

COMPLICATING CHOICE

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ABSTRACT

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A great deal of research in consumer decision-making and social-cognition has explored consumers' attempts to simplify choices by bolstering their tentative choice candidate and/or denigrating the other alternatives. The present research investigates a diametrically opposed process, whereby consumers complicate their decisions. It is demonstrated that, in order to complicate their choices, consumers increase choice conflict by over-weighting small disadvantages of superior alternatives, converging overall evaluations of alternatives, distorting information they retrieve from memory, selectively interpret information, reversing the ordinal value of attributes, and even choosing less preferred alternatives. Further, the results from nine studies support a unifying theoretical framework, namely the effort-compatibility principle. Specifically, it is argued that consumers strive for compatibility between the effort they anticipate and the effort that they actually exert. When a certain decision seems more difficult than initially expected, a simplifying process ensues. However, when the decision feels easier to resolve than was anticipated (e.g., when consumers face an important, yet easy choice), consumers artificially construct a more effortful choice.

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1. CHAPTER ONE: Theoretical Framework

“No question is so difficult to answer as that to which the answer is obvious”

~ *George Bernard Shaw*

Decisions are typically construed as resolutions that follow active deliberation. For example, Merriam-Webster’s on-line dictionary defines a decision as “...a determination arrived at *after consideration*.” Thus, a certain degree of consideration or deliberation is necessary to reach a decision. But, how much deliberation is enough? A great deal of research in behavioral decision theory and social cognition argues that consumers limit their deliberation and simplify their decisions in order to make easy, confident, and justifiable choices. For example, consumers have been shown to bolster their tentative choice candidate and/or denigrate the other available options (Janis and Mann 1977; Kivetz and Simonson 2000; Lord, Ross, and Lepper 1979; Mills 1968; Montgomery 1983; Russo, Medvec, and Melloy 1996; Russo, Melloy, and Medvec 1998; Tyszka 1985; see Brownstein 2003 for a review).

While simplifying processes in decision-making are important and ubiquitous, the present research demonstrates that, under certain conditions, consumers actually complicate their choices and bolster inferior options. Specifically, when consumers make important choices (e.g., between health providers or careers) they are motivated to engage in a deliberate decision process that adequately vets the chosen alternative.

Consequently, when an important decision feels too easy, consumers artificially create choice conflict by reconstructing their preferences. For example, consumers may bolster unimportant attributes or reverse the preference ordering of attributes (e.g., “more is better” might become “less is better”) in a direction that detracts from a near-dominant alternative. Such shifts in preferences may even affect subsequent choices and generate preference reversals.

Complicating decision processes are diametrically opposed to well-documented simplifying and justification processes. While complicating behavior may seem contradictory to much of the existing literature, in this research, I propose and empirically support a unifying effort-compatibility framework that accounts for simplifying, complicating, and the continuum between these two phenomena. This unifying framework postulates that consumers strive for compatibility between the effort they anticipate and the actual effort they invest in the decision. Accordingly, when a decision feels more difficult than what was initially anticipated, a simplifying process ensues. Conversely, when a decision is easier to make compared to what was originally anticipated, consumers artificially increase their deliberation and decision effort. I demonstrate that, in order to artificially create choice conflict, consumers (a) over-weigh small disadvantages of superior alternatives; (b) converge their overall evaluations of alternatives; and (c) reverse the ordinal value of attributes. Interestingly, such distortions disappear once the choice is made and the need to engage in due-diligent deliberation ceases. I begin with reviewing the extant literature on simplifying decision processes and then develop and position my conceptual framework.

1.1 Simplifying Decision Processes

A voluminous literature has demonstrated that after making choices (i.e., in the post-decisional phase), consumers increase their valuation of the chosen alternative and denigrate their valuation of the forgone alternative/s (Festinger 1957). In addition, research shows that consumers bolster their impending choices even before they finalize their decisions (see Brownstein 2003 for a review). For example, consumers often engage in selective information processing that favors one alternative at the expense of others. Bolstering one of the alternatives and/or denigrating the other alternatives decreases the choice conflict and facilitates easier, more confident choices. Such biased processing of choice alternatives in the pre-decisional phase is consistent with several prominent theories. According to choice certainty theory (Mills 1968), spreading the evaluations of alternatives by bolstering one of the alternatives enhances feelings of certainty in choice. Similarly, conflict theory (Janis and Mann 1977; Mann, Janis, and Chaplin 1969) asserts that when a conflict arises in choice, decision-makers bolster the least objectionable alternative by amplifying its favorable consequences, underemphasizing its unfavorable consequences, and/or denying the unpleasantness of its shortcomings. Pre-decisional bolstering is also incorporated in Montgomery's model of a "search for dominance structure" (Montgomery 1983, 1989). Specifically, Montgomery proposed that consumers attempt to construct a dominance structure, whereby the selected option could be perceived as dominating other options even when its values are not superior on all aspects.

Research on motivated reasoning (e.g., Kunda 1990), motivated judgment (e.g., Kruglanski 1990), motivated inference (e.g., Pyszczynski and Greenberg 1987), confirmation bias (e.g., Lord, Ross, and Lepper 1979), and distortion of information (e.g., Russo, Medvec, and Meloy 1996) lead to related predictions of simplifying and bolstering decision processes. According to the motivated reasoning model, people selectively retrieve, construct, and/or process information in a manner that enables them to reach their desired conclusions. Kruglanski (1990) argues that the preference to reach a particular judgment (i.e., the need for closure) causes decision-makers to engage in a less elaborate search for alternative explanations when incoming information is consistent, rather than inconsistent, with the desired conclusion. Research on confirmation bias (e.g., Lord, Ross, and Lepper 1979), distortion of information (e.g., Russo Medvec, and Meloy 1996; Russo, Meloy, and Medvec 1998), and choice under incomplete information (e.g., Kivetz and Simonson 2000) all lead to similar predictions without referring specifically to motivation.

Research in behavioral decision theory suggests that consumers may not always seek to simplify and bolster their choices. Specifically, a motivation to make accurate decisions can attenuate the use of heuristics and simplifying processes (e.g., Payne, Bettman, and Johnson 1988). For example, increased accuracy motivation reduces or even eliminates anchoring and insufficient adjustment, primacy effects, and the fundamental attribution error (Kruglanski and Freund 1983; Tetlock 1985). Similarly, informing consumers that they will have to justify their decisions to others (Russo, Meloy, and Wilks 2000) was found to attenuate pre-decisional bolstering.

