Group 3 and Group 4 (5 attributes)

In table 5.19 we test if that difference is significant: we compare delta B share in case of two attribute, with delta B share in case of five attributes. Chi square is equal to 2.41 and is only marginally significant (0,10): increasing attributes number, leads to an increase in the magnitude of compromise effect that is significant at 0,1%. Hypothesis H_2 is supported.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.3623	0.1901	3.63	0.0567
Gruppo	1	0.6500	0.3074	4.47	0.0345
	2	-0.2883	0.3155	0.84	0.3608
	3	0.4801	0.3085	2.42	0.1197

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	2.41	0.1005

Table 5.19: Contrast between Compromise effect for Control Groups and Experimental Groups

We now explore the relationship between familiarity and compromise effect. Figure 5.9 shows differences in preferences for the middle option in case of low and high familiarity, for control groups (2 attributes).

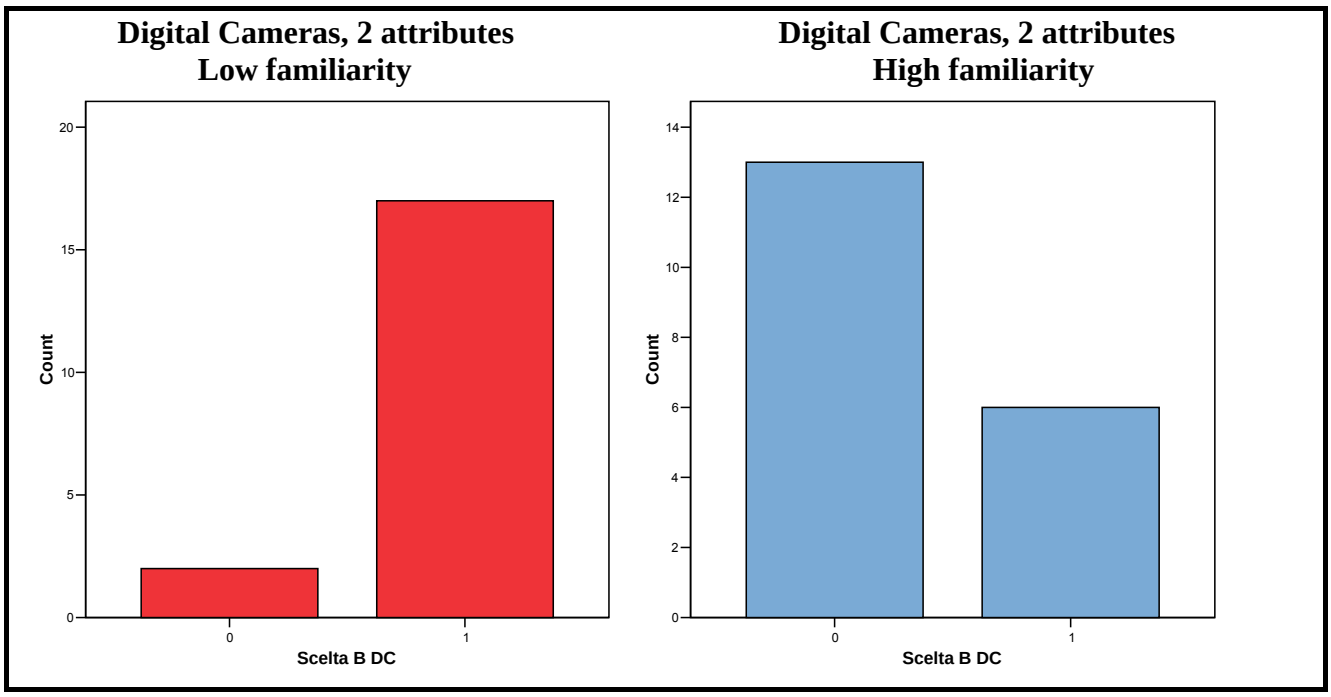

Figure 5.9: Familiarity and compromise choice-Digital Cameras 2 attributes

Again, for low levels of familiarity, compromise effect is the most frequent choice, while, when familiarity is higher, proportion of consumers who compromise is almost equal to proportion of consumes who opt for an extreme option. Comparing these results to results for experimental groups displayed in Figure 5.10, we don't notice any difference in the familiarity-compromise relation.

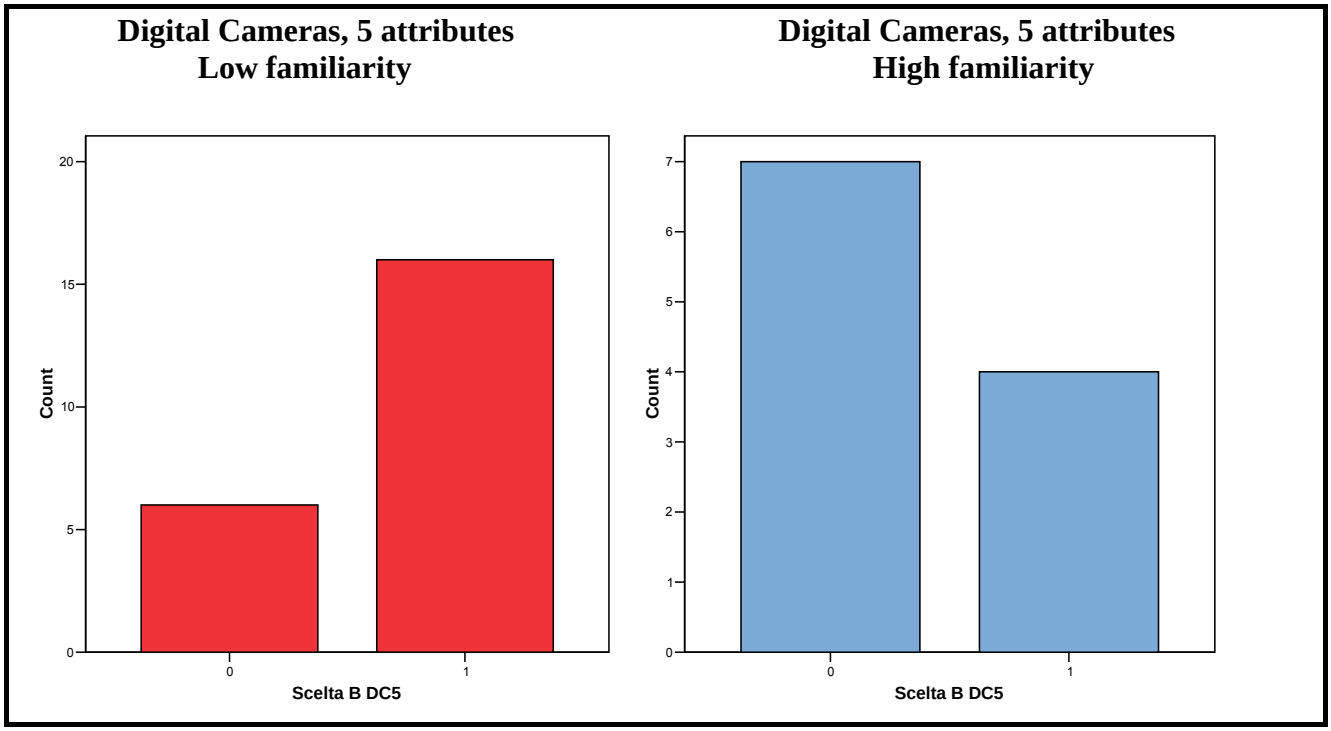

Figure 5.10: Familiarity and compromise choice-Digital Cameras 5 attributes

We run a logistic regression to test the significance of the impact exercised by familiarity on compromise effect.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	FamDC	-1,236	,413	8,977	1	,003	,290
	Constant	6,327	2,090	9,163	1	,002	559,214

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	32,869(a)	,379	,513

Table 5.13: Logistic regression - Familiarity and compromise choice-Digital Cameras 2 attributes

Table 5.13 shows a negative and significant influence of familiarity on compromise choices: low familiar consumers have a greater tendency to compromise.

Results form Table 5.14 show similar pattern also when the number of product attributes to evaluate increases during choices: in this case, the strength of the relationship is significant only at 0,1%.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	FamDC5	-,433	,268	2,614	1	,96	,649
	Constant	2,302	1,231	3,499	1	,061	9,993

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	41,377(a)	,083	,113

Table 5.14: Logistic regression - Familiarity and compromise choice-Digital Cameras 5 attributes

- *MP3 Players* -

In case of MP3 players, results found for Digital Cameras are replicated. For the control groups (Group 1 and Group 2) we do not observe a strong compromise effect, chi square is equal to 2,57 (p=0,11): anyway, if we compare this result with experimental groups we can clearly see that compromise effect is strengthen (see table 5.21).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.9368	0.2007	21.79	<.0001
Gruppo	1	0.5313	0.3159	2.83	0.0926
	2	-0.3160	0.3473	0.83	0.3630
	3	0.4572	0.3202	2.04	0.1533

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	2.57	0.1092

Table 5.20: Control Group (2 attributes)

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.9368	0.2007	21.79	<.0001
Gruppo	1	0.5313	0.3159	2.83	0.0926
	2	-0.3160	0.3473	0.83	0.3630
	3	0.4572	0.3202	2.04	0.1533

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	3.50	0.0613

Table 5.21: Experimental Group (5 attributes)

Again when we compare differences in delta shares (Table 5.22), we can observe an increasing in compromise effect due to the increased attributes number only marginally significant.

In case of MP3 players, we partially reject the hypothesis H_2 because the influence of attributes number on compromise effect is marginally significant. When attribute number increases, we observe an increasing in compromise effect, but that difference is not significant (p>0,1).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.9368	0.2007	21.79	<.0001
Gruppo	1	0.5313	0.3159	2.83	0.0926
	2	-0.3160	0.3473	0.83	0.3630
	3	0.4572	0.3202	2.04	0.1533

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	2.16	0.1177

Table 5.22: Contrast Difference

We want now analyze differences in familiarity with product category regarding the tendency to compromise. As for Experiment 1 we compute 2 level of familiarity, low familiarity and high familiarity. Figures 5.11 and 5.12 plot differences in the distribution of compromise choices depending of previously measured levels of familiarity.

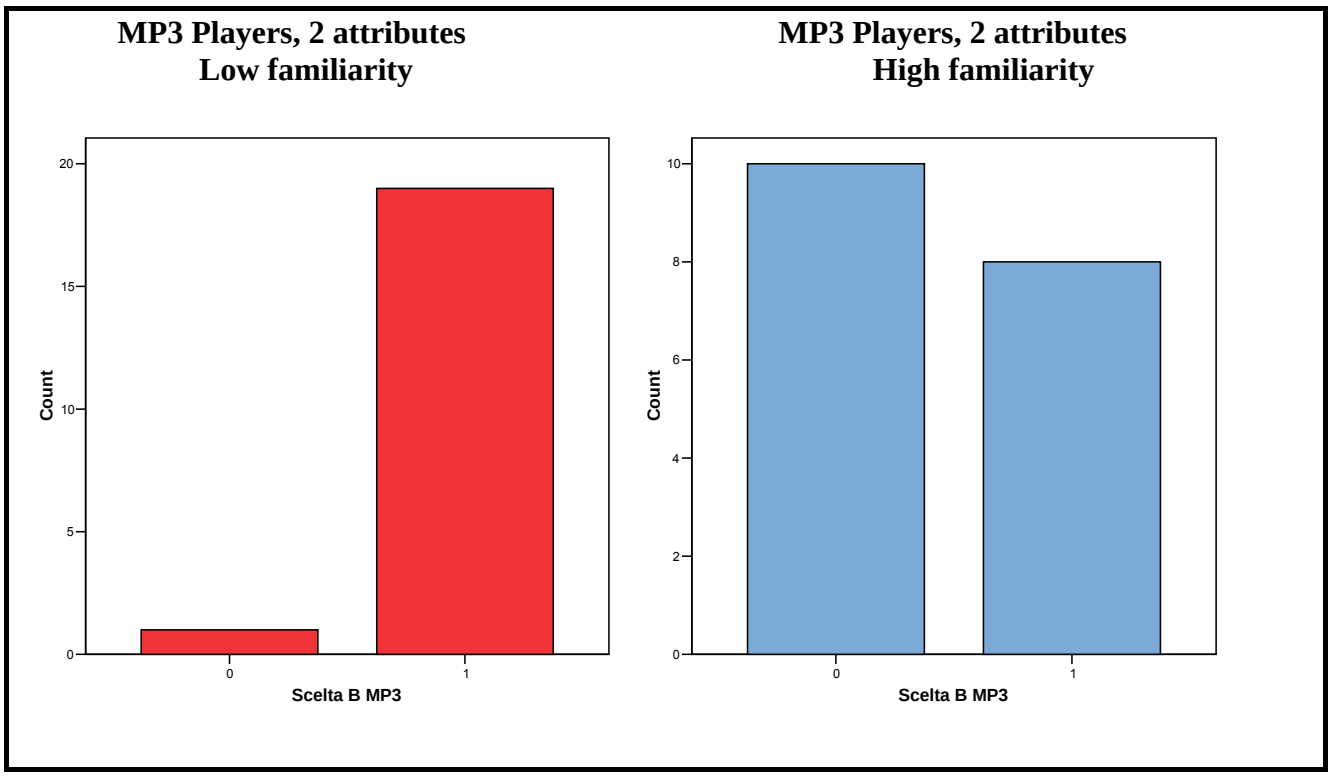

Figure 5.11: Familiarity and compromise choice-MP3 Players 2 attributes

For low levels of familiarity, compromise effect is the most frequent choice, while when familiarity is higher, proportion of consumers who compromise is almost equal to proportion of consumes who opt for an extreme option. We do not notice any difference in the familiarity-compromise relation observing Figures 5.11 and 5.12 between control groups exposed to 2 attributes and experimental groups exposed to 5 attributes.

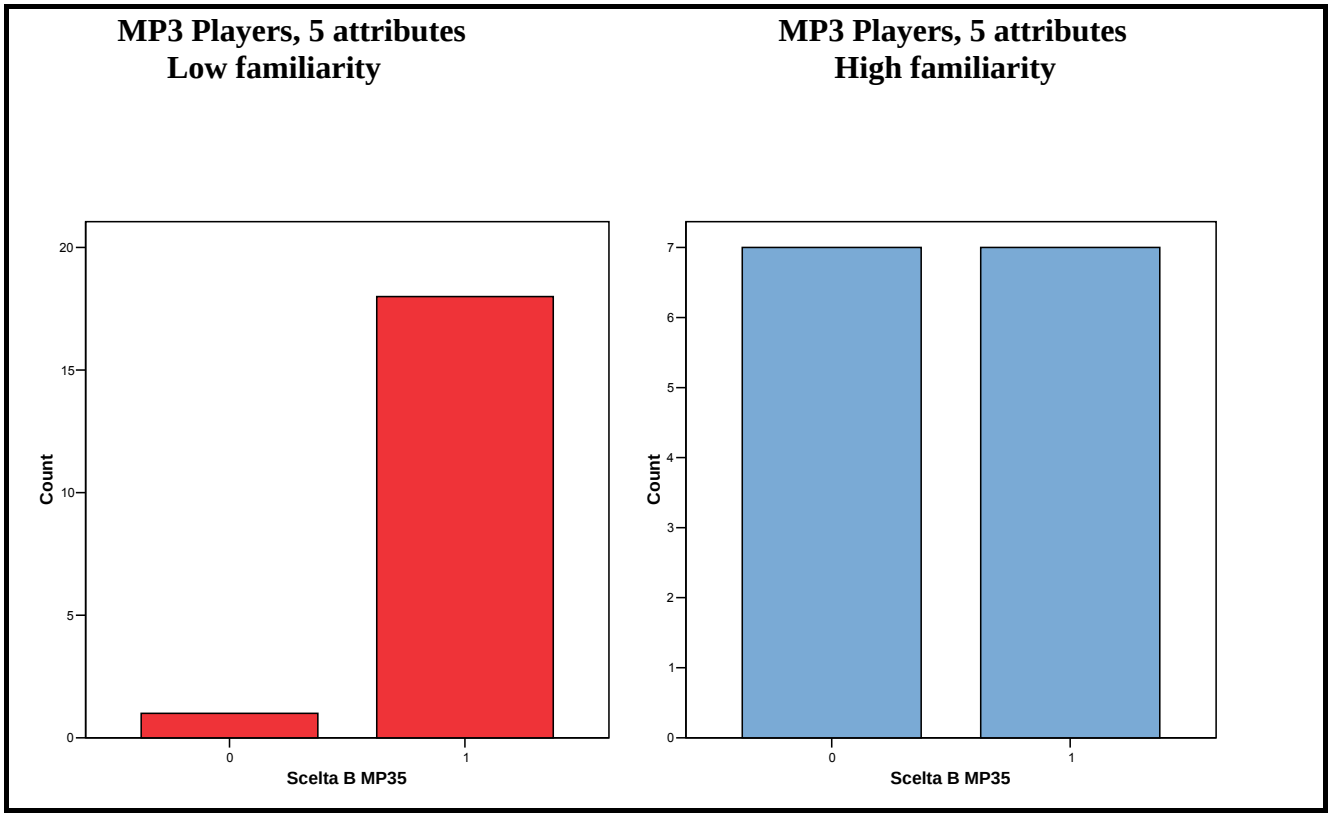

Figure 5.12: Familiarity and compromise choice-MP3 Players 5 attributes

We run a logistic regression to test the significance of the impact exercised by familiarity on compromise effect.

The impact of familiarity on the selection of the compromise alternative is negative and significant both in case of control groups where consumers have to evaluate choice sets composed by 2 attributes-products and in case of experimental groups where consumers have to evaluate choice sets composed by 5 attributes-products. Tables 5.23 and 5.24 show these results.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Fam_MP3	-,885	,319	7,715	1	,005	,413
	Constant	5,210	1,747	8,896	1	,003	183,090

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	33,430(a)	,276	,395

Table 5.23: Logistic regression - Familiarity and compromise choice-MP3 Players 2 attributes

		B	S.E.	Wald	df	Sig.	Exp(B)
Step	Fam_MP3 5	-,811	,334	5,893	1	,015	,444
	Constant	4,937	1,795	7,565	1	,006	139,338

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	27,760(a)	,234	,349

Table 5.23: Logistic regression - Familiarity and compromise choice-MP3 Players 2 attributes

5.2.4 Summary for Experiment 2

The purpose of Experiment 2 is to test Hypothesis H_2. Our results strongly support H_2 for Digital Cameras category and only marginally for MP3 Players category. We can conclude that an increases in attributes number strengthen the compromise effect: for both Digital Cameras and MP3 Players we found an increases in the magnitude of compromise effect from a 2-attributes choice set, to a 5-attributes choice set. This increases is significant for Digital Cameras and only marginally (p=0,11) for MP3 Players. More over, familiarity with product category significantly affects the selection of compromise alternative, for both product categories. Only low familiar consumers opt for the compromise option.

5.2.5 Purpose of Experiment 3

The aim of this study is to explore the evolution of the compromise effect over time when the amount of information provided to consumers changes over time.

Contrarily to the static condition, in this Experiment, the same group of consumers is exposed to an enrichment of the choice information: the second choice setting is composed by 5 product attributes.

Under those circumstances, the level of confusion experienced in case of one shot choice should decreases: on one side the increased number of attributes generates more uncertainty and more confusion, on the other side, consumers make twice a very similar choice and the level of familiarity with product category increases lowering uncertainty and confusion. In particular, the inverted U relationship between familiarity and learning in case of choice tasks (Johnson, Russo, 1984) states that the amount of information recalled during a choice task is a function of familiarity and the shape of that function is an inverted U. This means that "experienced" consumers use their knowledge of the product class to limit the search of information and this decrease could be due to prior knowledge of information presented in the environment (Bettman and Park, 1980). Moreover, Johnson and Russo (1984) found that experienced consumers have an increased encoding ability and develop knowledge of efficient decision procedure: they would ignore some attributes because they realize that these attributes are simply the combination of other known information.

Along these lines, the familiarity acquired during the first choice task can reduce the complexity connected to the increased number of attributes that characterize the second choice task (5 attributes): consumers process only the information that they judge relevant, reducing uncertainty that is typical of a one shot decision in which products are described by the same number of attributes.

Under these circumstances, the effect of the uncertainty is mitigated by the past experience and so the compromise effect decreases by the effect of a higher familiarity with the product category.