Thus previous research has identified situations in which consumers will simplify, or will avoid simplifying, their decisions. In this research I examine a diametrically opposing behavior, whereby consumers actually make their decisions harder. Thus, the distinction between *not simplifying* and *complicating* is important. While the former is characterized by the mere attenuation of various simplifying biases, the latter represents a distinct set of complicating processes that introduce a bias of itself by making the decision more effortful than it has to be.

1.2 Complicating Decision Processes

Recent research supports the notion that consumers might be attracted to more difficult decisions. For example, Liu and Simonson (working paper) demonstrate that when faced with relatively unattractive alternatives, consumers are more likely to purchase a product when it is selected from a choice set that elicits greater conflict. Labroo and Kim (2009) document more favorable evaluations of a stimulus --- that is considered a means to a goal --- when that stimulus is less visually fluent. They explain this result as a meta-cognitive inference that the less fluent and harder to process stimulus is more instrumental for goal attainment.

Although the aforementioned research demonstrates that consumers react positively to more effortful situations, the choice difficulty in those studies was generated by the experimenter or the choice context. In my dissertation, I argue that consumers are not only attracted to difficult decision processes, but at times may endogenously seek to enhance their decision effort, that is, complicate their choices. There are multiple ways by

which consumers can enhance their decision effort and engage in more due diligence regarding an impending choice. For example, consumers can delay their choice and search for additional alternatives (e.g., Dhar 1997; Dhar and Nowlis 2004), seek expert recommendations, or learn more about the products at issue (e.g., Alba and Hutchinson 1987). I propose that, to increase their decision effort, consumers may also voluntarily enhance the decision conflict and trade-off difficulty in the choice set at hand by bolstering the less attractive alternative(s) in the set and denigrating the leading alternative. This could be achieved, for example, by overweighing small disadvantages of (and attributes that oppose) the leading alternative and/or under-weighting the large advantages of (and the attributes that favor) the leading alternative. Consumers may also reconstruct their preference ordering of attribute levels in a direction that detracts from their tentatively preferred alternative. Because such complicating decision processes are intended to ensure proper vetting of choice options, we expect them to occur only during the pre-decisional phase. Once a choice is made, the need for conflict enhancement behavior should disappear.

1.3 A Synthesis: The Effort-Compatibility Framework

If, as I have argued, consumers sometimes simplify their decisions and at others times complicate their decisions, then a question that naturally arises is: what determines which of these opposing processes will dominate? Building on prior research on satisficing and effort-accuracy tradeoffs (Payne, Bettman, and Johnson 1988; Simon 1957), I propose that consumers strive for compatibility between the effort they anticipate

and the effort that they experience in making that decision. More specifically, consumers are predicted to complicate their decision-making when a decision feels easier compared to what they had anticipated for the type of impending choice and simplify their decision-making when they feel that a decision is harder than what they had anticipated.

The anticipated, as well as the experienced effort, may vary based on various factors, such as the level of similarity and comparability among alternatives (Greenleaf and Lehmann 1995; Johnson 1984), the type and amount of choice conflict (Barker 1942; Chatterjee and Heath 1996; Miller 1944), the importance of the decision and the level of accountability (Lerner and Tetlock 1999), the anticipated regret and degree of commitment (Janis and Mann 1977), and the effort invested by others (Kivetz and Zheng 2006). In the present article, I operationalize the experienced choice difficulty in several ways. For example, I construct choice sets with either high or low utility differences (or overall evaluation) between the alternatives. Consistent with previous literature, I define the degree of choice conflict as the difference between the utilities of the alternatives. A larger utility difference between alternatives represents an easier choice because the consumer can more easily identify a preferred alternative (i.e., the one with greater utility). By contrast, a choice set with a smaller utility difference between alternatives represents a more difficult choice because the tradeoffs are more intense, and it is harder for the consumer to identify the preferred alternative (e.g., Chatterjee and Heath 1996; Tyebjee 1979). Specifically, given attribute weight measures for the set of J binary attributes the implied utility difference between the two alternatives can be calculated as:¹

¹ Note, that the utility difference equation could be readily expanded to more than two attribute levels.

$$U_{diff} = |U_A - U_B| = \left| \sum_{j=1}^J W_j (I_{Aj} - I_{Bj}) \right| \quad (1)$$

where, W_j is the weight the decision maker attaches to attribute j , such that

$\sum_{j=1}^J W_j = 100$, and I_{Kj} is a dummy variable that equals 1 if alternative K carries the consumer's most preferred level of attribute j and 0 otherwise.