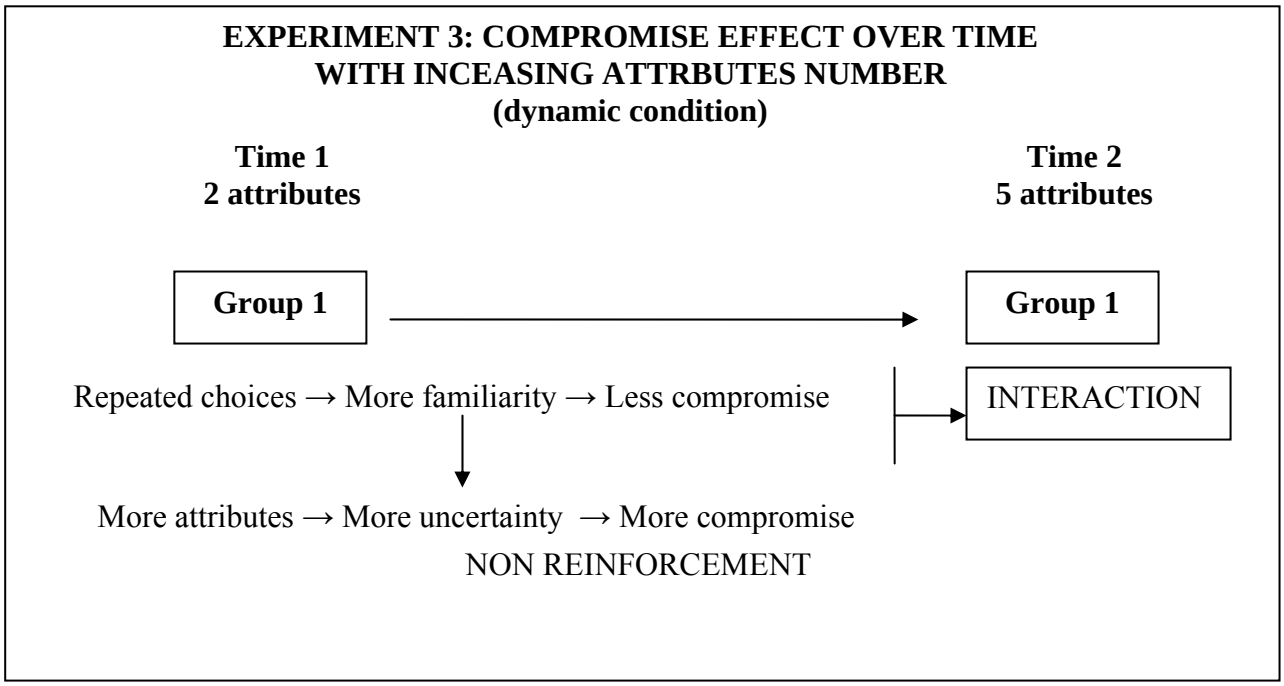

Figure 5.13: Schematization of Experiment 2

As a result, we expect to find a difference in the magnitude of the compromise effect between the case of one shot choice characterized by 5 attributes (static condition) and the case of an increase in attribute numbers from 2 to 5 (dynamic condition). In the last case, at time t_2 when consumers face again a similar decision within the same product category, the amount of information is changed (5 attributes) and they have to re-elaborate the decision. In this situation, the familiarity effect is supposed to (partially) overcome the difficulties experienced in processing of the huge amount of information, resulting in a decreasing of the compromise effect.

In H_{3a} we hypotheses that the compromise effect decreases when the number of product attributes increases along repeated choice tasks as an effect of increased familiarity (dynamic condition). In

H_{3b} we hypotheses that when the number of product attribute increases, the compromise effect is stronger for consumers who made only one decision (with 5 attributes) than for consumers that previously made a decision with few attributes (2 attributes and then 5 attributes).

5.2.6 Structure of Experiment 3

Groups	Time 1	Time 2
Group 1 (2 attributes)	A B	A' B'
Group 2 (2 attributes)	A B C	A' B' C'
Group 3 (2-5 attributes)	A B	A' B'
Group 4 (2-5 attributes)	A B C	A' B' C'

Table 5.24: Structure of experimental design for study 3

The principal aim of study two is to investigate the effect of an increasing amount of information along repeated choice tasks. The experiment is similar to the one conducted in study 2, but in this case each group of subjects is interviewed twice to evaluate how preferences change over time. The experiment is a 2 (set size: two vs. three product alternatives) X 2 (number of attributes: two; vs. four attributes) factorial design, repeated two times. Participant in the experiment are 150 students from University of Bologna, who participated to the experiment as a requirement for a marketing class. Participants are randomly assigned to one of the four experimental conditions.

With a time lag of five days participants are asked twice to carry out the same task: it should also be noticed that each subject is matched with the same experimental condition.

To avoid biases related to repeated choices of the same products, each time we modify choice sets to include different products, without varying the product class and the product attributes. The sample is divided in four groups to control for factors external to the experiment. Group 1 examines twice choice sets made of two products along two attributes. Again Group 2

evaluates choice sets characterized by three products and two attributes. The comparison between these groups allows us to assess the presence and the size of the compromise effect. By contrast, Group 3 evaluates always two product alternatives but along an increasing number of product attributes (2 and 4). Group 4 examines choice sets made of three product alternatives, again, along an increasing number of product attributes (2, and 4). The comparison between these groups allows us to assess the presence and the size of the compromise effect when the number of attributes vary over time.

5.2.7 Results: Digital Camera and MP3 Player

As we previously mentioned, at time t_1, the four groups are exposed to choice sets where products are described by two product attributes. Differences in choice sets evaluated by the two control groups (Group 1 and Group 2) and the two experimental groups (Group 3 and Group 4) appear in time t_2: Group 1 and 2 evaluate again choice sets where products are described by two attributes, while Groups 3 and 4 are presented with choice sets where products are described by five product attributes.

In table 5.25, first column reports results of a simple test for the presence compromise effect: at time t1 there is no manipulation. We find a strong compromise effect both for digital cameras and for MP3 players. At time t_2, same respondents have to make another choice. Control groups 1 and 2 have to evaluate choice sets characterized by 2 product attributes: there is no increasing in the amount of information they have to evaluate (this is a replication of Experiment 1). As for Experiment 1, compromise effect decreases over second choice.

Experimental groups 3 and 4 in time t_2 process more information on product attributes: in this case, we combine the results on the evolution of compromise effect over repeated choices (Experiment 1) with the results on the impact of the increased number of product attributes (Experiment 2).

For both Digital Cameras and Mp3 players compromise effect strongly decreases.

Digital Camera						
	T1			T2		
	A	B		A	B	
Group 1 (2 attributes)	0,56	0,44		0,50	0,50	
Group 2 (2 attributes)	0,31	0,69	t=2,04 Sign.0,05	0,33	0,67	t=1,32 Not sign.
Group 3 (2 attributes, 5 attributes)	0,53	0,48		0,50	0,50	
Group 4 (2 attributes, 5 attributes)	0,19	0,81	t=2,85 Sign. 0,05	0,27	0,73	t=1,97 Sign. 0,1
MP3						
	T1			T2		
	A	B		A	B	
Group 1 (2 attributes)	0,42	0,58		0,44	0,56	sign.
Group 2 (2 attributes)	0,17	0,83	t=2,12 Sign.0,05	0,21	0,79	t=2,00
Group 3 (2 attributes, 5 attributes)	0,40	0,60	.	0,45	0,55	
Group 3 (2 attributes, 5 attributes)	0,12	0,88	t=2,49 Sign. 0,05	0,21	0,79	t=1,92 Sign. 0,1

Table 5.25: Aggregate results for Experiment 3

To assess if difference detected over time and between experimental and control groups are significant and to perform a more complete analysis on raw data, we contrast groups (not only percentage shares) with CATMOD procedure.

- Digital Camera: time t1 -

At time t_1, comparing share of option B with control conditions we just show the presence of compromise effect. Tables 5.26 and 5.27 show the presence of compromise effect for both control

groups and experimental groups (at time t_1 control groups and experimental groups are exposed to the same treatments, there is no difference in the stimulus used).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.4710	0.1857	6.43	0.0112
Gruppo	1	0.6942	0.3012	5.31	0.0212
	2	-0.3091	0.3175	0.95	0.3302
	3	0.5711	0.2909	3.85	0.0496

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	4.11	0.0427

Table 5.26: Control Group (2 attributes)

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.4710	0.1857	6.43	0.0112
Gruppo	1	0.6942	0.3012	5.31	0.0212
	2	-0.3091	0.3175	0.95	0.3302
	3	0.5711	0.2909	3.85	0.0496

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	7.60	0.0058

Table 5.27: Experimental Group (2 attributes)

- Digital Camera: time t2 -

At time t_2, compromise effect over time (when there is no additional information on product attributes) decreases and its impact is no more significant, as shown in Table 5.27: we replicate findings from Experiment 1.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.4185	0.1821	5.28	0.0216
Gruppo	1	0.4185	0.2979	1.97	0.1600
	2	-0.2747	0.3413	0.65	0.4210
	3	0.4185	0.2884	2.11	0.1467

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	1.73	0.1885

Table 5.27: Control Group (2 attributes)

When information increases over time compromise effect is less strong but still present (Table 5.28): to test if that decreases is significant, we contrast the magnitude of compromise effect over choices made time t_1 and at time t_2.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.4185	0.1821	5.28	0.0216
Gruppo	1	0.4185	0.2979	1.97	0.1600
	2	-0.2747	0.3413	0.65	0.4210
	3	0.4185	0.2884	2.11	0.1467

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	3.81	0.0511

Table 5.28: Experimental Group (5 attributes)

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.5770	0.1870	9.52	0.0020
Gruppo	1	0.6770	0.2917	5.39	0.0203
	2	-0.8502	0.3719	5.23	0.0223
	3	0.5770	0.2915	3.92	0.0478

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
(4-3)t1 vs (4-3) t2	1	6.64	0.0100

Table 5.29: Contrast for Experimental Group between time t1 and time t2

As we can see in Table 5.29, Chi square is equal to 6,64 (p=0,01): from time t_1, where products are described by two attributes, to time t_2, where products are described by five attributes, we observe a significant decrement in the compromise effect. Hypothesis H_3 is supported: compromise effect decreases over repeated choices when the number of product attributes increases.

We also find support for Hypothesis H_4: compromise effect is stronger for consumers who made only one decision and evaluate a choice set characterized by five attributes (Experiment 2), than for consumers that previously made a decision with few attributes and later evaluate a choice set characterized by five attributes (Experiment 3).

We now analyze the impact of familiarity with product category in case of increased number of attributes over time. Table 5.30 show the presence of a significant difference (increases) in the familiarity with product category over time.

	Digital camera			**MP 3Player**		
	T1	T2	Sign. T-test	T1	T1	Sign. T-test
Familiarity	3,94	4,32	0,0238	4,8533	5,1467	0,099

Table 5.30: Familiarity Experiment 3

We first analyze difference in compromise choices for low and high levels of familiarity and then we run logistic regression to test if the increase in familiarity over time affects the choice of a compromise alternative.

Figure 5.13 shows that for low levels of familiarity the compromise option is the most chosen, while we found an opposite results in case of high familiarity.

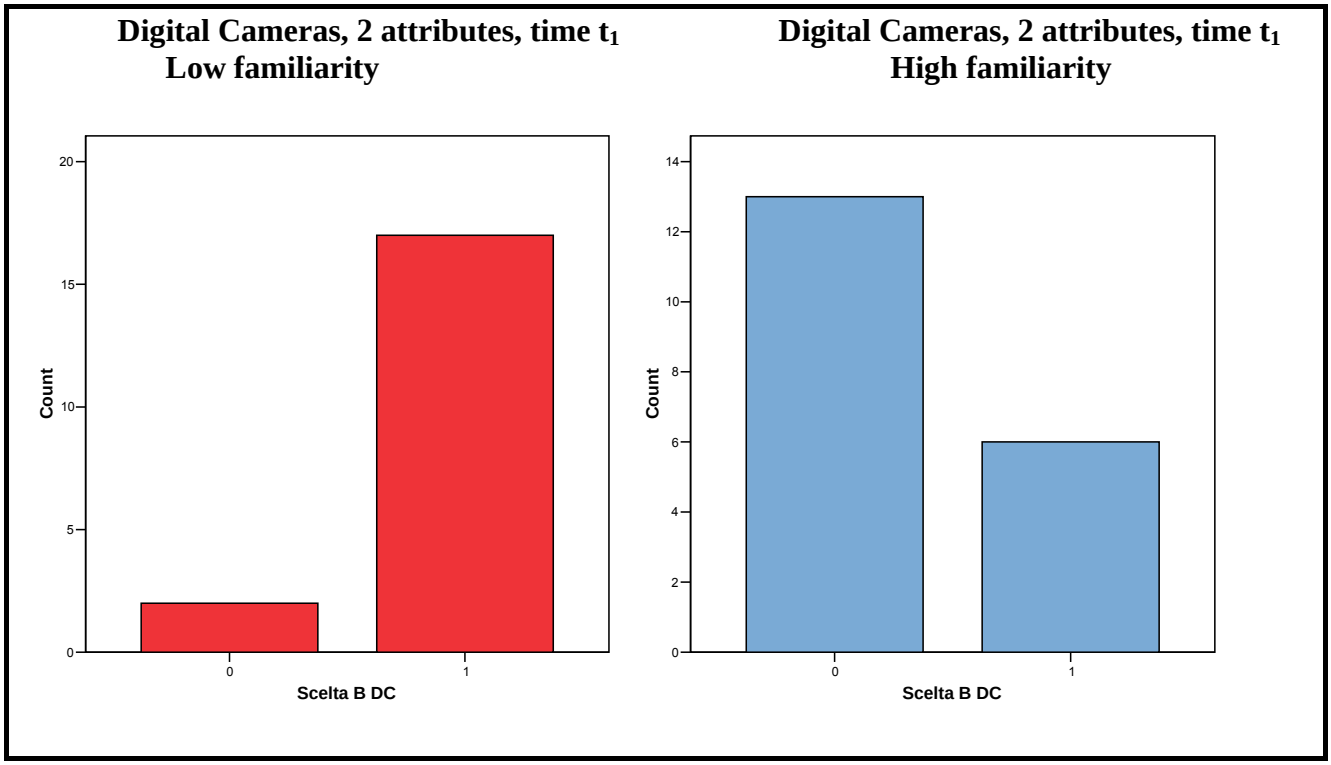

Figure 5.13: Familiarity and compromise choice-Digital Cameras 2 attributes, time t_1

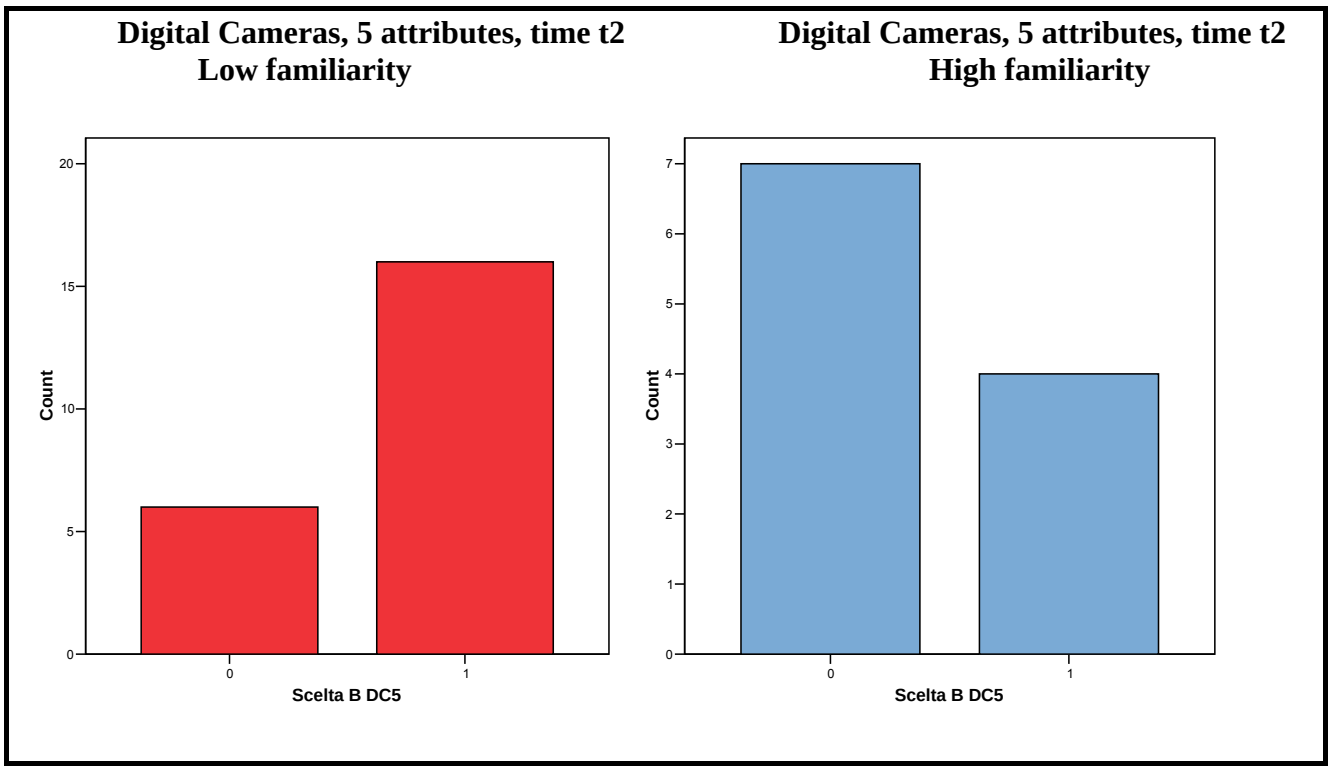

Figure 5.14: Familiarity and compromise choice-Digital Cameras 5 attributes, time t_2

Results are replicated at time t_2, when consumers evaluate a choice set more rich of information on product attributes (Figure 5.14).

Running a logistic regression we can assess the magnitude and the influence of familiarity on compromise choices.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	FamDC	-1,236	,413	8,977	1	,003	,290
	Constant	6,327	2,090	9,163	1	,002	559,214

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	32,869(a)	,379	,513

Table 5.31: Logistic regression - Familiarity and compromise choice-Digital Cameras, 2 attributes, time t_1

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Δ FamDC5	-,433	,268	2,614	1	,106	,649
	Constant	2,302	1,231	3,499	1	,061	9,993

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	41,377(a)	,083	,113

Table 5.32: Logistic regression - Familiarity and compromise choice-Digital Cameras, 5 attributes, time t_2

- MP3 Players: time t1 -

In MP3 players product category, we replicate results found for digital cameras category.

Compromise effect in time t1 is present and significant (see tables 5.33 and 5.34).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-1.0869	0.2287	22.58	<.0001
Gruppo	1	0.7504	0.3308	5.14	0.0233
	2	-0.4818	0.4161	1.34	0.2470
	3	0.6814	0.3231	4.45	0.0349

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	4.27	0.0389

Table 5.33: Contrast for Control Groups (2 attributes) at time t_1

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-1.0869	0.2287	22.58	<.0001
Gruppo	1	0.7504	0.3308	5.14	0.0233
	2	-0.4818	0.4161	1.34	0.2470
	3	0.6814	0.3231	4.45	0.0349

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	5.53	0.0187

Table 5.34: Contrast for : Experimental Group (2 attributes) at time t_1

- MP3 Players: time t2 -

In time t_2, the contrast between Groups 1 and 2, reported in Table 5.34, tests the magnitude of compromise effect over time (when no additional information on product attributes are provided). As in experiment 1 we observe a decrement of compromise effect over repeated choices.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.6426	0.2037	9.95	0.0016
Gruppo	1	0.4195	0.3126	1.80	0.1797
	2	-0.6567	0.3841	2.92	0.0873
	3	0.4419	0.3033	2.12	0.1451

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	3.57	0.0589

Table 5.34: Contrast for Control Groups (2 attributes) at time t2

Groups 3 and 4, in time t_2 are exposed to an increased amount of information on product attributes (from two attributes in time t_1, to five attributes in time t_2). As shown in table 5.35, compromise effect is not significant: we observe a decrement in the effect.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.6426	0.2037	9.95	0.0016
Gruppo	1	0.4195	0.3126	1.80	0.1797
	2	-0.6567	0.3841	2.92	0.0873
	3	0.4419	0.3033	2.12	0.1451

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	1.23	0.2668

Table 5.35: Contrast for Experimental Group (5 attributes) at time t2

To test the significance of this decrement, we contrast Groups 3 and 4 tin time $t_1$and in time t_1 (see Table 5.36).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.8726	0.2264	14.85	0.0001
Gruppo	1	0.4671	0.3215	2.11	0.1462
	2	-1.1643	0.4896	5.66	0.0174
	3	0.6719	0.3190	4.44	0.0352

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
(4-3)t1 vs (4-3)t2	1	7.06	0.0079

Table 5.36: Contrast for Experimental Group in time t1 and in time t2

As we can see, Chi Square is equal to 7,06 (p=0,008): compromise effect decreases over repeated choices when attributes number increases. Also for Mp3 Players category, we find support for both hypotheses H_3 and H_4.