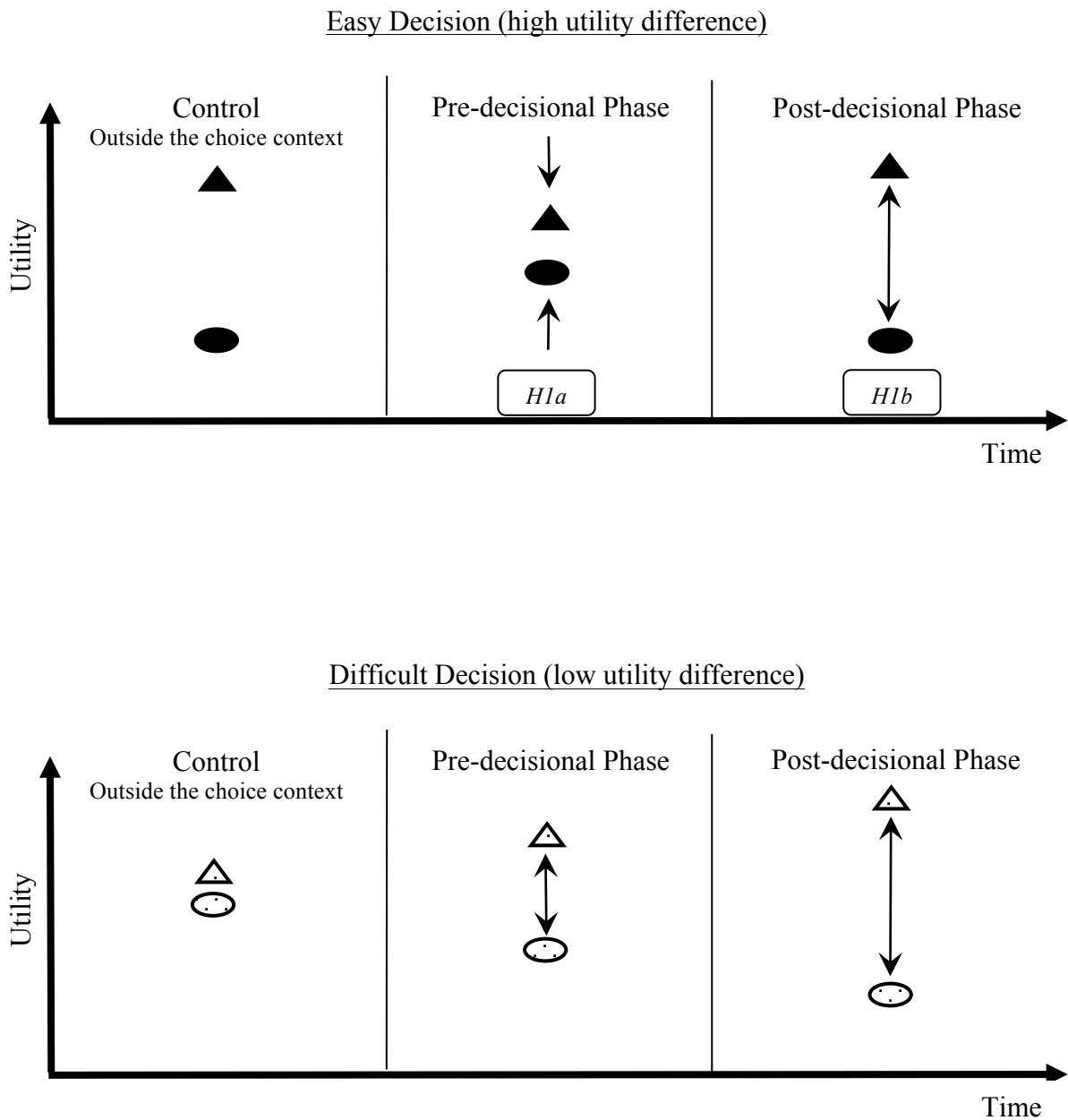
Next, I detail the main hypotheses regarding consumers' switching between simplifying and complicating decision processes during different phases of decision-making.

Easier Than Anticipated Decisions. As discussed earlier, I predict that consumers will pursue complicating decision processes when they feel that a choice is easier than what was anticipated. In particular, I expect that consumers engage in behavior that will weaken the tentatively preferred alternative and strengthens the other (near-dominated) alternatives. I also predict that once the choice is made, the need to regulate effort becomes irrelevant and complicating behavior will not be observed. These predictions are represented visually in the upper panel of Figure 1.

Harder Than Anticipated Decisions. Consistent with a great deal of prior research, I predict that consumers will pursue simplifying processes when they feel that a decision is harder than what was anticipated for the choice at hand. Specifically, I expect that consumers will engage in behavior that bolsters the leading alternatives and denigrates others (e.g., Janis and Mann 1977; Mills 1968; Montgomery 1983; Russo Medvec, and Meloy 1996; Svenson 1992, 1996). This simplifying process will lead to a reduction in choice conflict during the pre-decisional phase, as indicated in a higher

utility difference between the alternatives. In addition, consistent with cognitive dissonance, after consumers make the difficult choice (i.e., in the post-decisional phase), such behavior will persist in a manner that further bolsters the chosen alternative.

Figure 1. Distortions During Different Decisional Phases
(triangles and ellipsoids represent the chosen and non-chosen alternatives in the sets respectively)



2. CHAPTER TWO: Modi Operandi

As described in Chapter 1, existing literature documented various ways by which consumers simplify their decisions. Therefore, one should also expect to observe various ways by which consumers complicate their decisions. In this chapter I explore 5 distinct ways by which consumers artificially create a more effortful choice. I demonstrate that complicating behavior manifest through distortion of attribute weights, distortions of holistic judgments, biased retrieval from memory, selective interpretation of information, and the reversal of consumers' preference ordering. In the final section of this chapter I demonstrate how complicating behavior, once triggered, could also influence what consumers eventually choose.

2.1 Distorting Attribute Weights (Study 1)

As defined by Equation 1, one way by which consumers may complicate their decisions is by distorting the weights they attach to different attributes in a manner the converge the evaluation of alternatives (see upper pane of Figure 1). Accordingly I define the following hypotheses and test these in Study 1.

H1a: In the pre-decisional phase of an easier than anticipated decision, consumers will distort their attribute weighing in a direction that enhances their choice conflict and decreases the utility difference between the alternatives.

H1b: In the post-decisional phase of an easier than anticipated decision, the distortions in attribute weighing observed in the pre-decisional phase will attenuate.

In this study, respondents made choices between alternative physician services. A pre-test indicated that most respondents perceived such a decision as highly important. Study 1 tests Hypotheses 1a and 1b and examines both pre- and post-decisional processes as well as both easy and difficult choices, holding the degree of anticipated effort constant.

Method

Two hundred and twenty five students from a large east coast university were presented with two alternative physician services.² The physician services were described along three attributes that assumed one of two levels: (1) office hours that either did or did not include evenings and weekends; (2) average waiting time of either 3 or 10 days for a physician appointment; and (3) home visits either included or excluded. In order to construct easy vs. difficult choice set I conducted a pretest (see Pretest 1 in Appendix A for details) that measured the relative importance of the three attributes using a constant sum allocation task (of 100 points). The average importance of the three attributes was 48, 41, and 11, respectively. Using these attributes two choice sets were constructed to generate low and high difficulty choices (see Table 1).

² Eight respondents were excluded from the analysis since they rated the decision as extremely unimportant (the number of excluded respondents was equally distributed across conditions). Analysis with these respondents did not substantively change the results.

In the low difficulty choice set one alternative dominated the other on the two most important attributes (attributes 1 and 2). Conversely, in the high difficulty choice set, each alternative offered a higher level on only one of the important attributes, creating a tradeoff between the two most important attributes. A pretest (see Pretest 2 in Appendix A for details) confirmed that the high difficulty choice set was rated as significantly more difficult than the low difficulty choice set. Further, the majority of the respondents rated the high-difficulty choice set as being *harder than anticipated* (above the scale's midpoint) and the low-difficulty choice set as being *easier than anticipated*.

Table 1. Low and High Difficulty Choice Sets Used in Study 1

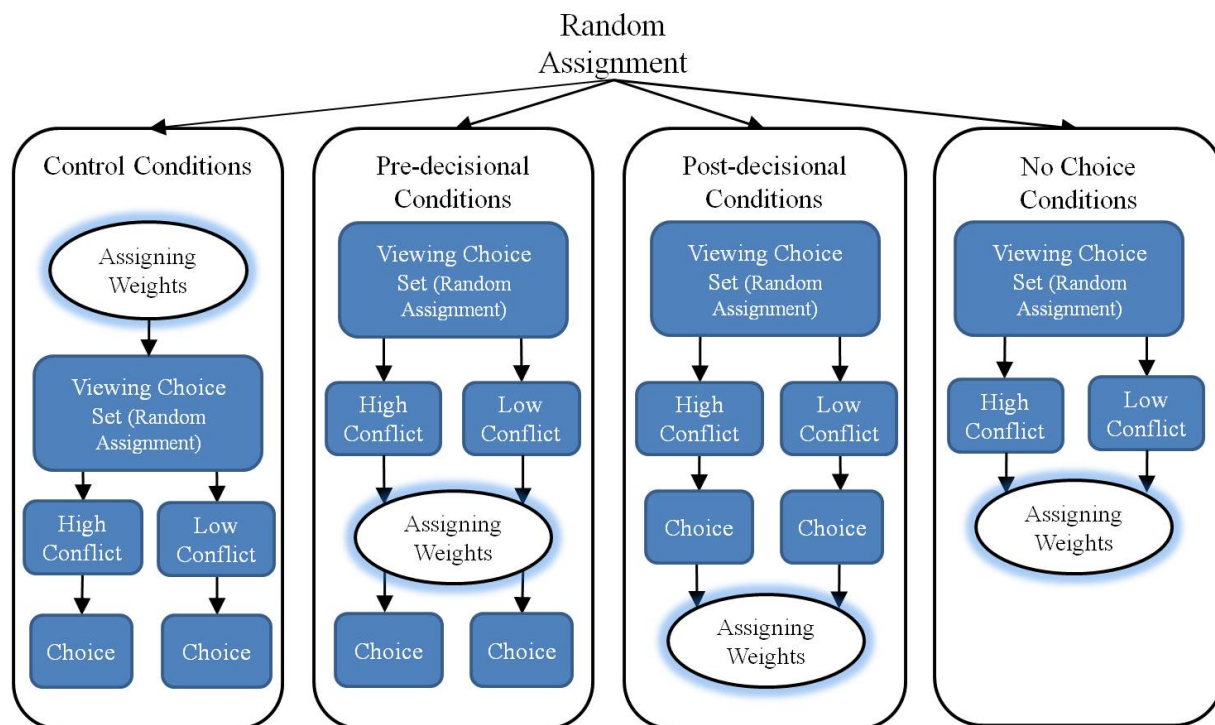
Attributes	Low Difficulty		High Difficulty	
	Alternative A	Alternative B	Alternative A	Alternative B
Evenings and Weekends Office Hours Included	Yes	No	Yes	No
Average Time to Schedule an Appointment	3 Days	10 Days	10 Days	3 Days
Home Visits	No	Yes	No	Yes

Main study. In order to test the hypotheses, I collected attribute weight measures (using a constant sum allocation of 100 points) for the three binary attributes described

above. Across the different experimental conditions, I varied the phase during which the attribute weights were measured. The study consisted of a 2 (choice difficulty: low vs. high) x 4 (time of measuring attribute weights: control vs. pre-decisional vs. post-decisional vs. no-choice) between-subjects design. In the control conditions, respondents indicated their attribute weights prior to observing any choice task. These respondents were therefore not influenced by the manipulation of choice difficulty when indicating their attribute weights.³ I compared the attribute weights (and the implied utility differences) assigned in the control condition to the attribute weights collected during, and after, the choice was made (i.e., the pre- and post-decisional phases, respectively). In the pre-decisional conditions, respondents were first presented with the choice set (low or high choice difficulty, manipulated between-subjects) and were then instructed to assign attribute weights before making their choice. In the post-decisional conditions, participants were asked to assign attribute weights immediately after making their choice (from a low or high difficulty choice set). Figure 2 illustrates the sequence of events in each of the conditions.

³ In subsequent analyses, I combined the attribute weights collected in the two control conditions (low and high difficulty choice sets) since, as expected, we found no difference between the attribute weights in these two conditions ($p > 0.7$).

Figure 2. Experimental Design and Sequence of Events in Each Condition of Study 1



Results

Utility differences. An implied utility difference between the two alternatives was calculated for each respondent using the assigned attribute weights, following Equation 1. Note that because the utility difference is calculated using constant sum allocations, its range (in absolute value) could vary between 0 and 100. Higher utility differences indicate an easier choice (as one alternative is distinctly more attractive than the other), whereas lower utility differences indicate a more difficult choice (as the two alternatives are valued similarly).