Figure 5.15 shows that for low levels of familiarity the compromise option is the most chosen, while when familiarity is high percentages of compromise option and extreme option are almost equal.

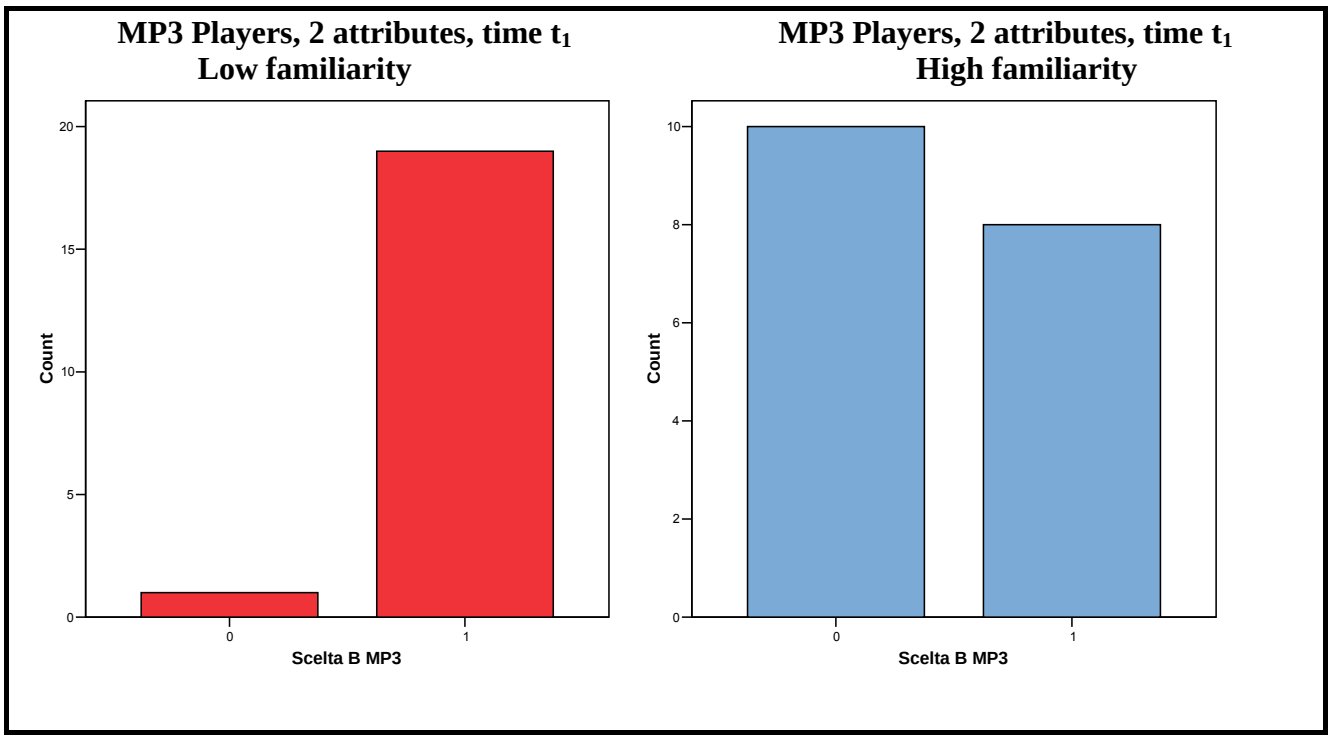

Figure 5.15: Familiarity and compromise choice-MP3 Players 2 attributes, time t_1

We found similar results also when attributes number increases over time.

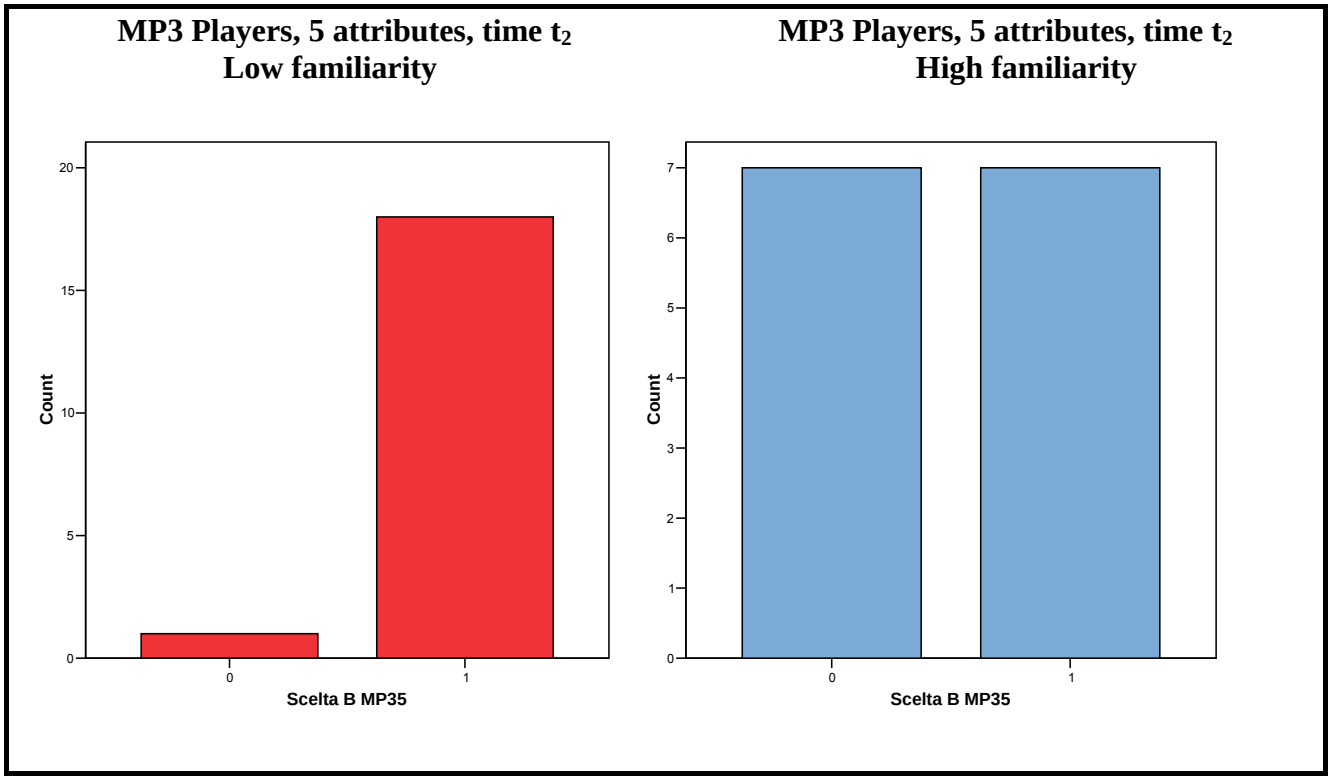

Figure 5.16: Familiarity and compromise choice-MP3 Players 5 attributes, time t_1

We now test the impact of familiarity on compromise effect running a logistic regression.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Fam_MP3	-,885	,319	7,715	1	,005	,413
	Constant	5,210	1,747	8,896	1	,003	183,090

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	33,430(a)	,276	,395

Table 5.36: Logistic regression - Familiarity and compromise choice-MP3 Players, 2 attributes, time t1

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	ΔFam_MP35	-,811	,334	5,893	1	,015	,444
	Constant	4,937	1,795	7,565	1	,006	139,338

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	27,760(a)	,234	,349

Table 5.37: Logistic regression - Familiarity and compromise choice-MP3 Players, 5 attributes, time t2

Familiarity has a negative impact on compromise effect at time t_1 (Table 5.36). More interestingly, increment in familiarity over time (from time t_1 to time t_2) negatively affects the strength of compromise effect: consumers are less prone to compromise over repeated choices, even when number of attributes increases (Table 5.37). The increment in familiarity with product category accounts for the decreasing in the compromise choice.

5.2.8 Summary for Experiment 3

The purpose of Experiment 3 is to test hypothesis H_3. Our results strongly support H_3 for both Mp3 Players and Digital Cameras: compromise effect significantly decreases when the number of product attributes increases over repeated choice tasks. We therefore found support for hypothesis H_4. When number of product attribute is increased, compromise effect increases in the "static" condition (result form Experiment 2): comparing this result with findings from Experiment 3, we can conclude that compromise effect is stronger for consumers who made only one "complex" decision (evaluate five attributes) than for consumers who previously made a "simple" decision (evaluate two attributes) and later a "complex" decision (evaluate five attributes). Repeated exposure to a similar choice set, increases familiarity with product category. In fact, we found a negative and significant impact of familiarity on compromise choices: also when attributes number increases over time, familiarity weaken the compromise effect.

5.3 Essay 3: Experiments 4 and 5 - Information on social behavior-

5.3.1 Purpose of Experiment 4

The aim of this study is to understand whether the effect of socially relevant information influences the strength of the compromise effect.

According to Simonson (1989), consumers choose the compromise option because they search an alternative that is easily justifiable and because they need to be favorable evaluated by others. More generally, is demonstrated that context effects are characterized by a strong social component (Simonson 1989; Prelec, Wernerfelt and Zettelmeyer 1997). Choices under uncertain preferences can be argued to depend on the choices of other individuals: Nowlis and Simonson (2000) show that having to foresee the choices of others, individuals tend to mainly select the middle option (compromise effect). If the context alternatives are seen as more socially justifiable, the availability of information concerning other consumers' choices can minimize the need for further "social justification" and facilitate the selection of the alternative that has already been selected by others. By giving information about choices of other consumers, we expect a decreasing of the compromise effect.

Socially relevant information is able to "drive" preferences from the compromise option to the most chosen alternative. In other words, if consumers are informed that one alternative is the most chosen by other consumers, they can use this information to make a choice, especially if they are uncertain about their preferences.

Information on other consumers choice can be about: 1) the compromise alternative (that we indicate as B); 2) one of the two extreme alternatives (that we indicate as A).

In $H_{5a:}$ we hypothesizes that, when subjects are provided with the information that the extreme option (A) is the most chosen by other consumers, the compromise effect is strongly reduced.

In H_{5b} we hypothesizes that, when subjects are provided with the information that the compromise option (B) is the most chosen by other consumers, the compromise effect will decrease and the overall probability that B will be chosen will increase.

5.3.2 Structure of Experiment 4

The aim of Experiment 4 is to understand whether people react to information on other consumers choice. In order to provide respondents with a not explicit stimulus, we show them a questionnaire where the cover page has different lines in which each respondent have to fill-in his choice. Each participant receives a questionnaire where 35 other fictitious respondents expressed preferences for either option A or option B: the last line was blank to allow respondent to put his preference[4]. In the control condition (Group 1 and Group 2), received a questionnaire where other consumers choose A and B in equal percentages. In the experimental condition 1 (Group 3 and Group 4), received a questionnaire where other consumers choose more times option A. In the experimental condition 2 (Group 5 and Group 6), received a questionnaire where other consumers choose more times option B.

Experiment is a 2 (2 alternatives vs 3 alternatives) X 3 (no information, information on A, information o B) between subject design. Participant in the experiment are 163 students from University of Bologna, who participated to the experiment as a requirement for a marketing class.

[4] Appendix reports an example of the scenario presented.

Groups	Choice set
Group 1 (no information)	A B
Group 2 (no information)	A B C
Group 3 A is the most chosen	A B
Group 4 A is the most chosen	A B C
Group 5 B is the most chosen	A B
Group 6 B is the most chosen	A B C

Table 5.38: Structure of Experiment 4

5.3.3 Results: Digital Camera and Mp3 Player

To understand weather information on most chosen alternative influences compromise effect, we compare results form experimental condition 1 (extreme option A is the most chosen) and experimental condition 2 (middle option B is the most chosen) with control condition (no information on preferred alternative is added). We compare delta between Group 1 and Group 2 simply to test the presence of compromise effect: for both product categories compromise effect is significant at 0,05%. Comparing "B share" in Groups 3 and 4 we measure compromise effect in experimental condition 1, when option A is the most chosen (Table 5.39). Contrarily to our expectations, compromise effect is marginally significant even when an extreme option is the most chosen.

	Digital Camera			MP3 Player		
Groups	A	B		A	B	
G1 (no information)	0,56	0,44	t=2,65	0,42	0,58	t=2,12
G2 (no information)	0,31	0,69	Sign. 0,05	0,17	0,83	Sign. 0,05
G3 (A is the most chosen)	0,61	0,39	t=1,99	0,63	0,37	t=2,01
G4 (A is the most chosen)	0,47	0,53	Sign. 0,01	0,41	0,59	Sign. 0,01
G5 (B is the most chosen)	0,40	0,60	t=0,84	0,33	0,67	t=0,17
G6 (B is the most chosen)	0,30	0,70	not sign.	0,34	0,66	not sign.

Table 5.39: Aggregate results for Experiment 4

To test weather when option B is the most chosen compromise effect varies, we compare choice percentages for groups 5 and group 6. In this case compromise effect is not significant: when respondents are aware that other consumers choose middle option B, this alternative become favorite both in Group 5 and in Group 6. As a result, option B is far more chosen than option A (70% select option B for digital cameras), but this is not due to compromise effect, because the delta B share between Group 5 (A,B) and Group 6 (A,B,C) is irrelevant.

- Digital Camera-

Now we test the presence of compromise effect using raw data and not percentages: in this way we can also test if variations in the strength of compromise effect are significant. Contrarily to our expectations, Table 5.40 shows a significant compromise effect when option A is the most chosen alternative. Compromise effect is present and significant even when consumers are aware that an extreme option is the most chosen by other consumers. H_{5a} is not supported for Digital cameras

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.1967	0.1767	1.24	0.2658
Gruppo	1	0.8157	0.2936	7.72	0.0055
	2	-0.2282	0.2826	0.65	0.4194
	3	0.0631	0.3134	0.04	0.8403

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	5.26	0.0218

Table 5.40: Social Information on option A

On the contrary, when option B is the one preferred by other consumers, compromise effect does not affect choice: as we mentioned, option B is more chosen than option A, but not as an effect of compromise effect. In fact, compromise effect is not significant in this case: information on social behavior drives preferences and make option B the most chosen. We found support for $H_{5b.}$

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.1967	0.1767	1.24	0.2658
Gruppo	1	0.8157	0.2936	7.72	0.0055
	2	-0.2282	0.2826	0.65	0.4194
	3	0.0631	0.3134	0.04	0.8403

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	1.74	0.1870

Table 5.41: Social Information on option B

We now explore if familiarity with product category influences the choice of compromise option B also in case of social relevant information on extreme alternative A. Figure 5.17 do not shows the pattern observed previously: low familiarity and high familiarity levels are associated with almost equal percentages of middle and extreme options.

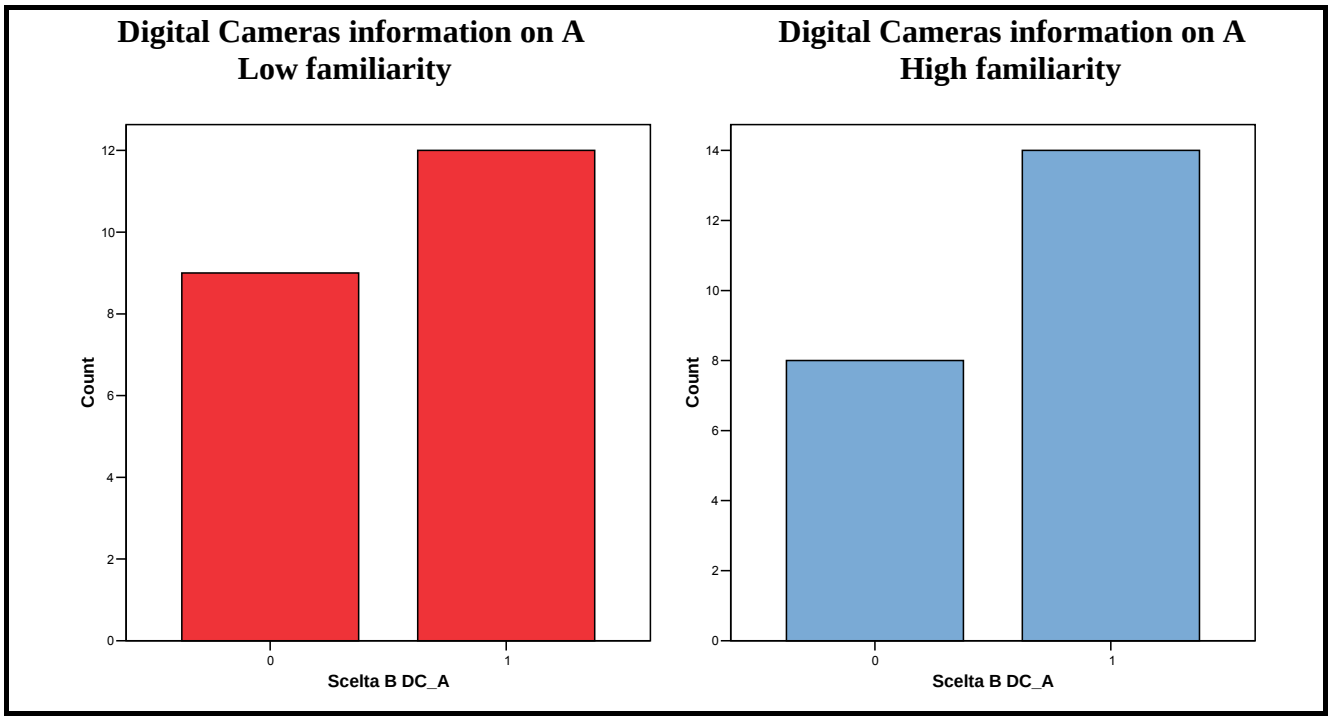

Figure 5.17: Familiarity and compromise choice-Digital Cameras, Information on A

Also in case of information on option B (compromise option B is the most chosen by others), we lack to observe differences between low and high familiarity in term of tendency to compromise.

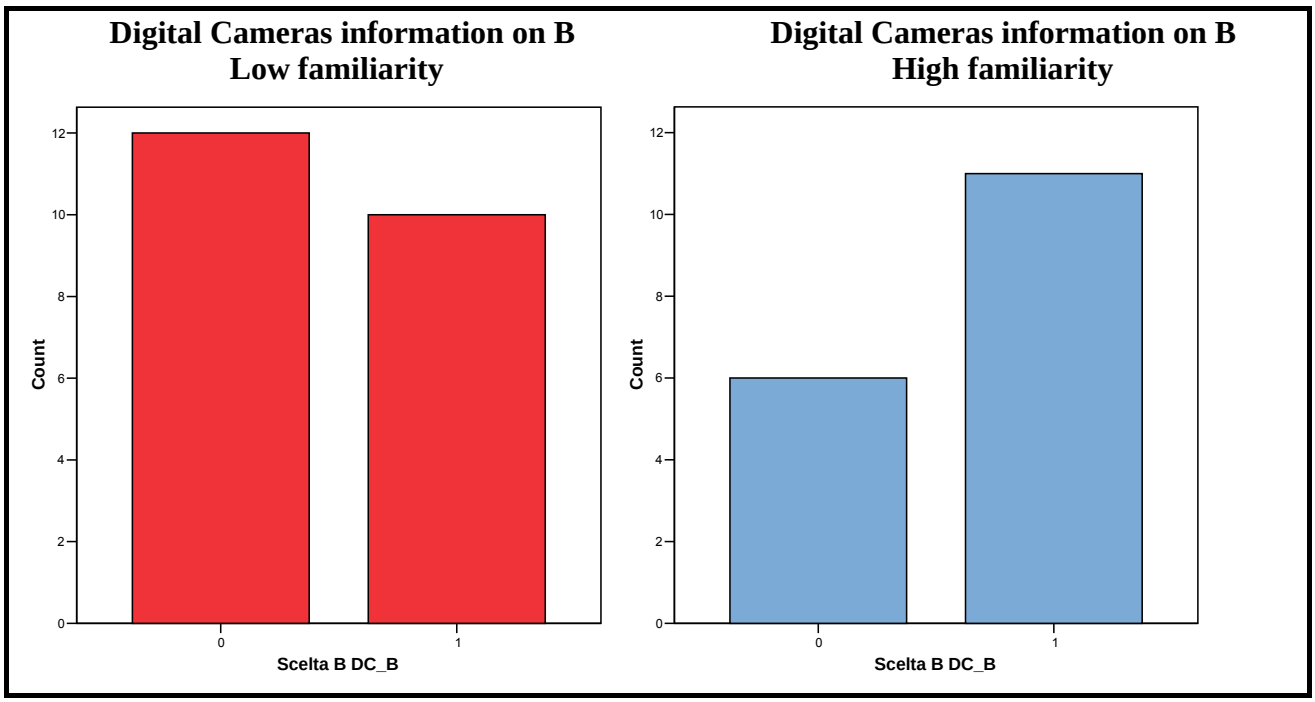

Figure 5.18: Familiarity and compromise choice-Digital Cameras, Information on B

This result could be due to the presence of social information on one of the alternatives: this information strongly reduces the presence of compromise effect and modifies the influence of familiarity. We now examine results from logistic regressions for both cases where social information regards extreme option A and middle option B (Tables 5.42, 5.43).