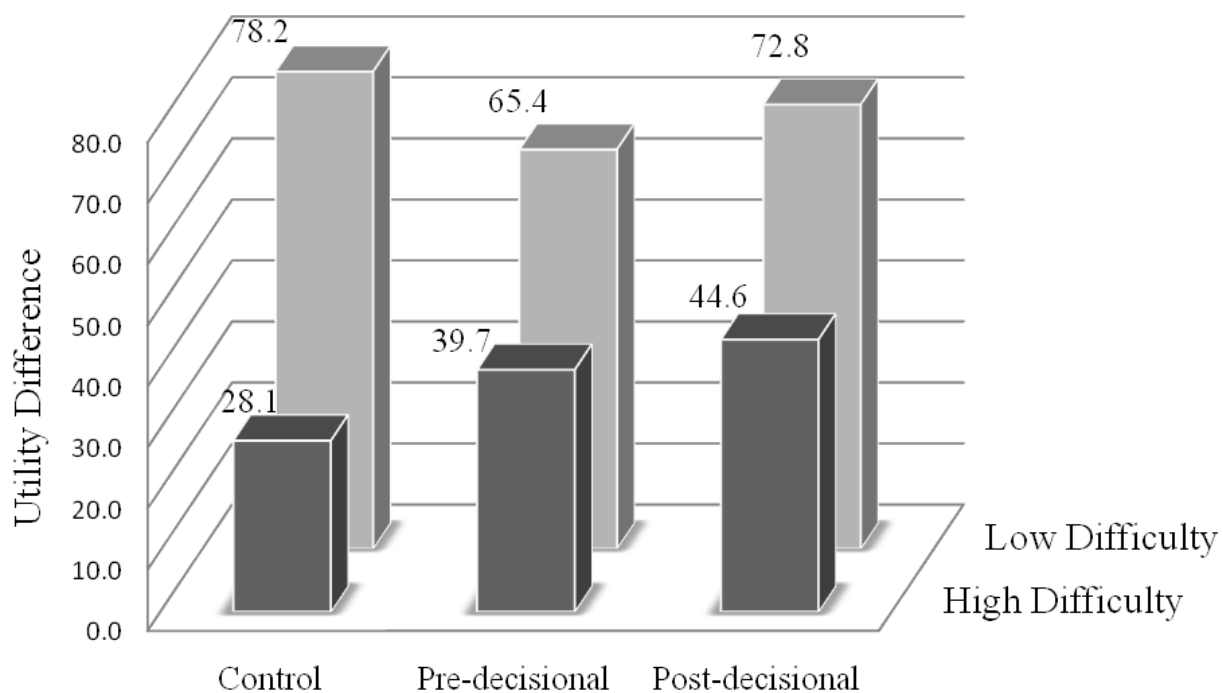
Manipulation check. In order to validate our choice difficulty manipulation, I calculated the average utility difference for the low and high difficulty choice sets for participants assigned to the control condition (outside of any motivation to simplify or complicate the choice). As expected, the average calculated utility difference was significantly higher for the low relative to the high difficulty choice set ($M_{\text{low}} = 78.2$ vs. $M_{\text{high}} = 28.1$, $F(1, 216) = 72.9$, $p < .01$). Further, for all of the respondents, the calculated individual-level utility difference for the low difficulty choice set was greater than the utility difference for the high difficulty choice set, thus ruling out aggregation bias (Hutchinson, Kamakura, and Lynch 2000).

High Difficulty Choices. The dark bars in Figure 3 depict the average utility differences elicited from respondents assigned to the high difficulty choice set. Consistent with prior research on simplifying behaviors, when respondents considered a high difficulty choice set, their utility difference between the two alternatives was significantly greater in the pre-decisional condition than in the control condition ($M_{\text{pre}} = 39.6$ vs. $M_{\text{control}} = 28.1$, $F(1,216) = 4.0$, $p < .05$). That is, when respondents faced a harder than anticipated choice, they simplified their task by increasing the weight of the attributes that favored their tentatively preferred alternative. Additionally, consistent with research on dissonance reduction, the utility difference further increased in the post-decisional condition. Therefore, the change in utility difference going from the control to the pre- and to the post-decisional phase is expected to have a monotonically increasing pattern. Indeed, a linear trend analysis of the utility difference in the three conditions was found to be positive and significant ($F(1,216) = 7.82$, $p = .01$).

Low Difficulty Choices. The light bars in Figure 3 depict the average utility differences observed among respondents assigned to the low difficulty choice set. Supporting the effort-compatibility framework, the pattern of results in the low difficulty choice conditions was substantially different from that observed in the high difficulty choice conditions; the interaction between choice difficulty and time of measuring attribute weights was statistically significant and in the predicted direction ($F(1,216) = 8.44, p < .01$). Consistent with H1a, when respondents faced an easier than anticipated decision, the utility difference between the two alternatives was significantly smaller in the pre-decisional condition relative to the control condition ($M_{\text{control}} = 78.2, M_{\text{pre}} = 65.4, F(1,216) = 4.4, p < .05$). That is, respondents complicated their task by increasing their weighing of an attribute that opposed their tentatively preferred alternative. It is noteworthy that although they complicated their (easy) decision, all of the participants in the low difficulty conditions eventually chose the near-dominant alternative.

As predicted by H1b, the complicating behavior attenuated in the post-decisional phase. The change in utility difference going from the control to the pre- and to the post-decisional phase is hypothesized to follow a U-shape pattern. That is, I expect the high utility difference in the control condition to decrease in the pre-decisional phase and then increase again in the post-decisional phase. A quadratic trend analysis (Keppel and Wickens 2004) approached significance ($F(1,216) = 3.5, p = .06$) suggesting a U-shape utility difference pattern (light bars in Figure 3). Furthermore, the utility difference in the post-decisional condition returned to levels similar to those of the control condition ($M_{\text{post}} = 72.8$ vs. $M_{\text{control}} = 78.2, F(1,216) = .77, p = .4$).

Figure 3. Utility Differences Across the Conditions in Study 1



Attribute weights. To directly examine the distortion of attribute weights, I analyzed the observed weight of the least important attribute (“home visits either included or excluded”), which opposed the nearly-dominant alternative.⁴ Respondents assigned to the low difficulty choice set enhanced their conflict in choice by nearly doubling the weight of the attribute that opposed their tentative (and ultimate) choice ($M_{\text{pre}} = 17.3$ vs. $M_{\text{control}} = 10.8, p < .05$). Because attribute weights were provided using a constant sum

⁴ Due to space limitation all other attribute weights and their variation across different decisional phases are provided in the web appendix.

allocation, any increase in the weight of “home visits” would be accompanied by a decrease in the weights of the two attributes that supported the near-dominating alternative (which was ultimately chosen). Further, consistent with H1b, once respondents made their choice, the weight of the “homes visits” attribute returned to its level in the control condition ($M_{\text{post}} = 13.6$ vs. $M_{\text{control}} = 10.8$, $p = .4$).

Discussion

Consistent with a great deal of prior research, the findings indicated that in both the pre- and post-decisional phases, respondents facing difficult choices shifted their attribute weighing in a direction that supported their tentatively, and ultimately, chosen alternative. Importantly, a very different pattern of results was predicted and observed for respondents who faced an easy, yet important choice among physician services. These respondents seemed to have increased their decision conflict and their experienced effort by distorting their attribute weighing in a manner that weakened their preferred alternative. Once respondents completed their due-diligent deliberation and made a final choice, their attribute weighing reverted back to the levels observed among control respondents. Overall, the results support the effort-compatibility framework, whereby, consumers are predicted to simplify harder than anticipated choices and complicate easier than anticipated choices.

A possible alternative explanation for the observed complicating process is a rational, or market efficiency, inference (Chernev and Carpenter 2001; Prelec, Wernerfelt, and Zettelmeyer 1997). According to the inference rival account, consumers facing a low

difficulty choice set infer that the least important attribute (opposing the nearly-dominant alternative) is more critical than they initially thought because that renders the two alternatives more competitive and Pareto-optimal. This rival account cannot explain the entire pattern of observed results. First, inferences should affect attribute weighing both before and after respondents make a choice (i.e., both in the pre- and post-decisional phases). In contrast, the results indicated that attribute weighing shifted against the preferred alternative only in the pre-decisional phase. Second, the inference account does not predict the pattern of results observed in the high difficulty choice conditions.

To further examine the inference explanation, I included in the main study a no-choice condition. Similar to the pre-decisional condition, in the no-choice condition respondents were exposed to the choice set before assigning attribute weights. However, unlike the pre-decisional condition, in the no-choice condition, respondents were not informed that they will be required to choose between the alternatives. The inference account predicts that respondents would provide similar attribute weights in the no-choice and pre-decisional conditions, as respondents in both conditions receive similar information about the alternatives. By contrast, our conceptualization predicts that eliminating the need to choose would “liberate” respondents from the need to work harder to fully “vet” their decision, thereby attenuating any complicating behavior. Supporting this prediction and inconsistent with the inference account, there was no difference in attribute weighing between the no-choice and control conditions in either the low difficulty ($M_{\text{control}} = 78.2$, $M_{\text{no-choice}} = 75.3$) or the high difficulty conditions ($M_{\text{control}} = 28.1$, $M_{\text{no-choice}} = 31.4$; both p 's = .6).

Still, Study 1 leaves open several issues. First, complicating behavior was captured only through distortions of attribute weights. Although such distortions reflect an increase in choice conflict, one might argue that such an operationalization is relatively narrow and does not reflect a broader notion of “complicating” behavior. Second, Study 1 investigated complicating versus simplifying behavior by examining only two levels of decision difficulty (low vs. high). A more comprehensive test of the effort-compatibility principle would involve a continuous analysis that incorporates several levels of decision difficulty. Such an analysis would potentially allow us to better integrate the complicating effect with previous findings of simplifying behaviors and their attenuation (e.g., Mann and Taylor 1970). Third, since the effort compatibility hypothesis asserts that the mismatch between the anticipated and experienced effort will determine the observed behavior, directly measuring the anticipated effort and conducting a moderated mediation analysis can further support the hypothesized relationships between these constructs.

2.2 Distorting Holistic Judgment (Study 2)

The present study is built on the experimental design and stimuli used by Mann and Taylor (1970). Mann and Taylor employed a test/re-test within-subject design; they first asked participants to rate their liking of twelve famous paintings and then asked these participants to re-rate two of the paintings prior to choosing their most preferred one. Participants either faced a difficult choice (i.e., choosing between two paintings that were initially rated no more than 1 point apart) or a relatively easy choice (i.e., choosing between two paintings that were initially rated at least 5 points apart). Mann and Taylor

demonstrated that, when facing a difficult choice, respondents simplified their decisions; in particular, the overall ratings of the two paintings diverged prior to choice. However, when participants faced easier choices, no significant pre-decisional distortions in overall liking were found.

At first glance, the null effect observed in the “low-difficulty” condition in Mann and Taylor (1970) seems inconsistent with the effort-compatibility framework. If the decision was indeed relatively easy, then the effort-compatibility framework should predict complicating behavior rather than attenuation of simplifying behavior. Closer examination of the experimental design employed by Mann and Taylor helps resolve this seeming inconsistency. Specifically, in both their “high-difficulty” and “low-difficulty” conditions, participants were presented with choices between two paintings that were both initially rated on the positive side of the liking scale (i.e., 8 to 15). Thus, even the “low difficulty” condition in Mann and Taylor was moderately difficult using only half of the liking scale. Accordingly, the null effect in Mann and Taylor’s “low difficulty” condition may be consistent with the effort-compatibility framework if the (moderate) choice difficulty matched the expected effort from the painting task. An interesting question is whether one would have observed complicating behavior --- manifested in the convergence of evaluations --- in the Mann and Taylor study had respondents faced even easier decisions.

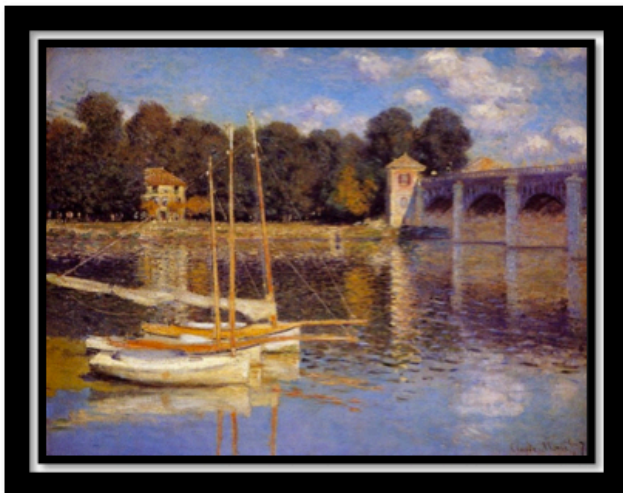
In order to test this conjecture, I adopted Mann and Taylor’s study paradigm, but I employed the entire range of choice difficulty levels. More specifically, in our study, after participants rate the *exact same* twelve famous paintings used in the Mann and Taylor

study, the participants choose between two randomly drawn paintings from the possible set of twelve paintings (for selected stimuli used in Study 3, see Figure 4). This procedure allows examining the entire range of choice difficulty. I also measure participants' anticipated effort and test whether it mediates the observed complicating behavior.