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	FamDC_A	,303	,214	1,993	1	,158	1,354
	Constant	-,838	,941	,794	1	,373	,432

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	55,633(a)	,047	,064

Table 5.42: Logistic regression - Familiarity and compromise choice-Digital Cameras, Information on A

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	FamDC_B	,321	,233	1,887	1	,170	1,378
	Constant	-1,252	1,070	1,368	1	,242	,286

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	51,829(a)	,050	,067

Table 5.43: Logistic regression - Familiarity and compromise choice-Digital Cameras, Information on B

In both cases, the impact of familiarity is not significant. When a socially relevant information is added to the choice problem, familiarity is not a driver of compromise choices.

- *MP3 Player*-

Results are replicated also for MP3 players. When option A is the most chosen compromise effect is significant: contrary to our expectations, compromise effect is present even if social information on other consumers behavior is provided (Table 5.44). Hypothesis H_{5a} is not supported also for Mp3 Players.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.0207	0.1736	0.01	0.9052
Gruppo	1	0.5315	0.2889	3.38	0.0658
	2	-0.7076	0.2883	6.03	0.0141
	3	0.2889	0.3131	0.85	0.3561

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	7.22	0.0072

Table 5.44: Social Information on option A

On the contrary, when option B is the most chosen alternative, compromise effect is reduced to nil (Table 5.45). Hypothesis H_{5b} is supported also for Mp3 Players.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.0207	0.1736	0.01	0.9052
Gruppo	1	0.5315	0.2889	3.38	0.0658
	2	-0.7076	0.2883	6.03	0.0141
	3	0.2889	0.3131	0.85	0.3561

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	0.60	0.4391

Table 5.44 Social Information on option B

We now test the impact of familiarity on compromise decisions (Figures 5.19 e 5.20).

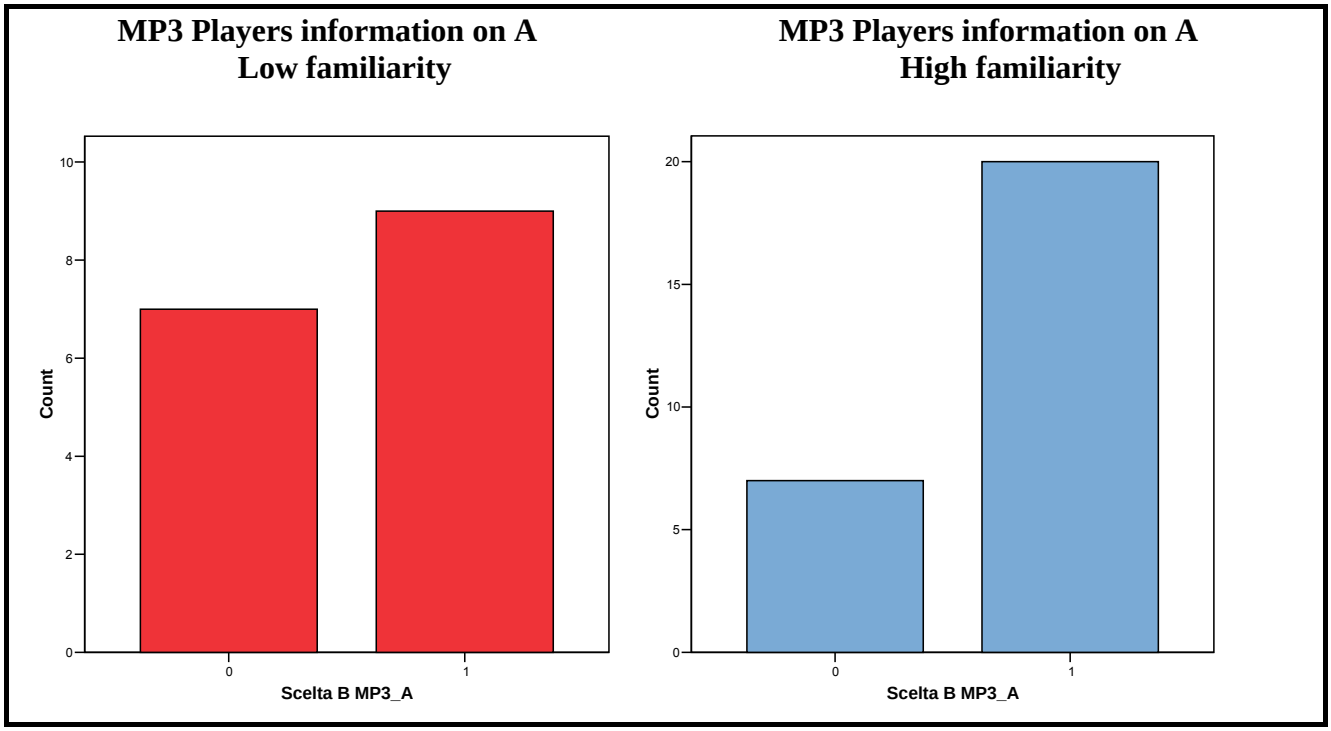

Figure 5.19: Familiarity and compromise choice-MP3 Players, Information on A

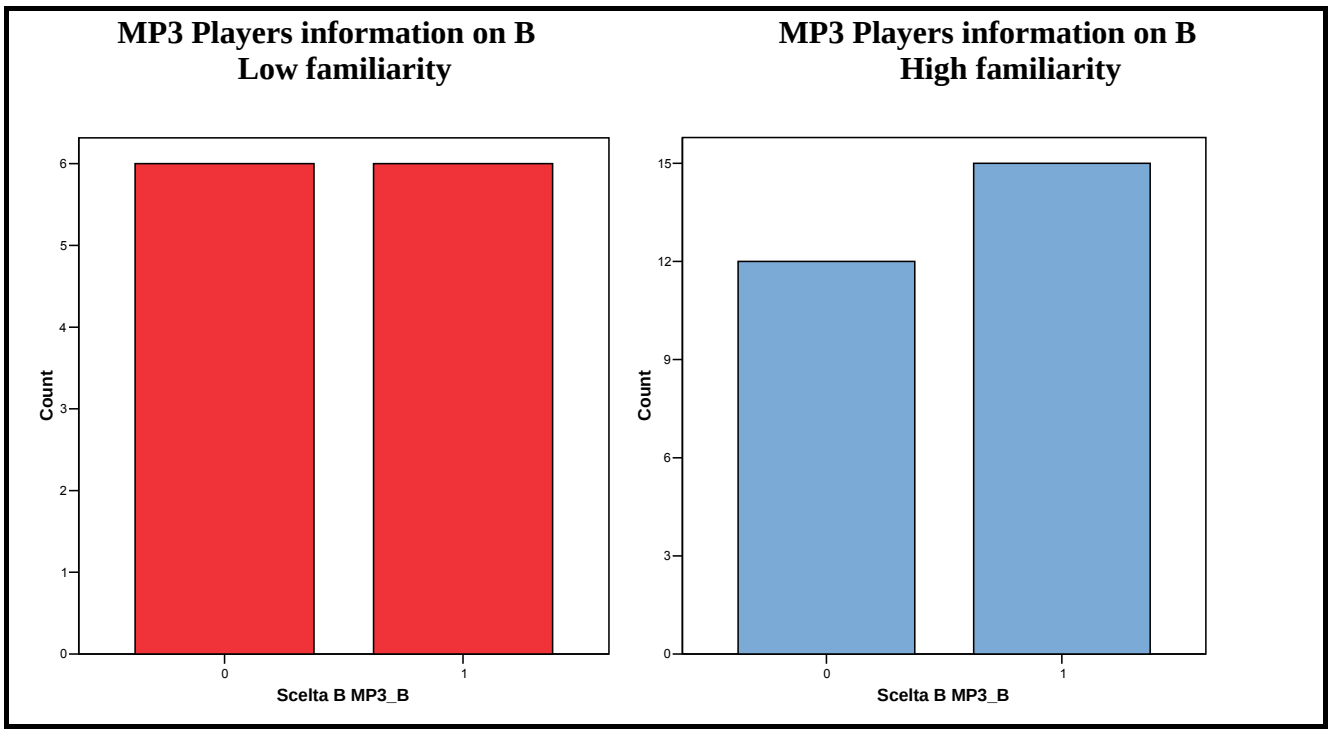

Figure 5.20: Familiarity and compromise choice- MP3 Players, Information on B

Also for MP3 Players, we do not observe the influence of familiarity observed in previous experiments. On the contrary, when option A is the most chosen by others, high familiar consumers compromise in most of the cases. Socially relevant information affect the role of familiarity in moderating strength of compromise effect. Further evidence is provided by logistic regressions reported in Tables 5.45 and 5.46.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Fam_MP3_A	,215	,233	,852	1	,356	1,240
	Constant	-,316	1,164	,074	1	,786	,729
Step	**-2 Log likelihood**		**Cox & Snell R Square**		**Nagelkerke R Square**		
1	53,403(a)		,020		,028		

Table 5.45: Logistic regression - Familiarity and compromise choice-MP3 Players, Information on A

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Fam_MP3_B	,003	,199	,000	1	,988	1,003
	Constant	,139	1,034	,018	1	,893	1,149
Step	**-2 Log likelihood**		**Cox & Snell R Square**		**Nagelkerke R Square**		
1	53,834(a)		,000		,000		

Table 5.46: Logistic regression - Familiarity and compromise choice-MP3 Players, Information on B

5.3.4 Summary for Experiment 4

The purpose of Experiment 4 is to test Hypotheses H_{5a} and H_{5ab}. Our results show a strong support for H_{5b}, but not for H_{5a}. When consumers are aware that extreme option is the most chosen by others, compromise effect is present and significant: we fond this results for both Mp3 Players and Digital Cameras. On the contrary, when consumers are aware that the compromise option is the most chosen by others, compromise effect is reduced to nil, because there is no B delta share between binary and ternary choice sets present and significant: we fond this results for both Mp3 Players and Digital Cameras. Moreover, familiarity with product category does not affect compromise choices.

5.3.6 Purpose of Experiment 5

The aim of this study is to understand whether the effect of socially relevant information influences the strength of the compromise effect over time.

In this experiment the same group of respondents make a similar choice task twice, with one week of delay.

Each respondent, over time, evaluates the same number of alternative, but during the second choice task he is provided with the information on other consumers' choices.

If the information is about the extreme alternative A, this information should lead preferences toward option A: the need for social justification that is one cause of the compromise effect, in the presence of a socially relevant information, can deviate choices on the most chosen alternative (instead of the compromise alternative) that in this case is the extreme option A.

As a result, the compromise effect is weakened by this new information.

On the other hand, if the information is about the compromise alternative B, most of the consumers decide for the compromise options B: under preference uncertainty, information about social behavior drives the choice and lead to the selection of the most chosen alternative, that is the compromise option B.

Since compromise effect is a measure of the difference in the percentage of B when it is in the set (A,B) and when it is in the set (A,B,C), when we provide evidence that the option B (compromise option) is also the most chosen by other consumers, the difference between the percentage of B in (A,B) and in (A,B,C), is irrelevant because most of the respondents decide for option B also in choice set (A,B). Under these conditions, compromise effect will is weakened by this new information, and option B became be the most chosen alternative, not because is the compromise option, but because is the most chosen by other consumers.

In H_{6a} we hypothesizes that when subjects are provided with the information that the compromise option is the most chosen by other consumers along repeated choices, the overall probability of selecting option B increases, but the compromise effect decreases.

In H_{6b} we hypothesizes that when subjects are provided with the information that the extreme option is the most chosen by other consumers along repeated choices, the compromise effect is annulled.

In H_7 we hypothesizes that when information on social behavior is provided, compromise effect is stronger for consumers who made only one decision (static condition) than for consumers that make repeated choices (dynamic condition).

5.3.6 Structure of Experiment 5

The goal of Experiment five is to analyze the impact of additional information about other peoples behavior on the strength of he compromise effect.

The experiment is a 2 (set size: two vs. three product alternatives) X 3 (information about others people behavior: absent vs. compromise option vs. extreme option) between subject design, repeated twice whit a delay of five days. Participant in the experiment are 256 students from University of Bologna, who participated to the experiment as a requirement for a marketing class.

Participants were randomly assigned to one of the six experimental conditions.

Group 1: two products, no information about others choices; Group 2: three products, no information about others choices; Group 3: two products, option preferred is the extreme option; Group 4: three products, option preferred is the extreme option. Group 5: two products, option preferred is the compromise option; Group 6: three products, option preferred is the compromise option.

Groups 1 and 2 represents the "Control condition", as they do not receive any treatment over time; Groups 3 and 4 represents the "Experimental condition 1", as they receive information that the most chosen alternative is option A; Groups 5 and 6 represents the "Experimental condition 1", as they receive information that the most chosen alternative is option B.

Groups	Time 1	Time 2
Group 1 (no information)	A, B	A, B
Group 2 (no information)	A, B, C	A, B, C
Group 3 (no information, A most chosen)	A, B	**A**, B
Group 4 (no information, A most chosen)	A, B, C	**A**, B, C
Group 5 (no information, B most chosen)	A, B	A, **B**
Group 6 (no information, B most chosen)	A, B, C	A, **B**, C

Table 5.47: Structure of Experiment 5

5.3.8 Results: Digital Camera and MP3 Player

At time t_1 all groups have to evaluate the same amount of information: no information on social behavior is added in this phase.

Time t_1 simply tests the presence of compromise effect. For both product categories, compromise effect is present and significant in all three contrasts (Table 5.48).

At time t_2, comparison between Group 1 and Group 2 tests the evolution on compromise effect over repeated choice: this is a replication of Experiment 1. Also in this case we can observe a reduction in the strength of compromise effect: for digital cameras compromise effect is reduced to nil, while for MP3 players the strength of compromise effect is reduced, but the effect is still significant.

When at time t_2 consumers are informed that option A is the alternative most chosen by others, compromise effect decreases.

For the second experimental condition (comparison between groups 5 and 6), we observe the same results: compromise effect decreases along repeated choices when consumers are exposed to information on social behavior, consistent with compromise pattern.

To have a more deep comprehension of these changes in the strength of compromise effect, we perform analysis on raw data and we contrast delta B share over time and over groups: in this way we can test the significance of decrements in compromise effect.

	Digital Cameras						**MP3 Players**					
%	**Tempo 1**			**Tempo 2**			**Tempo 1**			**Tempo 2**		
	A	**B**	**t-test**	**A**	**B**	**t-test**	**A**	**B**	**t-test**	**A**	**B**	**t-test**
G1 (No Info, no info)	0,56	0,44		0,50	0,46		0,42	0,58		0,44	0,56	
G2 (No Info, no info)	0,31	0,69	t=2,04	0,33	0,61	t=1,32	0,17	0,83	t=2,12	0,21	0,69	t=2,00
G3 (No info, A most chosen)	0,49	0,51		0,77	0,23		0,48	0,52		0,69	0,31	
G4 (No info, A most chosen)	0,31	0,69	t=2,11	0,62	0,38	t=1,84	0,29	0,71	t=2,12	0,55	0,45	t=1,51
G5 (No info, B most chosen)	0,53	0,47		0,20	0,80		0,44	0,56		0,17	0,83	
G6 (No info, B most chosen)	0,26	0,74	t=3,00	0,14	0,86	t=0,99	0,26	0,74	t=2,11	0,15	0,85	t=0,29

Table 5.48: Aggregate results for Experiment 5

- Digital Camera: time t1-

For all three conditions (Control condition, Experimental condition1 and Experimental condition 2) at time t_1 we simply test the presence of compromise effect. The three groups of respondents are exposed to the same amount of information: the choice task is the same and there is no information added regarding social behavior. At time t_1 our goal is to measure the strength of compromise effect for the three groups: differences in the evolution of the effect as a consequence of different treatments may appear in time t_2, when different groups are exposed to different information.

As we can see from Tables 5.49, 5,50, 5.51, the effect is present and significant.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.2785	0.2475	1.27	0.2605
Gruppo	1	0.5017	0.2475	4.11	0.0427

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	4.11	0.0427

Table 5.49: Control Group, time t_1 (No social Information)

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.4370	0.1349	10.50	0.0012
Gruppo	1	0.4043	0.2258	3.21	0.0734
	2	-0.3739	0.2330	2.57	0.1086
	3	0.5622	0.2226	6.38	0.0116

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	4.39	0.0361

Table 5.50: Experimental Group 1, time t_1 (No social Information)

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.4370	0.1349	10.50	0.0012
Gruppo	1	0.4043	0.2258	3.21	0.0734
	2	-0.3739	0.2330	2.57	0.1086
	3	0.5622	0.2226	6.38	0.0116

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	8.70	0.0032

Table 5.51: Experimental Group 2, time t_1 (No social Information)

- Digital Camera: time t2-

Table 5.52 reports another test of hypothesis H_1: over repeated choices the compromise effect, that at time t_1 was significant, is strongly reduced.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		0.0270	0.2341	0.01	0.9081
Gruppo	1	-0.0270	0.2341	0.01	0.9081

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	0.01	0.9081

Table 5.52: Control Group, time t_2

Experimental Group 1, that in time t_1 was exposed to a simply choice task, with no information on others' preferences, in time t_1 evaluates a choice problem where the preferred alternative is the extreme option A. As we can see from Table 5.53, at time t_2, when information on social behavior regarding option A is added, compromise effect is not significant.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.2491	0.1510	2.72	0.0990
Gruppo	1	1.4602	0.2630	30.83	<.0001
	2	0.9423	0.2354	16.02	<.0001
	3	-1.1177	0.2666	17.58	<.0001

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	1.70	0.1925

Table 5.53: Experimental Group 1 at time t_2 information on A is added

Using the CATMOD procedure, we can test if is decrease observed over time is significant. Results from Table 5.54 show that, comparing experimental condition 1 (delta Group3 and Group 4) in time t_1 and in time t_2, we observe a significant difference (0,09%). Over repeated choices, when consumers are aware of others' preferences for extreme option A, compromise effect decreases. Hypothesis H_{6a} is therefore supported.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-1.0309	0.1570	43.12	<.0001
Gruppo	1	1.1561	0.2367	23.86	<.0001
	2	0.00131	0.2644	0.00	0.9960
	3	-0.3359	0.2700	1.55	0.2134

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	2.88	0.0897

Table 5.54: Contrast for Experimental Group 1 between time t_1 time t_2

We obtain a similar result also when information on social behavior added at time t_2 is about compromise option B. Compromise effect, that at time t_1 was significant, is now strongly reduced (Table 5.55).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.2491	0.1510	2.72	0.0990
Gruppo	1	1.4602	0.2630	30.83	<.0001
	2	0.9423	0.2354	16.02	<.0001
	3	-1.1177	0.2666	17.58	<.0001

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	0.13	0.7135

Table 5.55: Experimental Group 1 at time t_2

Results from the contrast between magnitude of compromise effect at time t_1 and at time t_2 show a significant difference: the decreases in strength of compromise effect over repeated choices is significant ($p < 0{,}0001$), as shown in Table 5.56. Hypothesis H_{6b} is therefore supported.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		0.2107	0.1372	2.36	0.1245
Gruppo	1	-0.2435	0.2272	1.15	0.2838
	2	-1.0216	0.2344	19.00	<.0001
	3	1.0004	0.2553	15.36	<.0001

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	24.79	<.0001

Table 5.55: Contrast for Experimental Group 2 between time t_1 time t_2

To test hypothesis H_7 we compare the magnitude of compromise effect in Experiment 4, where information on social behavior is given in one shot choice, and the magnitude of compromise effect in Experiment 5, where information on social behavior is added over second choice task.

Table 5.56 illustrates that comparison for the situation where option A is the most chosen in digital cameras category. Results form Experiment 4 showed, contrarily to our expectations, that when extreme option A is the most chosen compromise effect is still significant. We now compare the magnitude of compromise effect in Experiment 4 that represents the "static" condition (consumers made only one choice and they had the information that the preferred option was A) to results form Experiment 5 that represents the "dynamic" condition (consumers made two choices and they had

the information that the preferred option was A only during second choice task). In this way we can understand if over repeated choices, when there is a progressive information acquisition compromise effect is more weakened by social information than in case of one shot decision.

Table 5.56 shows that the decrease in the magnitude of compromise effect is significant: Hypothesis H_7 is supported.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		0.4702	0.1521	9.55	0.0020
Gruppo	1	0.1489	0.2795	0.28	0.5942
	2	-0.8951	0.2679	11.16	0.0008
	3	0.7409	0.2636	7.90	0.0049

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	14.09	0.0002

Table 5.56: Contrast for Information on A in Experiment 4 and Experiment 5.

We make the same comparison also for the experimental condition 2, where information on social behavior is on middle option B. Results from Experiment 4 showed that information on option B weakened the compromise effect, that was not significant. That result was due to the preferences accorded to option B both in the binary choice set and in the ternary choice set: there was no delta B share from (A,B) and (A,B,C). Also Experiment 5 showed that compromise effect is reduced over time when information on option B is added during the second choice task. Table 5.57 shows the comparison between the magnitude of compromise effect for the situation where option B is the most chosen in digital cameras category: the contrast is marginally significant (p=0,01).

The CATMOD Procedure

Maximum Likelihood Analysis of Variance

Source	DF	Chi-Square	Pr > ChiSq
Intercept	1	33.05	<.0001
Gruppo	3	12.01	0.0074
Likelihood Ratio	0	.	.

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-1.0500	0.1827	33.05	<.0001
Gruppo	1	0.9165	0.3167	8.37	0.0038
	2	0.2027	0.3357	0.36	0.5460
	3	-0.3169	0.2857	1.23	0.2674

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	3.06	0.0938

Table 5.57: Contrast for Information on A in Experiment 4 and Experiment 5.

Finally we want to analyze the impact of familiarity with product category on compromise choices. We first display differences in compromise choices for low and high familiarity and then run logistic regression to test the direction and the magnitude of the influence.

Figure 5.21 show that for the low level of familiarity, consumers opt more often for the compromise alternative even thou this difference is not huge; when familiarity is high, consumers prefer the compromise option more often than the extreme option. This last result is in contrast with our expectations and with previous results: that could be due to special characteristics of the sample.

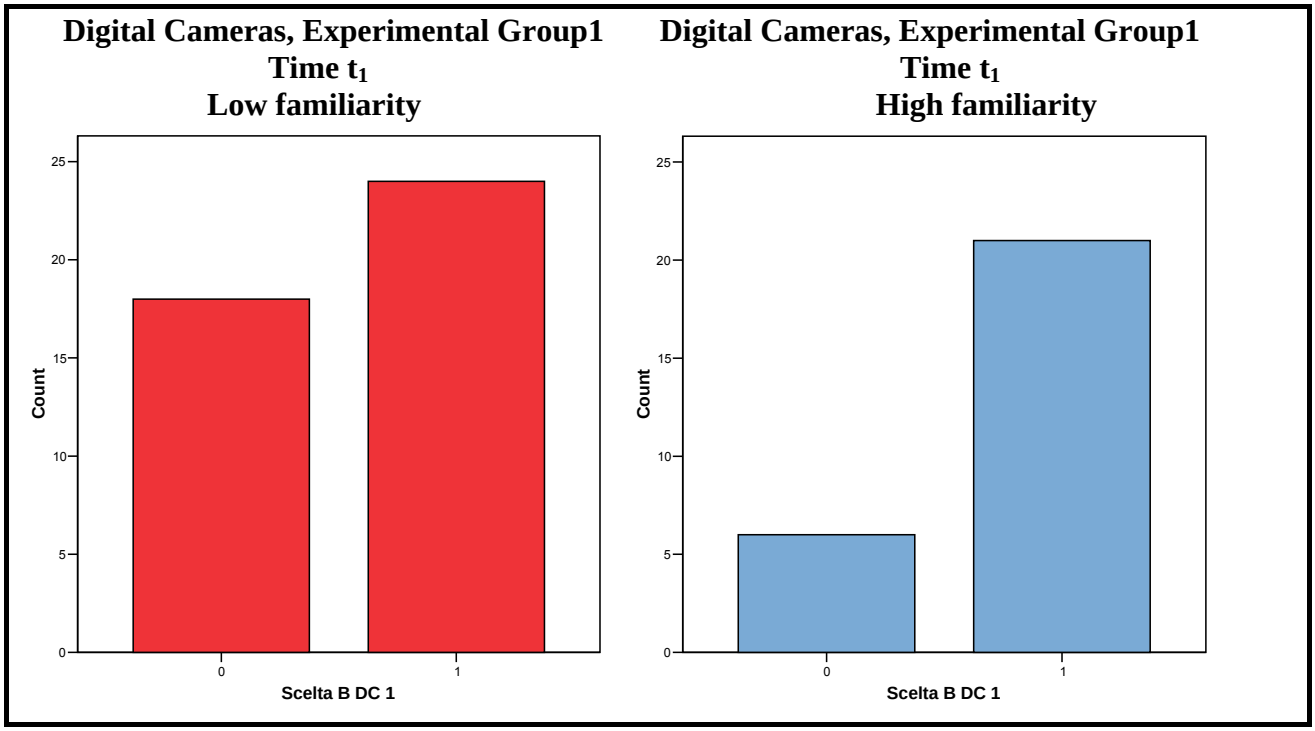

Figure 5.21: Familiarity and compromise choice-Digital Cameras, Experimental Group 1, time t_1

At time t_2, consumers show a smaller tendency to compromise: there is no differences in tendency to compromise between low and high familiar consumers.

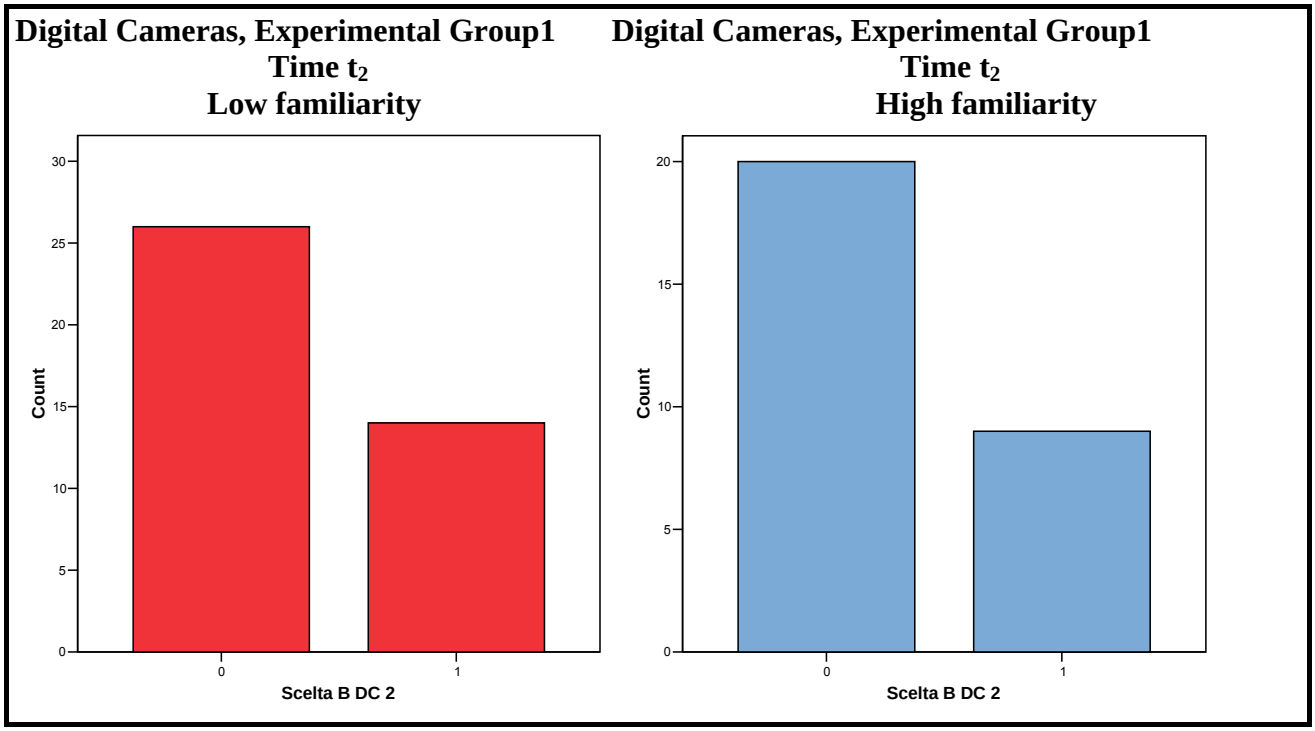

Figure 5.22: Familiarity and compromise choice-Digital Cameras, Experimental Group 1, time t_1

This result depends on the information on social behavior provided: when consumers know that extreme option A is the most chosen by others, familiarity do not drive preferences for compromise option.

We find similar results also when middle option B is the most chosen by other consumers. Figures 5.23 and 5.24 show that low and high familiar consumers compromise in almost the same proportion.

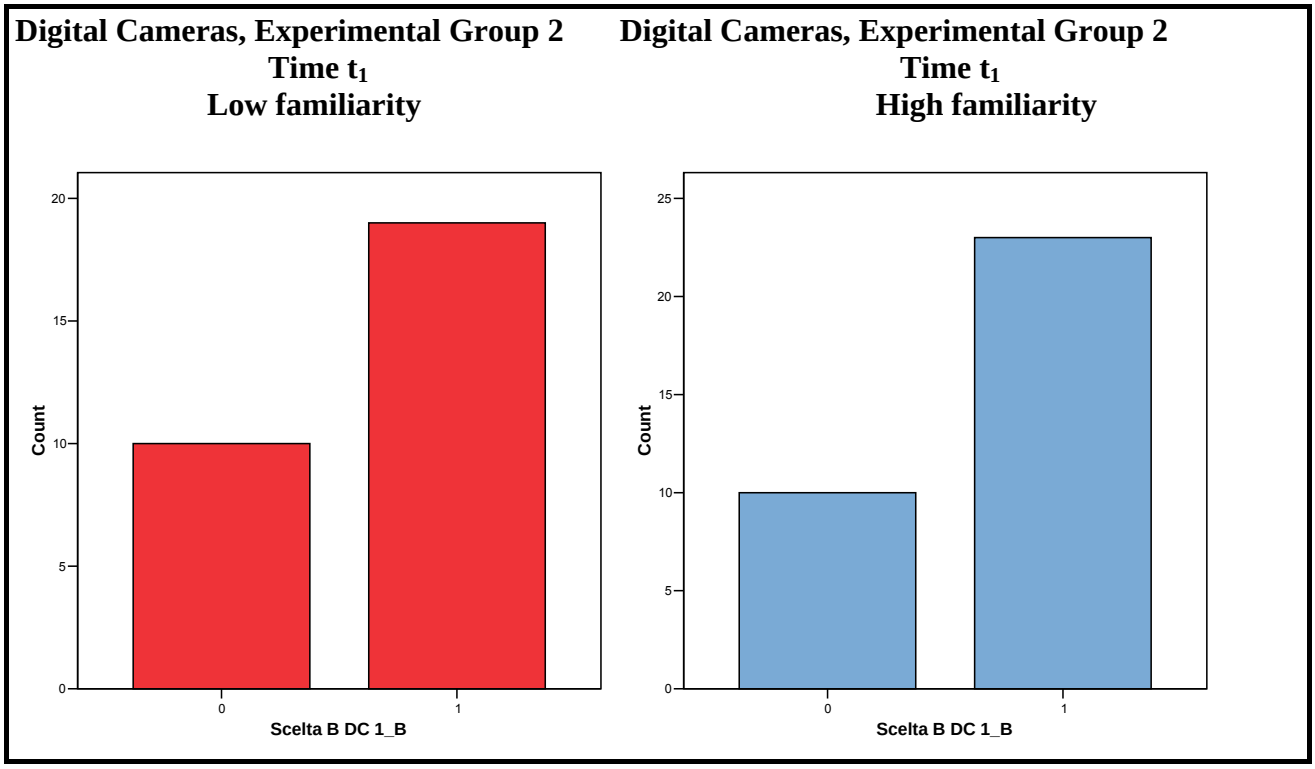

Figure 5.23: Familiarity and compromise choice-Digital Cameras, Experimental Group 2, time t_1

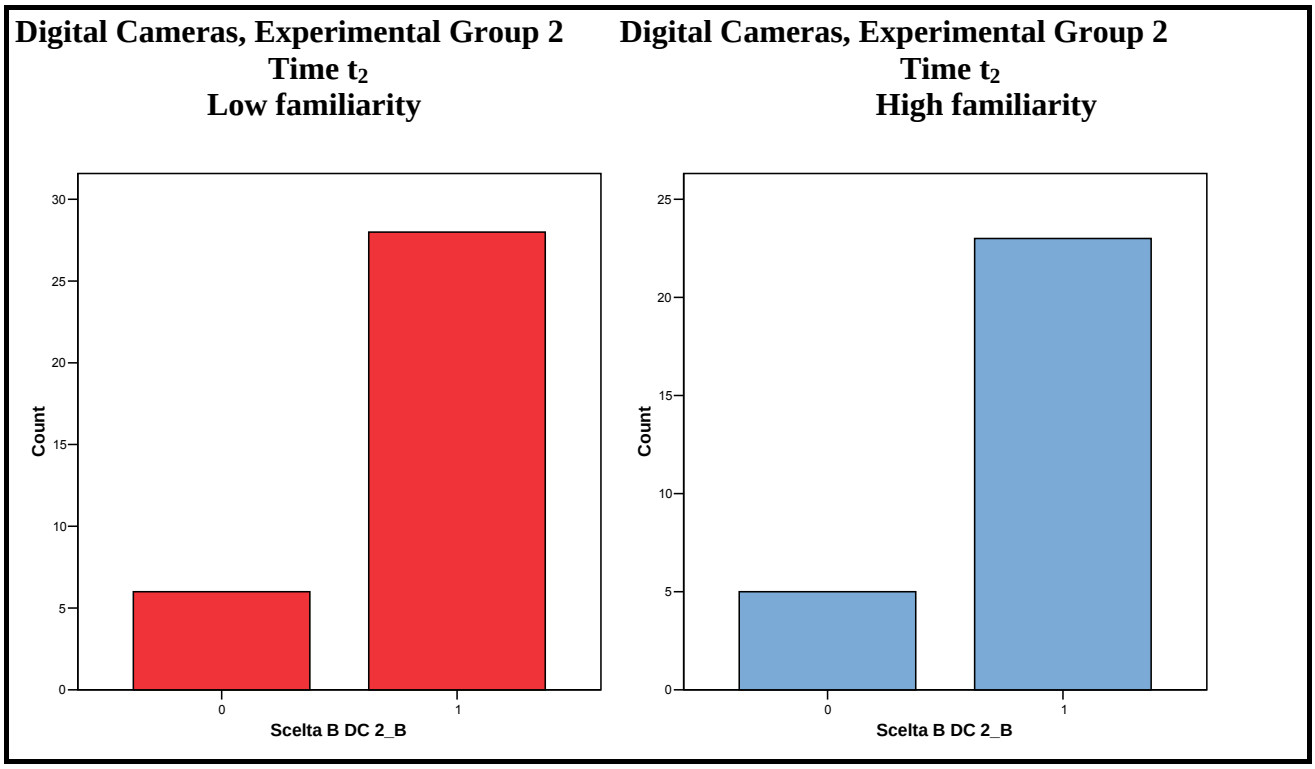

Figure 5.24: Familiarity and compromise choice-Digital Cameras, Experimental Group 2, time t_1

Logistic regressions run at time t_1 for Experimental condition 1 and Experimental condition 2 show the same tendency observed previously. As at time t_1 consumers in both experimental conditions do not have information on social behavior (that information is provided at time t_2).

Tables 5.58 and 5.59 illustrate a negative and significant impact of familiarity on compromise decisions.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1	Fam_DC_1	-,474	,164	8,311	1	,004	,623
	Constant	2,715	,803	11,447	1	,001	15,112

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	79,493(a)	,131	,180

Table 5.58: Logistic regression - Familiarity and compromise choice-Digital Cameras, Experimental Group 1, time t_1

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	Fam_DC_1_B	-,317	,191	2,752	1	,097	,728
	Constant	2,137	,908	5,537	1	,019	8,472

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	75,027(a)	,046	,065

Table 5.59: Logistic regression - Familiarity and compromise choice-Digital Cameras, Experimental Group 2, time t_1

At time t_2, Experimental group 1 is exposed to information on social behavior on extreme option A: table 5.60 illustrate that the influence of delta familiarity (increases in familiarity level between choice made at time t_1 and choice made at time t_2) is negative and significant. The more familiarity with product category increases the less consumers are prone to compromise over repeated choices.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	ΔFam_DC_2	-,550	,200	7,590	1	,006	,577
	Constant	1,743	,893	3,809	1	,051	5,716

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	78,838(a)	,122	,170

Table 5.60: Logistic regression - Familiarity and compromise choice-Digital Cameras, Experimental Group 1, time t_2

On the contrary, when Experimental group 2 at time t_2 is exposed to information on social behavior on extreme option B during second choice task, familiarity do not impact compromise choices. Table 5.61 illustrates that the influence of delta familiarity (increases in familiarity level between choice made at time t_1 and choice made at time t_2) is negative but not significant.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	ΔFam_DC_2_B	-,113	,220	,264	1	,607	,893
	Constant	2,043	1,062	3,700	1	,054	7,711

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	57,697(a)	,004	,007

Table 5.61: Logistic regression - Familiarity and compromise choice-Digital Cameras, Experimental Group 2, time t_2

- *MP3 Player: time t1-*

Also for MP3 Players, Control condition, Experimental condition 1 and Experimental condition 2 received the same treatment at time t_1. Form these conditions we can simply test the presence of compromise effect. At time t_1 the three groups of respondents are exposed to the same amount of information: choice task is the same and there is no information added regarding social behavior. At time t_1 we only aim to measure the strength of compromise effect for the three groups: differences in the evolution of the effect, as a consequence of different treatments, may appear in time t_2, when different groups are exposed to different information.

As we can see from Tables 5.62, 5.63, 5.64, the effect is present and significant: only for control condition displayed in Table 5.62 we observe that compromise effect is marginally significant (p=0,16).

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.1347	0.2544	0.28	0.5966
Gruppo	1	0.3578	0.2544	1.98	0.1596

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	1.98	0.1596

Table 5.62: Control group, time t_1

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.5725	0.1341	18.22	<.0001
Gruppo	1	0.4741	0.2255	4.42	0.0355
	2	-0.3117	0.2349	1.76	0.1845
	3	0.3212	0.2230	2.07	0.1498

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	4.41	0.0358

Table 5.63: Experimental group 1, time t_1

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.5725	0.1341	18.22	<.0001
Gruppo	1	0.4741	0.2255	4.42	0.0355
	2	-0.3117	0.2349	1.76	0.1845
	3	0.3212	0.2230	2.07	0.1498

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	4.38	0.0363

Table 5.64: Experimental group 2, time t_1

- MP3 Player: time t2-

Table 5.65 reports another test of hypothesis H_1: over repeated choices the compromise effect, that at time t_1 was significant, is strongly reduced.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.3031	0.2370	1.64	0.2009
Gruppo	1	0.0799	0.2370	0.11	0.7359

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	0.11	0.7359

Table 5.65: Control Groups at time t_2

We now analyze results for Experimental Group 1, where extreme option A is the alternative preferred by other consumers: at time t_1 respondents were exposed to a simply choice task, with no information on others' preferences, while at time t_2 they evaluate a choice problem where the preferred alternative is the extreme option A.