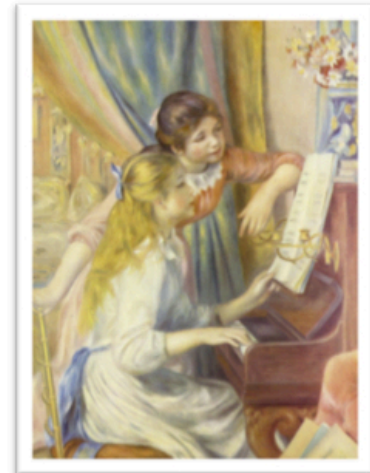
Figure 4: Selected Stimuli Used in Study 2



"joie de vivre", by Pablo Picasso



"Le Pont d'Argenteuil", by Claude Monet



"jeunes filles au piano", by Pierre-Auguste Renoir

Method

One hundred and ninety seven students from a large east coast university participated in the study, which consisted of two main parts. In the first part, respondents rated the twelve paintings on a 1 to 15 liking scale (ranging from “extremely dislike” to “extremely like”), followed by a ranking task of all twelve paintings from best to worst.⁵ Next, participants were asked to imagine that they were the curators of a large museum (responsible for planning, purchasing, and managing the museum’s collection of famous paintings). Participants were then told to imagine that they were considering purchasing a painting for the museum’s collection and that they would have to choose (based on their own preferences) between two possible paintings. In order to manipulate the decision’s perceived importance, I adopted the procedure used by Jecker (1964). Specifically, in the low decision importance condition, participants were told that “...although you will need to make a choice between the paintings, because the museum collection is expected to expand rapidly there is an extremely good chance (around 98%) that eventually both paintings will be added to the collection.” I contrasted this low decision importance condition with two high decision importance conditions: in one high decision importance condition, respondents were told nothing about any chance of the museum acquiring both paintings, whereas in a second high decision importance condition, respondents were told that there was an extremely small chance (around 2%) that eventually both paintings will be added to the collection. The later high decision importance condition was used in order to verify that the mere introduction of probabilities into the decision was not driving the results. As expected, these two high importance conditions did not differ on any manipulation-check

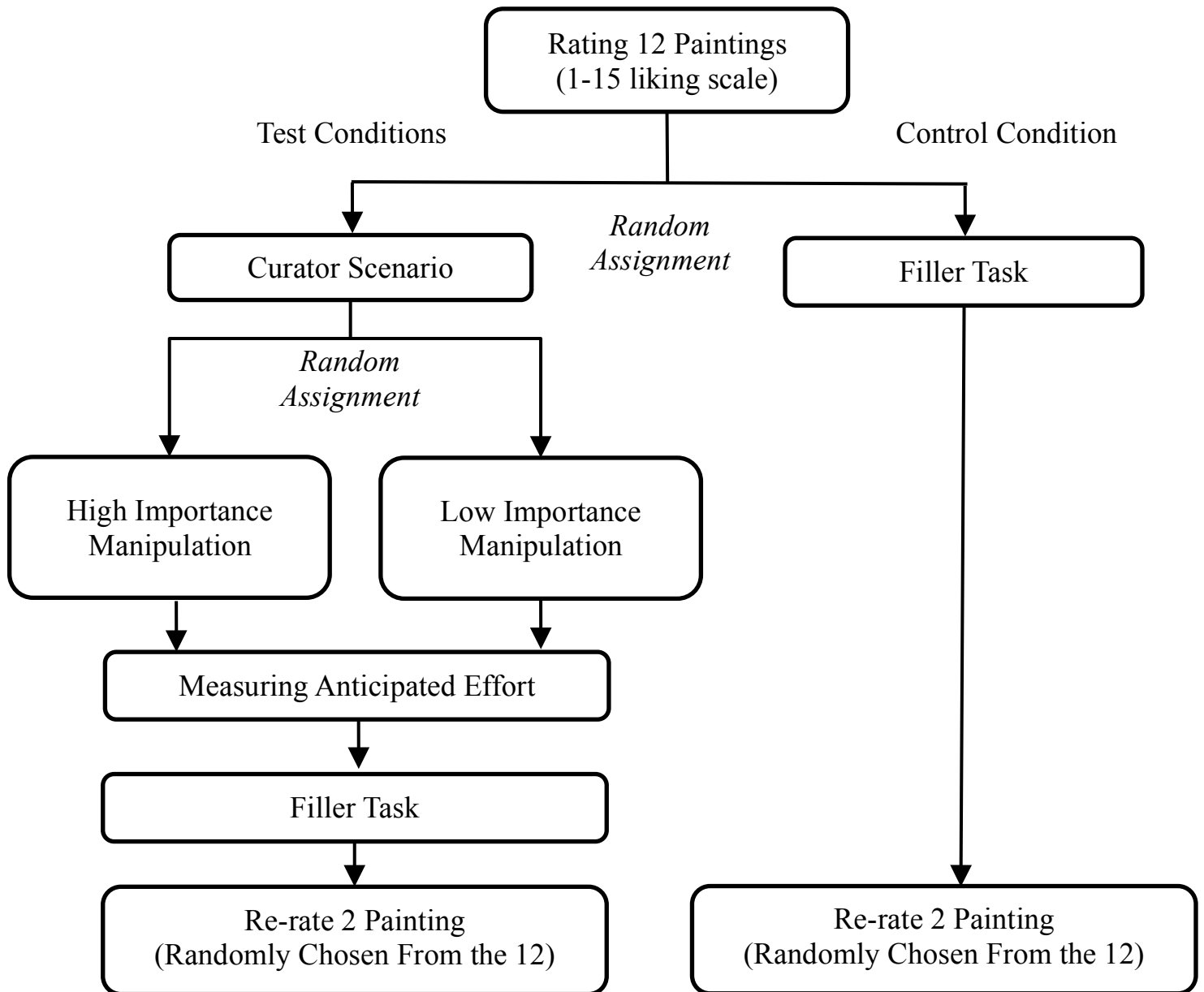
⁵ As in the original paper by Mann and Taylor (1970), we did not use the ranking data for analysis.

or dependent-variable, and therefore, I collapsed them into one condition (hereafter, the “high decision importance” condition). The first part of the study (which did not include the actual choice between the paintings) concluded with manipulation checks in which participants rated (a) how important they perceive the decision to be on an 11-point scale ranging from “extremely unimportant” (1) to “extremely important” (11); and (b) how effortful they anticipate the decision to be on an 11-point scale ranging from “extremely effortless” (1) to “extremely effortful” (11).

After completing several unrelated filler tasks, participants were reminded of the decision at hand and were presented with two paintings that were randomly drawn from the twelve paintings they rated in the first part of the study. Participants were asked to re-rate the two paintings on the 15-point liking scale and then to choose their preferred painting.

Similar to Mann and Taylor’s experimental design, a control condition was included in this study. In the control condition participants were asked to rate and rank the twelve paintings but were neither informed about an impending choice nor given any “curator” scenario or importance/anticipated-effort measures. After completing the filler tasks, participants in the control condition were asked to re-rate the paintings. This procedure enabled us to account for any statistical artifacts that may have been generated by the test-retest design that was employed. Figure 5 illustrates the sequence of events in each condition.