As we can see from Table 5.66, at time t_2, when information on social behavior regarding option A is added, compromise effect is no more significant.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.5697	0.1560	13.33	0.0003
Gruppo	1	1.3629	0.2501	29.69	<.0001
	2	0.7848	0.2459	10.19	0.0014
	3	-1.0027	0.2815	12.69	0.0004

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
1 vs 2	1	2.25	0.1338

Table 5.66: Experiment Group 1 at time t_2

We now contrast the magnitude of the compromise effect measured at time t_1 and the magnitude of the effect measured at time t_2: we want to test if the decrease observed over time is significant. Results from Table 5.67 show that, comparing experimental condition 1 (delta Group3 and Group 4) in time t_1 and in time t_2, we observe a significant difference (0,09%). Over repeated choices, when consumers are aware of others' preferences for extreme option A, compromise effect decreases also in MP3 Players category: Hypothesis H_{6a} is therefore supported

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-1.1486	0.1558	54.33	<.0001
Gruppo	1	0.8973	0.2367	14.37	0.0002
	2	0.0926	0.2577	0.13	0.7194
	3	-0.4238	0.2814	2.27	0.1321

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	1.37	0.2411

Table 5.67: contrast experimental group 1 between time t1 and time t2

Table 5.68 illustrates similar results also when information on social behavior added at time t2 is about compromise option B. Compromise effect, that at time t_1 was significant, is now strongly reduced.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-0.5697	0.1560	13.33	0.0003
Gruppo	1	1.3629	0.2501	29.69	<.0001
	2	0.7848	0.2459	10.19	0.0014
	3	-1.0027	0.2815	12.69	0.0004

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
3 vs 4	1	0.08	0.7717

Table 5.68: Experiment Group 2 at time t_2

We now contrast the magnitude of compromise effect at time t_1 and at time t_2 to test the significance of variations. Table 5.69 shows a significant difference ($p < 0{,}0001$): the decreases in strength of compromise effect over repeated choices is strongly significant: Hypothesis H_{6b} is therefore supported.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		0.00642	0.1344	0.00	0.9619
Gruppo	1	-0.1049	0.2256	0.22	0.6421
	2	-0.8906	0.2350	14.36	0.0002
	3	0.7868	0.2372	11.00	0.0009

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	18.66	<.0001

Table 5.69 Contrast for Experimental Group 2 between time t_1 time t_2

We now test hypothesis H_7: we want to contrast the magnitude of compromise effect in Experiment 4, where information on social behavior is given in one shot choice, and the magnitude of compromise effect in Experiment 5, where information on social behavior is added over second choice task.

Table 5.70 illustrates the comparison for the situation where option A is the most chosen in MP3 Players category. Results form Experiment 4 showed, contrarily to our expectations, that when extreme option A is the most chosen compromise effect is still significant. We now compare the magnitude of compromise effect in Experiment 4 that represents the "static" condition (consumers made only one choice and they had the information that the preferred option was A) to results form Experiment 5 that represents the "dynamic" condition (consumers made two choices and they have the information that the preferred option was A only during second choice task). In this way we can

understand whether over repeated choices, when there is a progressive information acquisition, compromise effect is more weakened by social information than in case of one shot decision.

Table 5.70 shows that the decrease in the magnitude of compromise effect is strongly significant (p=0,0004): Hypothesis H_7 is supported.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		0.1977	0.1503	1.73	0.1882
Gruppo	1	0.3131	0.2755	1.29	0.2558
	2	-0.9260	0.2748	11.35	0.0008
	3	0.5955	0.2466	5.83	0.0157

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	12.70	0.0004

Table 5.70: Contrast for Information on A in Experiment 4 and Experiment 5

We make the same comparison also for the experimental condition 2, where information on social behavior is on middle option B. Results from Experiment 4 showed that information on option B weakened the compromise effect, that was not significant. That result was due to the preferences accorded to option B both in the binary choice set and in the ternary choice set: there was no delta B share from (A,B) and (A,B,C). Also Experiment 5 showed that compromise effect is reduced over time when information on option B is added during the second choice task. Table 5.71 shows the comparison between the magnitude of compromise effect for the situation where option B is the most chosen in digital cameras category. The contrast is significant, showing that over repeated choices the strength of compromise effect decreases. Also in this case, Hypothesis H_{6a} is supported.

The CATMOD Procedure

Analysis of Maximum Likelihood Estimates

Parameter		Estimate	Standard Error	Chi-Square	Pr > ChiSq
Intercept		-1.0705	0.1805	35.16	<.0001
Gruppo	1	0.7222	0.3220	5.03	0.0249
	2	0.4239	0.3192	1.76	0.1841
	3	-0.5019	0.2958	2.88	0.0897

Contrasts of Maximum Likelihood Estimates

Contrast	DF	Chi-Square	Pr > ChiSq
4-3 vs 2-1	1	3.45	0.0632

Table 5.71: Contrast for Information on B in Experiment 4 and Experiment 5

Finally, we want to analyze the role played by familiarity with product category over repeated choices. Figures 5.25 and 5.26 illustrates the relationship between familiarly and compromise choices for consumers who are exposed to information on social behavior regarding option A at time t_2.

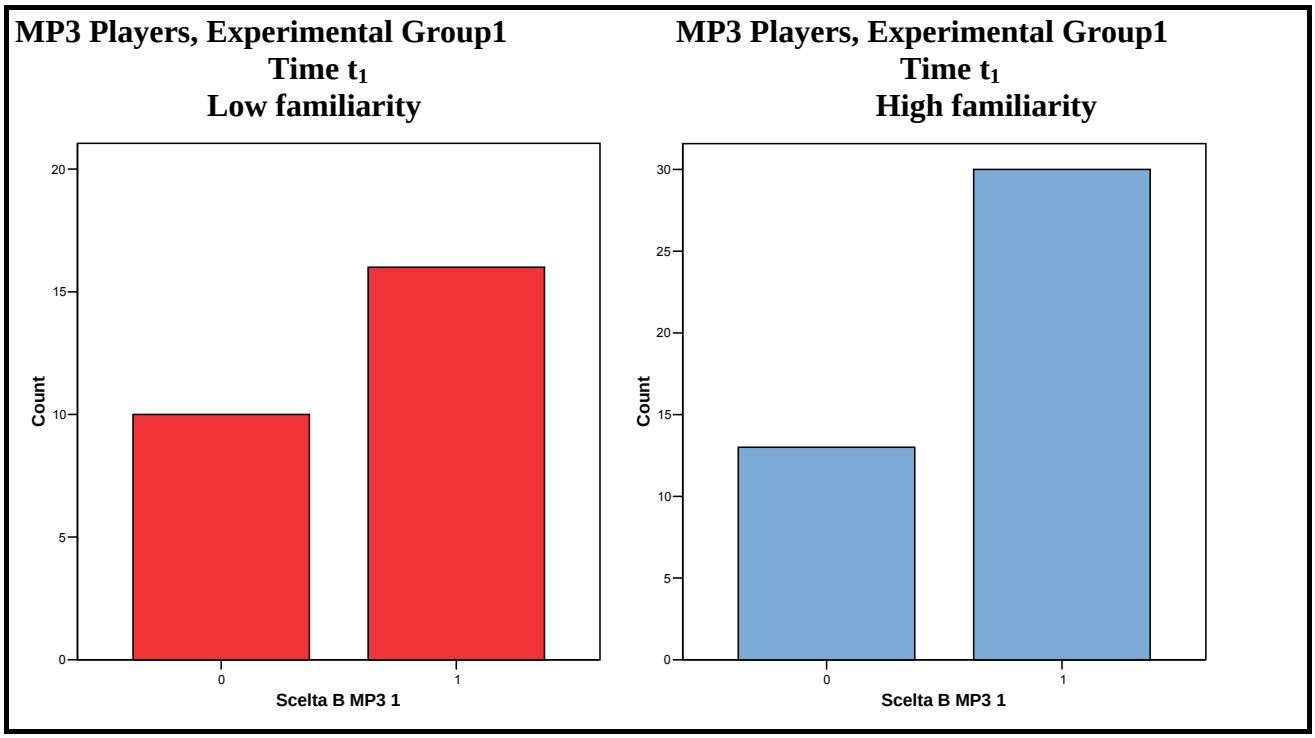

Figure 5.25: familiarity and compromise choice-MP3 Players, Experimental Group 1, time t_1

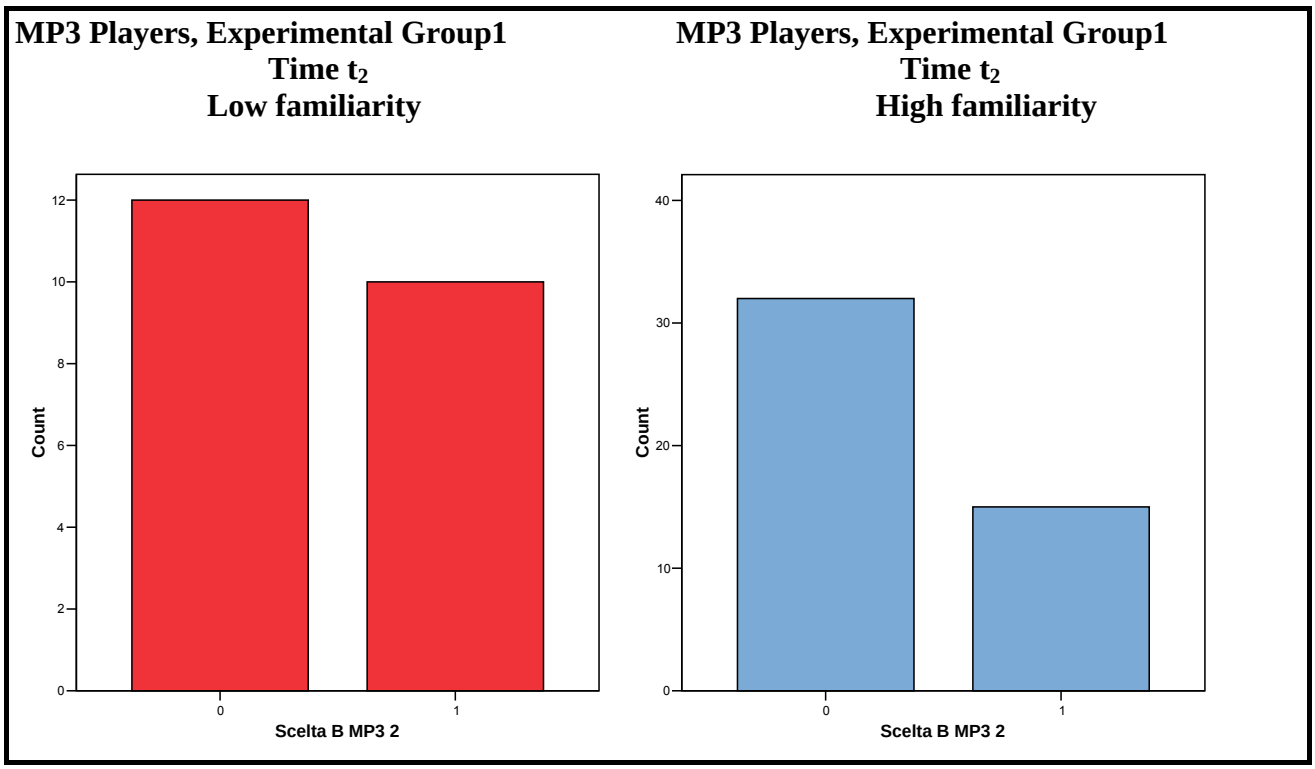

Figure 5.26: familiarity and compromise choice-MP3 Players, Experimental Group 1, time t_2

In both cases, there is no difference in compromise choice behavior between low and high familiar consumers.

Figures 5.27 and 5.28 display the case of Experimental condition 2: at time t_1 low familiar consumers compromise more than high familiar consumers. At time t_2, when information on option B is added, that information leads preferences toward the selection of middle option.

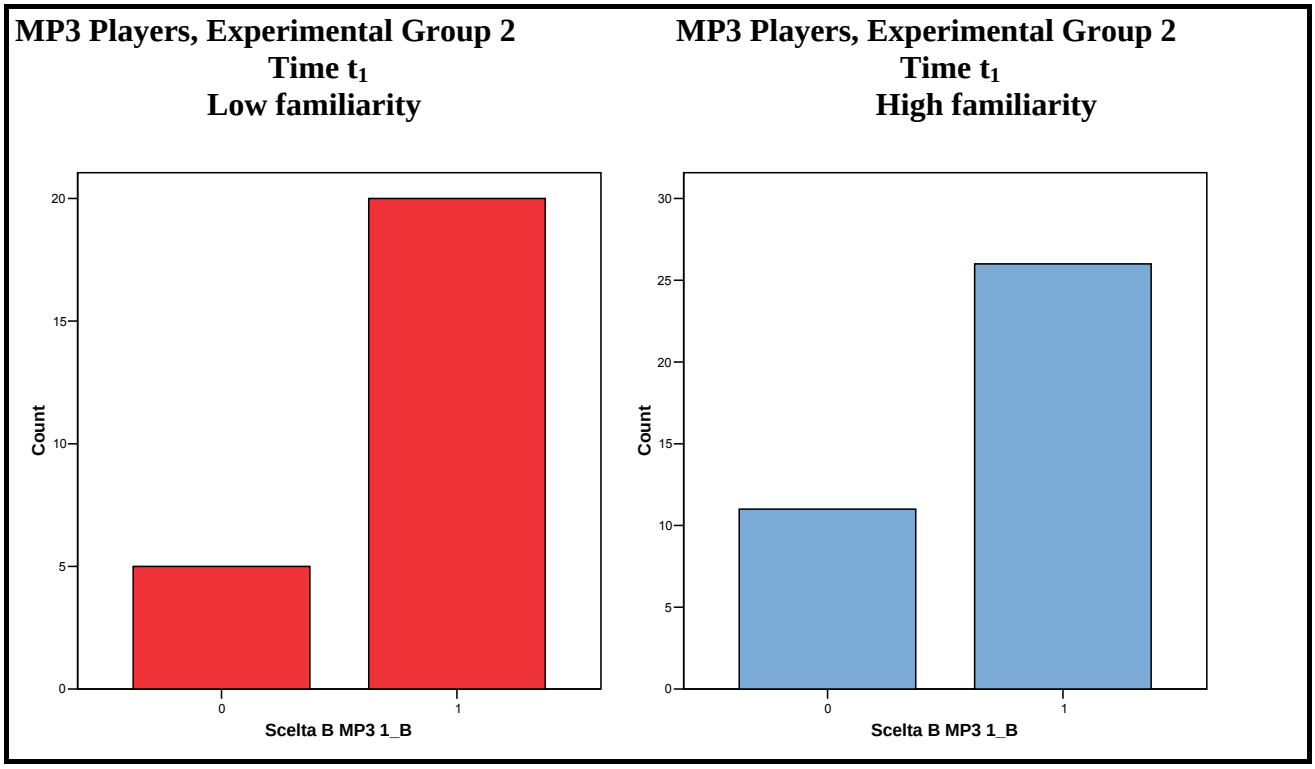

Figure 5.27: Familiarity and compromise choice-MP3 Players, Experimental Group 2, time t1

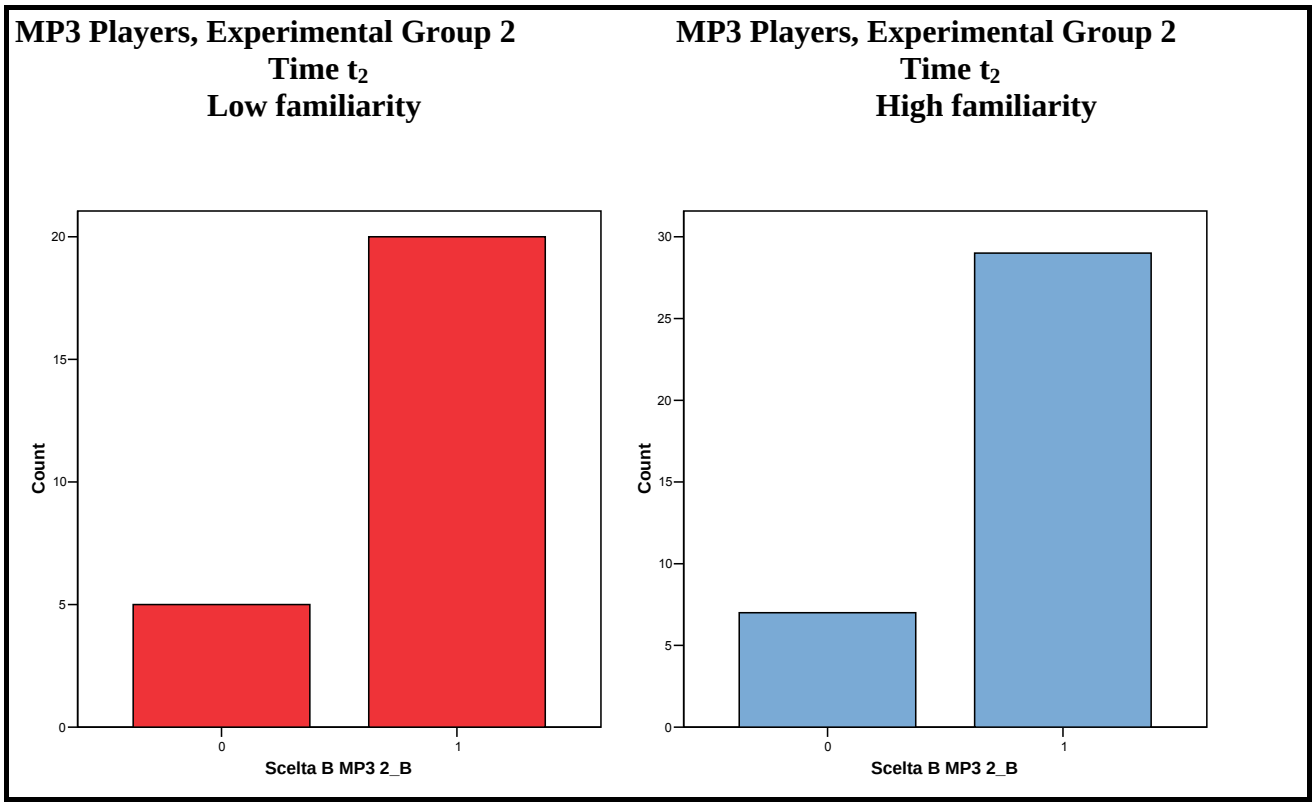

Figure 5.28: Familiarity and compromise choice-MP3 Players, Experimental Group 2, time t2

For Mp3 Players, findings form logistic regressions are replicated. At time t_1 familiarity with product category has a negative and significant impact on compromise decisions. Tables 5.72 and 5.73 displays coefficients.

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	Fam_MP3_1	-,476	,189	6,352	1	,012	,622
	Constant	3,033	1,003	9,141	1	,002	20,767

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	80,383(a)	,102	,142

Table 5.72: Logistic regression - Familiarity and compromise choice-MP3 Players, Experimental Group 1, time t_1

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	Fam_MP3_1_B	-,391	,190	4,220	1	,040	,676
	Constant	2,932	1,010	8,434	1	,004	18,761

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	66,042(a)	,074	,109

Table 5.73: Logistic regression - Familiarity and compromise choice-MP3 Players, Experimental Group 2, time t_1

At time t_2 results are differentiated depending on the treatment received. In Experimental condition 1, delta familiarity affect compromise decisions (Table 5.74), while in Experimental condition 2 the impact is no significant (Table 5.75).

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	ΔFam_MP3_2	-,513	,185	7,717	1	,005	,599
	Constant	1,933	,923	4,387	1	,036	6,909

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	81,501(a)	,120	,165

Table 5.74: Logistic regression - Familiarity and compromise choice-MP3 Players, Experimental Group 1, time t_2

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	ΔFam_MP3_2_B	,039	,218	,032	1	,857	1,040
	Constant	1,216	1,107	1,207	1	,272	3,372

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	60,458(a)	,001	,001

Table 5.75: Logistic regression - Familiarity and compromise choice-MP3 Players, Experimental Group 2, time t_2

5.3.8 Summary for Experiment 5

The purpose of Experiment 5 is to test Hypothesis H_{6a}, H_{6ab} and H_7. Our results support the three hypothesis for both Digital Cameras and Mp3 Players. In particular we found that along repeated choices, when extreme alternative A is the most chosen, compromise effect is strongly reduced. Familiarity with product category negatively affects the magnitude of compromise choices. moreover, along repeated choices when compromise option is the most chosen by other consumers, B share increases, but compromise effect is diminished. In this case, familiarity with product category does not influences compromise decisions: preferences for option B are the result of socially relevant information. Finally, we found a stronger compromise effect in the "static" (Experiment 4) condition than in the "dynamic" condition (Experiment 5). Again, increased familiarity over repeated choices, reduces compromise effect.

Chapter 6

Conclusions

6.1 General conclusion

In this work we analyzed how compromise effect varies over repeated choices and in particular, how an increasing amount of information affects the probability of choosing a so called middle alternative. The analysis of extant literature on context effects shows a surprising lack of attention on the presence and robustness of context effects over repeated choices. The only exception is represented by Drolet's work (2002) which focuses on contiguous choice. In contrast with her research, we are interested in examining whether and when context effects take place even if subsequent but time-separated choices are examined. More specifically, while Drolet's work is focalized on subsequent choices very close in time (few seconds) and related to different product categories, we are interested in understanding the dynamic evolution of compromise effect within the same product category and with an appreciable time delay.

The situation we analyze is more similar to a real consumer experience where consumers face the same decision twice and are plausibly exposed, over time, to an increasing amount of information both on products characteristics and on other consumers' preferences.

Among our results, it should be noted that we consistently detect a positive and strong compromise effect: consumers systematically use compromise heuristics when choosing and having unclear preferences.

To better understand decision process over time, we also studied the impact of an increased amount of information: we simulated a realistic choice process where, over repeated choices, consumers are exposed to more information over time. During subsequent choice tasks consumers learn more on product characteristics or on other consumers' preferences.

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To isolate the impact of choice and on compromise effect of: 1) repeated choices and 2) added information, we compare results from a "dynamic" scenario, where consumer are exposed to a sequence of choices and information in increased over time, to a "static" scenario, where different consumers evaluate basics and information enriched choice sets.

In this chapter we discuss in detail other major findings and some theoretical and managerial implications: we argument our results in the light of the system of hypotheses formulated. In the last section we advance some new research directions and outline several limits to this research both on the conceptual side and on the methodological side.

6.2 Discussion: Essay 1

As previously mentioned, the aim of Essay 1 was to test the strength of compromise effect over repeated choices. In particular our objective was to respond to the following question:

"Does the compromise increase, decrease or is invariant over repeated choices, with in the same product category?"

Previous research on compromise effect (Sheng , Parker, and Nakamoto , 2005) showed that familiarity with product category can moderate the strength of compromise effect. The authors found that when consumers are uncertain about options' values, they are more likely to use the context in making decisions (Simonson & Tversky,1992). Acting upon uncertainty, increased familiarity can weaken the effect. When consumers are less familiar with or less knowledgeable about a product category, they will be more likely to choose the compromise option, if it is evaluated in a triple or a choice set with even more options.

As familiarity with product category is described by Alba and Hutchinson (1987) as "the number of product-related experiences accumulated by a consumer", we assume that exposures to a product category acquired while making decisions , could increase perceived familiarity. Our contention is that, over repeated choices, compromise effect decreases as a result of decreased uncertainty and increased familiarity.

Our results support the idea that the tendency to opt for the middle option decrease when consumers have to face the same decision in the same product category more than once. In our work we analyze how changes in perceived familiarity affect the probability of choosing the compromise alternative over time. According to Marks and Olson (1981) increased familiarity leads to better developed knowledge structures about a product: these knowledge structures often include evaluative criteria and rules, which facilitate consumer's judgment of superiority of certain products in a choice set and subsequent development of preferences). The increased familiarity should, therefore, reduce the likelihood that an option becomes a consumers choice simply because is the compromise alternative.

For both digital cameras and Mp3 Players we found a strong compromise effect at time t_1. These results provide further empirical support to the existence and robustness of this effect. Basing on our analysis, when the same choice task is repeated (time t_2), compromise effect decreases, More importantly the reduction in the strength of compromise effect is not only directional, but also significant in both product categories.

While analyzing the impact of familiarity with product category, measured before choice and before the exposure to the choice set, we found a significant impact on the probability of selecting the middle option B. Choice at time t1 was influenced by perceived familiarity with the product category: that means that highly familiar consumers are less prone to compromise. This result is consistent with previous findings (Sheng, Parker, and Nakamoto , 2005). More over, at time t_2 we found a significant impact of familiarity measured before the second choice task (i.e. a week after the first choice and before the second choice), on the probability of selecting the middle option from the (A,B,C) choice set. Finally we extended results by Sheng, Parker, and Nakamoto (2005) regarding the moderating role of familiarity on compromise effect and we found evidence that this impact also affects the strength of compromise effect over repeated choices. When consumers face the same decision several times, they carry over knowledge from previous choices that increases their confidence and deceases their preference uncertainty: they perceive to have more familiarity with product category and compromise less.

These results have important implications for choice set composition: the way products are displayed, or presented on commercials and flyers can generate the compromise effect. Depending on how alternatives are positioned and presented it is possible to facilitate the selection of one option against the others. These considerations are subjected to the familiarity with product category and with precedent choice experience: if consumers make repeated choices within the same product category, the relevance of compromise effect could be significantly reduced.

For mature products characterized by the same distinctive characteristics (i.e. low uncertainty is associated to new attributes or features), compromise effect influences decision making less frequently.

6.3 Discussion: Essay 2

The main purpose of Essay 2 is to better understand whether compromise effect is enhanced by the amount of information consumers have to process to make a choice: we aim to respond to the following question:

"Is compromise effect affected by information availability?"

To examine this relationship we compared results, in term of tendency to compromise, for two groups of consumers: one group was exposed to a "easy" choice set, where products are described by two product attributes, while the other group was exposed to a more "complex" choice set, where products were described by five product attributes.

By comparing these results we found a significant increase in the strength of compromise effect. More specifically consumers who had to elaborate more attributes were more prone to compromise. That means that an increased number of product attribute increases uncertainty about preferences and this uncertainty leads to higher confusion, and strengthens compromise effect.

Another interesting result stems from Experiment 3 in which we combine the structures of Experiment 1 and Experiment 2 where we studied the evolution of compromise effect over repeated choices, and we also added more information on product attributes over these choices.

Again the question we want to answer was:

"Is compromise effect influenced by an increasing amount of information over repeated choices?"

During the first choice task consumers were exposed to the "easy" choice set (products were described by two attributes) and during the second choice task the same consumers were exposed to the "complex" choice task (products were described by five attributes)

Literature on familiarity with product category states that familiarity with product class could affect consumers' information processing skills in different ways (Johnson and Russo, 1984). First of all, familiar consumers have a superior knowledge of existing alternatives: highly familiar consumers will be more likely to know specific facts concerning existing alternatives. As suggested by Bettman and Park (1980a) knowledge reduces search for highly familiar consumers when they are considering different alternatives. Moreover, familiar consumers may develop knowledge about the plausible relationship among elements of a product class: this knowledge allows familiar consumers to encode information about new alternatives more efficiently and, as suggested by the enrichment hypothesis, causes an increase in learning.

Additionally, familiarity can lead to superiority in processing of both novel and existing products; a key facet of expertise, is the ability to select relevant information while ignoring information irrelevant to the task at hand (Larkin et alii, 1980). As a result, more familiar consumers may use their knowledge of the product class to limit their attention to information relevant to the choice task. At the same time, their superior encoding skills mat be offset by their superior ability to separate relevant from irrelevant information: when the external information contains irrelevant data, experts may search and remember less of the externally available information. Besides, Johnsons and Russo distinguish between a choice task, defined as "choosing an alternative from a set", and a judgment task, defined as "constructing an overall evaluation of an alternative". A large body of research (e.g. Bettman and Park, 1980b; Johnson and Russo, 1978) reports evidence that choice processes are characterized by a decision procedure that leads to decision making: some alternatives are eliminated quickly on the basis of few values and not

examined further. This kind of search is selective and as a consequence, consumers often have less knowledge of the eliminated brands. By contrast, judgment requires a rating of each product on a scale of overall preferences and therefore overall judgments are made for each alternatives: the same amount of information is examined for each alternative (Payne, 1976).

The main difference between the two tasks that is relevant in this context, is the amount of knowledge and information required to perform the evaluations. According to Johnson and Russo (1984) results, in the case of judgment, the superior encoding ability of more familiar consumers should dominate producing a monotonic relationship between familiarity and learning, showing the presence of the enrichment effect.

By contrast, in case of choice, contrarily, the information election skills of the most experienced consumers dominate their superior encoding ability producing a decrease in the external and subsequent learning: in this situation a highly familiar consumer's ability to select information should cause a decrease in the learning of new information that characterize the inverted U hypothesis.

These results are particularly interesting for the present research because we ask consumers to make a choice and not to judge products. This implies that the relationship between familiarity and compromise effect, when there is an increasing amount of information to process, is not modified by the increased information to process as highly familiar consumers select information to process. Our results support this hypothesis: contrary to the "static" condition experiment, where consumers face either an "easy" choice set or a "complex" choice set and show a significant difference in the likelihood of choosing the compromise option, in the "dynamic " condition experiment, where the same consumers are exposed before to the "easy" choice set, and later to the complex choice set, we find a decrement of the effect as previously found in Experiment 1.

Compromise effect is reduced over repeated choices and this result in invariant of the amount of information added over time on product attributes: consumers perceive themselves as highly familiar over repeated choices and that facilitate the decision process, by decreasing uncertainty. This leads to consider in a different way a more confusing choice task: uncertainty added by the increased number of product attributes is moderated by familiarity that leads to a selective approach in the information processing.

6.4 Discussion: Essay 3

Essay 3 intended to analyze the impact of socially relevant information on the presence and strength of compromise effect. We test two conditions: 1) when information on social behavior concerns the extreme option of the choice set (option A); 2) when information on social behavior concerns the middle option of the choices set (option B). In this Essay we wanted to answer the following question:

"Does compromise effect decrease when information on social behavior is added?"

Literature on compromise effect highlights the social component connected to a compromise decision: consumers choose the compromise alternative because they search an alternative that is easily justifiable and because they need to be favorable evaluated by others (Simonson, 1989).

More generally, it has been shown that context effects are characterized by a strong social component: choices under uncertain preferences can be argued to depend on the choices made by other individuals (Simonson 1989; Prelec, Wernerfelt and Zettelmeyer 1997). Nowlis and Simonson (2000) have demonstrated that having to foresee the choices of others, individuals tend to largely select the middle option (compromise effect): are aware that the middle option can be seen as a easy to justify choice and consider that option as a commonly selected alternative by others.

Context alternatives respond to the need for social justification and are usually perceived as more easy to justify: if we provide information on social choice behavior, it is possible to alter the mechanism underling compromise effect.

Availability of information concerning other consumers' choices can minimize the need for further "social justification" and facilitate the selection of the alternative that has already been selected by others. The availability of information regarding choices made by others could diminish compromise effect and drive preferences.

The main idea is that socially relevant information can influence decisions affected by preferences uncertainty: in general consumers who have unclear preferences could be led to opt for the compromise alternative, but in presence of this kind of information they would opt for the most popular alternative.

Our results show that, if consumers are informed that one alternative is the most chosen by other consumers, they use this cue to make their choices especially if they are uncertain about their preferences: in this case, the mechanism that usually guides consumers to the selection of the compromise option leads them to the selection of the most chosen alternative.

Our results also differ in the two examined conditions when the social relevant information regards an extreme alternative (option A) and when the socially relevant information concerns the compromise alternative (option B). More specifically, contrary to our expectations, in the former case compromise effect still affects consumer behavior: in other words this cue does not erode the compromise alternative's advantage..

A possible explanation could be that information on social behavior regarding extreme options is in contrast with the compromise mechanism. This also suggests that compromise effect is stronger than the influence of other individuals' choice, when such choice highlights a preference for an extreme option.

By contrast, we find support for our hypothesis in case of socially relevant information on compromise option B. In this case, compromise effect is not significant, but option B is the most chosen by respondents. That means that information on others' preferences affects choice and this option becomes the most chosen. However, as compromise effect is measured by comparing the share of the middle option with the share of the extreme option in both binary (A,B) and ternary (A,B,C) choice sets.and option B is the most chosen also in the binary choice set (A,B) and the delta share is not significant: we can conclude that few people shift from option A in set (A,B) to option B in set (A,B,C). This implies that the compromise effect is weakened by this information cue.
In the "dynamic" section of Essay 3, we combine the structure of the experiment on social behavior (Experiment 4) with structure of the experiment on compromise over time (Experiment 1).

The question we wan to answer is:

"Is compromise effect affected by information on social behavior provided over repeated choices?"

To answer this question, at time t1 we exposed consumers to a choice set where no information on others' preferences is provided and at time t2 we exposed the same consumers to a choice set where this information cue is provided, and that preference is alternatively for middle option B (for half of respondents) or for extreme option A (for the other half of respondents). Our findings support our hypotheses. When information on option B is added, compromise effect significantly decreases from t1 to t2.

6.5 Research Contribution

Present research contributes to existing literature on compromise effect and on decision heuristics in several ways.

First of all, we contribute by providing evidence of time evolution of a particular kind of context effect. Among all the possible mediators previously studied, we focused on the role of time within repeated choices, to understand if results observed in a static contexts, can also be generalized in evolving context (i.e. repeated choices). Extant literature on compromise effect and more in general of context effects showed the existence of this phenomenon under different circumstances and found several explanations for its occurrence. However, to the best of our knowledge, previous contributions neglect to focus on the robustness of such an effect over repeated choices. As previously mentioned, the only exception is represented by Drolet (2002) who analyzed the evolution of compromise effect over subsequent repeated choices among different product categories.

Our results shed some light on the evolution of compromise effect when repeated choices are timely separated and Drolet's explanation on variety seeking behavior can not be applied. In particular, we contribute to the extant literature on "dynamic" evolution of context effects by showing that compromise effect significantly decreases over time-sepated repeated choices. Moderators previously found in literature, consider just a single choice: adding evidence that simply exposing consumers to the same choice set composition within the same product category can decrease the compromise effect, opens new perspectives for the analysis of this phenomenon. If moderators to the effect are influenced by repeated choices, their impact on the strength of compromise effect should be considered over time.

In three different experiments we found a significant decrease of compromise effect over repeated choices. Results from Experiments 1, 3 and 5 show that when consumers have to make the same decision over time, their tendency to compromise decreases.

In addition our study provides an initial explanation for this result: we found a positive impact of familiarity with product category, previously documented in static context, on the strength of

compromise effect. Familiarity with product category, defined as the number of product-related experiences accumulated by a consumer (Alba and Hutchinson, 1987) has been demonstrated to influence compromise effect in one shot choices (Sheng, Parker and Nakamoto, 2005). However, Familiarity is by definition a dynamic construct: when consumers are exposed directly or indirectly to the same product category because of their personal experience with the product, word of mouth or advertising, their familiarity increases. We contribute to existing literature by showing that evolution in product category familiarity is accompanied by an evolution in the influence exercised by choice context composition.

Second, present work advances knowledge on the role in information availability in affecting the use of heuristics. Literature on information processing showed that an increase in attribute number decreases quality of choice (Lee and Lee, 2004; Lurie, 2004). More attributes to process increase confusion and uncertainty: under these conditions consumers have a less clear vision of their preferences and tend to compromise more frequently. We contribute to existing literature again by showing that an increase in attribute number amplifies conditions leading to compromise effects, resulting in an increase in its magnitude.

More importantly, our results show that context effects are affected by time. Over repeated choices, the tendency showed in case of an increases in attribute number is overcome by the increase in the degree of familiarity with the product category. When consumers become more familiar with a product category, we observe the opposite tendency: consumers who used to opt for the compromise solution are now less prone to select the middle option.

We contribute to literature on context effects combining results on familiarity with product category and results on attribute number. The inverted U hypothesis (Miyake and Norman, 1979) implies that when familiarity increases, information on products recalled have a parabolic shape. As suggested by Bettman and Park (1980a) knowledge decreases search for highly familiar consumers when they

are considering different alternatives. More familiar consumers may use their knowledge of the product class to limit their attention to information which is important to choice: a highly familiar consumer's ability to select information should cause a decrease in the learning of new information that characterize the inverted U hypothesis.

Over repeated choices, familiarity increases and consumers perceive to have more knowledge on the product category: under these conditions the positive role played by attribute number on compromise effect is overcome by familiarity. Potential confusion due to a more complex choice set is counterbalanced by the increased familiarity which leads to a more selective approach to information processing, reducing also the effect of confusion.

The third contribution we gave to literature on compromise effect regards the social component. Compromise effect is supposed to be generated by a need for social justification. Our hypothesis was that the fulfillment of social justification by information on other consumers' behavior would have moderated the strength of compromise effect in favor of the most chosen alternative. That is true only when information on social behavior is on the middle option: when the most chosen alternative is the extreme option, compromise effect is significant, even if we provided information on social behavior.

A possible justification for this finding can be the contrast between two source of information provided: context effect is incongruent with information on social behavior (when A is the most chosen): under these conditions, this confusion leads uncertain consumers to compromise despite the presence of a potential facilitating information.

Selection of the compromise option and the presence of a socially relevant information are both mechanisms able to fulfill the need for social justification during choice process. We contribute to literature on social component of compromise effect by showing that information on social behavior

regarding extreme option is not a sufficient source of social justification for choice: compromise effect takes place even when the extreme option is the most chosen by other consumers.

What is particularly interesting is this case, is that familiarity has no impact on choice: consumers who opt for the middle option are not significantly different in term of familiarity form consumers who decide for an extreme option. When social information is added, familiarity does not play anymore a role in influencing the strength of compromise effect.

We contribute to existing literature by showing that when information on social behavior is added over repeated choices, compromise effect decreases and is reduced to nil. Interestingly, in this case, familiarity has no impact on choice at time t_1 but has an impact at time t_2 when extreme option is the most chosen. Over repeated choices compromise effect decreases as a result of increased familiarity with product category and result found in case of a "static" exposure to social choice behavior are not verified in a "dynamic" case of progressive learning on others preferences.

When consumers make repeatedly the same choices familiarity decreases compromise effect and the presence of socially relevant information can affect choice.

Notwithstanding, when consumer become more familiar with a product category because they made previous choices within the same product category, compromise effect decreases. Under these conditions (repeated choices and increased familiarity), neither increased the amount of information on product characteristics nor information on social behavior can change that tendency. Compromise effect decreases over time: we do not find any moderators to this tendency.

6.6 Managerial implications

Present work contributes to existing literature by finding a robust decrease in the strength of compromise effect over time: this finding has important managerial implications. Consumers often face the same decision repeatedly and the rule applied to make the decision can affect both the

positioning of a brand and the communication strategy that place a certain brand in a certain choice set. This result also provides new insights on the modeling and forecasting side: models predicting consumers choice can be enhanced by the consideration that over repeated choices context effects decrease.

Second, present work advance knowledge on the role in information availability in affecting the use of heuristics. The fact that an increased number of product attributes increases the strength of compromise effect has an impact of strategic decisions. This result along with the fact that over time this tendency is moderated by repeated choices, give some indications on communication and positioning strategies should be pursued.

For really new products where familiarity is low and preferences uncertainty is high a compromise effect is possible: for these products an increased number of attributes can enhance the effect. That gives directions both to contrast compromise positions and to take an advantage of that effect.

We showed that over repeated choices familiarity increases and consumers perceive to have more knowledge on product category: under those conditions the positive impact of attribute number on compromise effect is overcame by familiarity. Potential confusion due to a more complex choice set is counterbalanced by the increased familiarity which leads to a more selective approach to information processing, reducing also the effect of confusion. This suggests that for more mature products a positioning based on a compromise strategy would not be winning and moreover, that it is possible to increase attribute number without increasing the context effect.

We also contribute by showing that socially relevant information affects compromise effect only if this information cue is on middle option: when extreme option is the most chosen, compromise effect still takes place. Information on social behavior regarding extreme option is not a sufficient social justification for choice. Product popularity and word of mouth about an alternative perceived as “extreme” can not erase the compromise effect.

Interestingly, that information can overcome the compromise effect over repeated choices: when consumers make repeatedly the same choice familiarity decreases compromise effect and the presence of socially relevant information affects choice.

Again, the advantage connected to the compromise position still when product category is novel and consumers have only little familiarity: under these conditions, preferences uncertainty is high and consumers opt for a compromise option even when other extreme options are the most preferred by other consumers.

6.7 Limitations and Future Research

In addition to previously mentioned implications, present work has several limitation to be addresses in future research.

First, this study is focalized on evolution of compromise effect. To better understand how preferences evolve in reason of changing in choice context, it is necessary to extend the domain of analysis also to other choice heuristics. For example, it should be interesting to analyze the case of attraction effect or background contrast effect.

Second, we only measure familiarity with product category without manipulating it. It should be interesting to select product categories that vary ex ante in terms of perceived familiarity in order to directly manipulate the impact of that variable. Along these lines, product novelty represents an interesting area for further investigation.

Third, our "dynamic" analysis is reduced to only two repeated choices: in further research we aim to extend this temporal interval and consider 3 or 4 repeated as well as different levels of delayed choices. Drolet (2002) showed the evolution of context effects over subsequent choices among

different product categories: our results should be combined to her results to understand the evolution of a basket of repeated choices over time.

Together with these possibilities, it would make sense to consider other product categories: digital cameras and MP3 players are high-tech and quite expensive products. When Considering more than two repeated choices, realistically, products should to be less expensive and more easily repeatedly purchased

Forth, on the methodological side, we conducted experiments between subjects to test compromise effect and within subjects over repeated choices. An advantage connected to this approach is that between subject is possible to separate and control more factors: in particular, respondents are not influenced by choices made previously. On the other side, a within subject structure allows to take trace of changes in preferences due to variations in choice set composition. Using a within subject design is possible to test order of entry effects and analyze whether changes in choice sets composition influence the evolution of compromise effect over time.

Fifth, an interesting extension regards the information provided to consumers: we manipulated attributes number and information on social behavior. Other source of information or different combination of information can affect compromise effect in a different way.

Finally, our findings on social behavior and its impact on compromise effect open new interesting area of future research. We provided information on preference expressed by generic other consumers. Escalas and Bettman, (2005) showed that Need for Uniqueness interact with the composition of social group under exam: if social behavior is performed by a social group similar to respondents, subjects high in need for uniqueness are more willing to conform themselves to others. On the contrary, when social behavior is performed by a social group dissimilar to respondents, subjects high in need for uniqueness are more willing to distinguish themselves to others.

What is interesting to understand is if that tendency is mirrored also in the tendency to compromise. More over, a future direction of research should verify if credibility and expertise of the source of social information affect compromise effect.

APPENDIX

Questionnaires Experiment 1

Instruction Time t1

Good morning,

This survey is an academic study by researchers at the University of Bologna. The purpose of the research is to better understand people's preferences.

Please be thoughtful and candid in your responses. Your responses will be entirely anonymous, and the results of the research will be reported only in aggregate form, with no information disclosed about how you or any specific individual responded.

Data collection is composed by two phases: we ask you to respond to two questionnaires in two different days.
To give us the possibility to match you with your first responses, you have to report on each questionnaire the identification number we gave you.

Next data collection will be in few days, in this class.

In the next pages we'll present you several products.
Suppose to evaluate products as you have to really make a choice.
Alternative presented are equal in all dimensions not explicitly mentioned.

The survey will take about 5 minutes to complete. We very much appreciate your participation.

Thank you for your collaboration.

Questionnaire presented to Group 1

ID ……..……. Age……

Suppose you have to buy a new digital camera.

1. How do you describe your familiarity with "digital cameras" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "PhotoFlash": $150, 4 Mpixel
Option B "StarPicture": $200, 6 Mpixel

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Suppose you have to buy an MP3 player.

1. How do you describe your familiarity with "MP 3 Players" product category?

1	2	3	4	5	6	7
Not familiar at all						*Very familiar*

In a well known shopping centre you find following alternatives:

Option A "MusicOne": $95, 1 Mega
Option B "MyMusic": $150, 2 Giga

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1	2	3	4	5	6	7
Not Satisfied at all						*Very Satisfied*

4. How confident are you with choice made?

1	2	3	4	5	6	7
Not Confident at all						*Very Confident*

5. How confused are you with choice made?

1	2	3	4	5	6	7
Not Confused at all						*Very Confused*

Questionnaire presented to Group 2 (same instructions)

ID ……..……. Age……

Suppose you have to buy a new digital camera.

1. How do you describe your familiarity with "digital cameras" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "PhotoFlash": $150, 4 Mpixel
Option B "StarPicture": $200, 5 Mpixel
Option C "One Click": $250, 6 Mpixel

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Suppose you have to buy an MP3 player.

1. How do you describe your familiarity with "MP 3 Players" product category?

1	2	3	4	5	6	7
Not familiar at all						*Very familiar*

In a well known shopping centre you find following alternatives:

Option A "MusicOne": $95, Giga
Option B "MyMusic": $150, 2 Giga
Option C "Avant Sound": $200, 4 Giga

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1	2	3	4	5	6	7
Not Satisfied at all						*Very Satisfied*

4. How confident are you with choice made?

1	2	3	4	5	6	7
Not Confident at all						*Very Confident*

5. How confused are you with choice made?

1	2	3	4	5	6	7
Not Confused at all						*Very Confused*

Instruction Time t2

This survey is an academic study by researchers at the University of Bologna. The purpose of the research is to better understand people's preferences.

This is second phase of data collection.

To trace your choice over time you have to report again on this questionnaire the identification number we gave you.

Please be thoughtful and candid in your responses. Your responses will be entirely anonymous, and the results of the research will be reported only in aggregate form, with no information disclosed about how you or any specific individual responded.

In the next pages we'll present you several products.
Suppose to evaluate products as you have to really make a choice.
Alternative presented are equal in all dimensions not explicitly mentioned.

The survey will take about 5 minutes to complete. We very much appreciate your participation.

Thank you for your collaboration.

Questionnaire presented to Group 1

ID ……..……. Age……

Suppose you have to buy a new digital camera.

1. How do you describe your familiarity with "digital cameras" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "Camera Plus": $170, 5 Mpixel
Option B "Image-X": $220, 6 Mpixel

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Suppose you have to buy an MP3 player.

1. How do you describe your familiarity with "MP 3 Players" product category?

1	2	3	4	5	6	7
Not familiar at all						*Very familiar*

In a well known shopping centre you find following alternatives:

Option A "M-System": $100, 1Giga
Option B "Hi-Music": $160, 2Giga

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1	2	3	4	5	6	7
Not Satisfied at all						*Very Satisfied*

4. How confident are you with choice made?

1	2	3	4	5	6	7
Not Confident at all						*Very Confident*

5. How confused are you with choice made?

1	2	3	4	5	6	7
Not Confused at all						*Very Confused*

Questionnaire presented to Group 2 (same instructions)

ID ……..……. Age……

Suppose you have to buy a new digital camera.

1. How do you describe your familiarity with "digital cameras" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "Camera Plus": $170, 5 Mpixel
Option B "Image-X": $220, 6 Mpixel
Option C "DigitalPix": $350, 8 Mpixel

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Suppose you have to buy an MP3 player.

1. How do you describe your familiarity with "MP 3 Players" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "M-System": $100, 1 Giga
Option B "Hi-Music": $160, 2 Giga
Option C "Sound star": $220, 4 Giga

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Questionnaires Experiment 2

Instructions

Good morning,

This survey is an academic study by researchers at the University of Bologna. The purpose of the research is to better understand people's preferences.

Please be thoughtful and candid in your responses. Your responses will be entirely anonymous, and the results of the research will be reported only in aggregate form, with no information disclosed about how you or any specific individual responded.

In the next pages we'll present you several products.
Suppose to evaluate products as you have to really make a choice.
Alternative presented are equal in all dimensions not explicitly mentioned.

The survey will take about 5 minutes to complete. We very much appreciate your participation.

Thank you for your collaboration.

Questionnaires presented to Group 1 and Group 2 are the same presented to Group 1 and Group 2 at time t1 in Experiment 1

Questionnaires presented to Group 3

ID ……..……. Age……

Suppose you have to buy a new digital camera.

1. How do you describe your familiarity with "digital cameras" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "Photo flash": $150, 4 Mpixel, Zoom 2X, Monitor LCD 1,5 inc, weight 6,2 oz
Option B "Star Picture": $200, 5 Mpixel, Zoom 4X, Monitor LCD 2,0 inc, weight 5,8 oz

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Suppose you have to buy an MP3 player.

1. How do you describe your familiarity with "MP 3 Players" product category?

1	2	3	4	5	6	7
Not familiar at all						*Very familiar*

In a well known shopping centre you find following alternatives:

Option A "Music One": $95, 1 Giga, Display 1 inc, weight 5,0 oz, available in 2 colours
Option B "My Music": $150, 2 Giga, Display 1,5 inc, weight 4,5 oz, available in 4 colours

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1	2	3	4	5	6	7
Not Satisfied at all						*Very Satisfied*

4. How confident are you with choice made?

1	2	3	4	5	6	7
Not Confident at all						*Very Confident*

5. How confused are you with choice made?

1	2	3	4	5	6	7
Not Confused at all						*Very Confused*

Questionnaire presented to Group 4 (same instructions)

ID ……..……. Age……

Suppose you have to buy a new digital camera.

1. How do you describe your familiarity with "digital cameras" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "Photo flash": $150, 4 Mpixel, Zoom 2X, Monitor LCD 1,5 inc, weight 6,2 oz
Option B "Star Picture": $200, 5 Mpixel, Zoom 4X, Monitor LCD 2,0 inc, weight 5,8 oz
Option C "One Click": $250, 6 Mpixel, Zoom 6X, Monitor LCD 2,5 inc, weight 5,2 oz

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Suppose you have to buy an MP3 player.

1. How do you describe your familiarity with "MP 3 Players" product category?

1	2	3	4	5	6	7
Not familiar at all						*Very familiar*

In a well known shopping centre you find following alternatives:

Option A "Music One": $95, 1 Giga, Display 1 inc, weight 5,5 oz, available in 2 colours
Option B "My Music": $150, 2 Giga, Display 1,5 inc, weight 5,0 oz, available in 4 colours
Option C "Avant Sound": $200, 4 Giga, Display 2,0 inc, weight 4,5 oz, available in 6 colours

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1	2	3	4	5	6	7
Not Satisfied at all						*Very Satisfied*

4. How confident are you with choice made?

1	2	3	4	5	6	7
Not Confident at all						*Very Confident*

5. How confused are you with choice made?

1	2	3	4	5	6	7
Not Confused at all						*Very Confused*

Questionnaires Experiment 3

Instruction Time t1 are the same used in Experiment 1.

Questionnaires presented to Group 1 and Group 2 both in time t1 and time t2 are the same presented in Experiment 1.

Questionnaires presented to Group 3 and Group 4 in time t1 are the same presented in Experiment 1.

Instruction Time t2 are the same used in Experiment 1.

Questionnaires presented to Group 3

ID ……..……. Age……

Suppose you have to buy a new digital camera.

1. How do you describe your familiarity with "digital cameras" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "Camera Plus": $170, 5 Mpixel, Zoom 2X, Monitor LCD 1,5 inc, weight 6,2 oz
Option B "Image X": $220, 6 Mpixel, Zoom 4X, Monitor LCD 2,0 inc, weight 5,8 oz

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Suppose you have to buy an MP3 player.

1. How do you describe your familiarity with "MP 3 Players" product category?

1	2	3	4	5	6	7
Not familiar at all						*Very familiar*

In a well known shopping centre you find following alternatives:

Option A "M-System": $100, 1 Giga, Display 1 inc, weight 5,0 oz, available in 2 colours
Option B "Hi Music": $160, 2 Giga, Display 1,5 inc, weight 4,5 oz, available in 4 colours

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1	2	3	4	5	6	7
Not Satisfied at all						*Very Satisfied*

4. How confident are you with choice made?

1	2	3	4	5	6	7
Not Confident at all						*Very Confident*

5. How confused are you with choice made?

1	2	3	4	5	6	7
Not Confused at all						*Very Confused*

Questionnaire presented to Group 4 (same instructions)

ID ……..……. Age……

Suppose you have to buy a new digital camera.

1. How do you describe your familiarity with "digital cameras" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "Camera Plus": $170, 5 Mpixel, Zoom 2X, Monitor LCD 1,5 inc, weight 6,2 oz
Option B "Image X": $220, 6 Mpixel, Zoom 4X, Monitor LCD 2,0 inc, weight 5,8 oz
Option C "Digital Pix": $350, 8 Mpixel, Zoom 6X, Monitor LCD 2,5 inc, weight 5,2 oz

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Suppose you have to buy an MP3 player.

1. How do you describe your familiarity with "MP 3 Players" product category?

1 2 3 4 5 6 7
Not familiar at all *Very familiar*

In a well known shopping centre you find following alternatives:

Option A "M-system": $100, 1 Giga, Display 1 inc, weight 5,5 oz, available in 2 colours
Option B "Hi Music": $160, 2 Giga, Display 1,5 inc, weight 5,0 oz, available in 4 colours
Option C "Sound Star": $220, 4 Giga, Display 2,0 inc, weight 4,5 oz, available in 6 colours

2. Which one do you chose? A B

3. How satisfied are you with choice made?

1 2 3 4 5 6 7
Not Satisfied at all *Very Satisfied*

4. How confident are you with choice made?

1 2 3 4 5 6 7
Not Confident at all *Very Confident*

5. How confused are you with choice made?

1 2 3 4 5 6 7
Not Confused at all *Very Confused*

Questionnaires Experiment 4

Questionnaires presented to Group 1 and Group 2 are the same presented in Experiment 1 in time t1.

Questionnaire presented to Group 3 and Group 4 are the presented in Experiment 1 in time t1.

Questionnaire presented to Group 5 and Group 6 are the presented in Experiment 1 in time t1.

Instructions vary depending to social information provided: Group 1 red instructions and then saw page 1 (where same number of respondents selected options A and B); Group 2 red instructions and then saw page 2 (where same number of respondents selected options A and B); Group 3 red instructions and then saw page 3 (where the majority of respondents selected option A); Group 4 red instructions and then saw page 4 (where the majority of respondents selected option A); Group 5 red instructions and then saw page 5 (where the majority of respondents selected option B); Group 6 red instructions and then saw page 6 (where the majority of respondents selected option B).

Instructions

Good morning,

This survey is an academic study by researchers at the University of Bologna. The purpose of the research is to better understand people's preferences.

Please be thoughtful and candid in your responses. Your responses will be entirely anonymous, and the results of the research will be reported only in aggregate form, with no information disclosed about how you or any specific individual responded.

In the next pages we'll present you several products.
Suppose to evaluate products as you have to really make a choice.
Alternative presented are equal in all dimensions not explicitly mentioned.
We will ask you to make 2 choices: one in digital cameras category and the other in the MP3 Players category.
In the first page you'll se a list of respondents and the choices they made previously. Fill in the first line available with your choices after you completed the questionnaire.

The survey will take about 5 minutes to complete. We very much appreciate your participation.

Thank you for your collaboration.

PAGE 1: GROUP 1

Respondents	Choice 1: Digital Cameras	Choice 2: MP3 Players
1	A	B
2	A	B
3	B	A
4	A	B
5	A	B
6	B	A
7	A	A
8	A	B
9	B	A
10	B	B
11	B	B
12	B	A
13	A	B
14	B	A
15	A	A
16	A	A
17	B	B
18	A	B
19	B	B
20	B	B
21	A	B
22	A	A
23	A	A
24	B	A
25	B	A
26	B	B
27	A	B
28	B	A
29	A	A
30	B	A
31	B	B
32	A	A
33	B	A
34	B	A
35	B	A
36		

PAGE 2: GROUP 2

Respondents	Choice 1: Digital Cameras	Choice 2: MP3 Players
1	A	B
2	A	B
3	B	A
4	A	B
5	A	B
6	C	A
7	A	A
8	A	B
9	B	A
10	B	B
11	B	B
12	B	C
13	C	B
14	B	A
15	A	A
16	A	A
17	B	B
18	A	B
19	B	B
20	B	B
21	A	B
22	A	C
23	A	A
24	B	A
25	B	A
26	B	B
27	A	B
28	C	A
29	A	A
30	B	A
31	B	C
32	A	A
33	B	A
34	B	A
35	B	A
36		

PAGE 3: GROUP 3

Respondents	Choice 1: Digital Cameras	Choice 2: MP3 Players
1	A	A
2	A	A
3	A	B
4	A	A
5	A	A
6	B	A
7	A	A
8	A	B
9	A	A
10	A	A
11	A	A
12	B	A
13	A	A
14	A	A
15	A	A
16	A	A
17	A	B
18	A	A
19	A	A
20	A	A
21	B	A
22	A	A
23	A	B
24	A	A
25	A	A
26	A	A
27	A	A
28	A	A
29	B	A
30	A	A
31	A	B
32	A	A
33	A	A
34	B	A
35	A	A
36		

PAGE 4: GROUP 4

Respondents	Choice 1: Digital Cameras	Choice 2: MP3 Players
1	A	A
2	A	A
3	A	B
4	A	A
5	C	A
6	B	A
7	A	A
8	A	B
9	A	A
10	A	A
11	A	A
12	B	A
13	A	A
14	A	C
15	A	A
16	C	A
17	A	B
18	A	A
19	A	A
20	A	A
21	B	C
22	A	A
23	A	B
24	A	A
25	A	A
26	C	A
27	A	A
28	A	A
29	B	A
30	A	A
31	A	B
32	A	A
33	A	A
34	B	C
35	A	A
36		

PAGE 5: GROUP

Respondents	Choice 1: Digital Cameras	Choice 2: MP3 Players
1	B	B
2	B	B
3	B	A
4	B	B
5	B	B
6	A	B
7	B	B
8	B	A
9	B	B
10	B	B
11	B	B
12	A	B
13	B	B
14	B	B
15	B	B
16	B	B
17	B	A
18	B	B
19	B	B
20	B	B
21	A	B
22	B	B
23	B	A
24	B	B
25	B	B
26	B	B
27	B	B
28	B	B
29	A	B
30	B	B
31	B	A
32	B	B
33	B	B
34	A	B
35	B	B
36		

PAGE 6: GROUP 6

Respondents	Choice 1: Digital Cameras	Choice 2: MP3 Players
1	B	B
2	B	B
3	B	A
4	B	B
5	C	B
6	A	B
7	B	B
8	B	A
9	B	B
10	B	B
11	B	B
12	A	B
13	B	C
14	B	B
15	B	B
16	C	B
17	B	A
18	B	B
19	B	B
20	B	C
21	A	B
22	B	B
23	B	A
24	B	B
25	B	B
26	B	B
27	C	B
28	B	B
29	A	B
30	B	B
31	B	A
32	B	B
33	B	B
34	A	C
35	B	B
36		

Questionnaires Experiment 5

Questionnaires presented to Group 1 and Group 2 at time t1 are the same presented in Experiment 1 in time t1.

Questionnaire presented to Group 3 and Group 4 at time t1 are the presented in Experiment 1 in time t1.

Questionnaire presented to Group 5 and Group 6 at time t1 are the presented in Experiment 1 in time t1.

Questionnaires presented to Group 1 and Group 2 at time t2 are the same presented in Experiment 1 in time t2.

Questionnaire presented to Group 3 and Group 4 at time t2 are the presented in Experiment 1 in time t2.

Questionnaire presented to Group 5 and Group 6 at time t2 are the presented in Experiment 1 in time t2.

Instructions at time t1 are the same presented in Experiment 1 in time t1.

Instructions at time t2 are the same presented in Experiment 4.

Instructions vary depending to social information provided: Group 1 red instructions and then saw page 1 (where same number of respondents selected options A and B); Group 2 red instructions and then saw page 2 (where same number of respondents selected options A and B); Group 3 red instructions and then saw page 3 (where the majority of respondents selected option A); Group 4 red instructions and then saw page 4 (where the majority of respondents selected option A); Group 5 red instructions and then saw page 5 (where the majority of respondents selected option B); Group 6 red instructions and then saw page 6 (where the majority of respondents selected option B).

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