Figure 5: Experimental Design and Sequence of Events in Study 3



Results

Manipulation checks. Respondents' ratings of the decision's importance and anticipated difficulty indicated that the decision difficulty manipulation operated as intended. First, the perceived decision importance was significantly higher in the high compared to low decision importance condition ($M_{\text{high importance}} = 8.9$ vs. $M_{\text{low importance}} = 7.0$, $p < .001$). Additionally, respondents anticipated the decision to be significantly more effortful in the high relative to the low decision importance condition ($M_{\text{high importance}} = 8.1$ vs. $M_{\text{low importance}} = 6.7$, $p < .001$). This result, provide empirical evidence for the relationship I postulate in Study 2c between the decision importance and anticipated effort.

Dependent Variable. As in Mann and Taylor, for each participant, I calculated the absolute difference between the ratings given to the two (randomly drawn) paintings in the first part of the study ($\Delta R1$), and in the second part of the study ($\Delta R2$). I define a simplifying-complicating score (hereafter "SC score") as the change in the differences in ratings between the first and second part of the study ($SC = \Delta R2 - \Delta R1$). The ratings in the first part of the study (before the decision-importance manipulation and before a choice was mentioned), represent a "context-independent" measure of overall liking at the individual-participant level. By contrast, the ratings in the second part of the study reflect participants' preferences within the context of the impending choice (pre-decisional phase). If the overall liking scores of the two paintings diverged in the second part of the study, then the computed SC score would be positive, indicating a simplifying behavior. By contrast, if the overall liking scores of the two paintings converged in the

second part of the study, then the SC score would be negative, representing complicating behavior.⁶ The SC scores were used to investigate both the direction and magnitude of simplifying versus complicating behaviors. I also compared the calculated SC scores in the experimental conditions to those obtained in the control condition to account for statistical artifacts (such as regression to the mean) that could potentially arise from the test-retest design that was employed.

Independent Variables. As in Mann and Taylor, the context-independent level of choice difficulty was determined using the absolute difference in the overall liking ratings of the two paintings in the first part of the study ($\Delta R1$). The greater the difference between the liking of the two paintings (i.e., the larger is $\Delta R1$), the easier it is to choose between the two paintings. The anticipated effort was measured using respondents' self-reports on an 11-point scale.

Analysis. I report both the results of dichotomized levels of decision difficulty as in Mann and Taylor, as well as a moderated mediation analysis using a continuous analysis.

Dichotomized analysis: Respondents were classified into three levels of choice difficulty based on a tertiary-split of their $\Delta R1$ scores ("high," "moderate," and "low" decision difficulty groups were 0.43 [s.d. = .5], 2.89 [s.d. = .77], and 6.37 [s.d. = 1.56], respectively). Next, in order to test for simplifying versus complicating behavior, the SC

⁶ For example, assume that a participant rated the two paintings in the first part of the study as 5 and 11 and in the second part re-rated these paintings as 4 and 13. Accordingly, $\Delta R1 = |11 - 5| = 6$, $\Delta R2 = |13 - 4| = 9$, and $SC = 9 - 6 = 3$, which indicates simplifying behavior. If, however, the ratings in the second part were 7 and 9, then the SC score would be $2 - 6 = -4$, which represents complicating decision process.

scores were computed across these groups in both the low and high decision importance conditions (see Table 2a).

High Decision Difficulty. Replicating the results reported in Mann and Taylor, when confronted with a difficult choice (context-independent ratings between the two paintings were similar) re-evaluations of the paintings diverged in both the low and high decision importance cells (indicating a simplifying process), and differed significantly from the control condition ($M_{\text{low_decision_importance}} = 1.65$ and $M_{\text{high_decision_importance}} = 1.66$ vs. $M_{\text{control}} = .03$, both p 's $< .001$).

Moderate Decision Difficulty. When confronted with a moderately difficult choice (context-independent ratings between the two paintings were somewhat apart) respondents' re-evaluations of the paintings did not differ significantly from the pattern observed in the control condition ($M_{\text{low_decision_importance}} = .75$, $M_{\text{high_decision_importance}} = .85$, $M_{\text{control}} = .2$, $p > .18$ and $p > .2$).

Low Decision Difficulty. As predicted by the effort-compatibility principle, when confronted with an easy decision (context-independent ratings between the two paintings were far apart) respondents' behavior was determined by the level of decision importance. Specifically, respondents assigned to the high decision importance condition complicated their decision ($M_{\text{high_decision_importance}} = -1.1$, $M_{\text{control}} = -.01$, $p < .03$). However, respondents assigned to the low decision importance condition did not exhibit such a convergence of overall evaluations ($M_{\text{low_decision_importance}} = -.61$, $M_{\text{control}} = -.01$, $p > .2$). Thus, using the *exact same* stimuli as in Mann and Taylor, but using the entire scale, enabled us to construct low-difficulty choice sets and observe convergence of evaluations

(i.e., complicating behavior) when the decision was framed as important and therefore, respondents anticipated high effort.

It is important to note that in order to directly validate the proposed mechanism (i.e., effort compatibility hypothesis) one can perform a similar analysis using the stated anticipated effort instead of the manipulated decision importance. Accordingly, respondents were classified into two groups, based on a median-split of their anticipated effort scores (“high” vs. “low” anticipated effort groups were 9.24 [s.d. = .9] vs. 6.02 [s.d. = 1.21], respectively). Supporting the effort compatibility hypothesis, incorporating the anticipated effort into the analysis produced similar (and even stronger) pattern of results (see Table 2b).

Table 2a. SC Scores Across Levels of Difficulty and Decision Importance in Study 2

	Difficult	Moderately Difficult	Easy
Low Decision Importance	1.65*	0.75	-0.61
High Decision Importance	1.66*	0.84	-1.1*
Control	0.03	0.20	-0.01

* Significantly different from control ($p < .001$)

Table 2b. SC Scores Across Levels of Difficulty and Anticipated Effort in Study 2

	Difficult	Moderately Difficult	Easy
Low Anticipated Effort	1.59*	0.67	0.71
High Anticipated Effort	1.60*	0.94	-2.25*
Control	0.03	0.20	-0.01

* Significantly different from control ($p < .001$)

A similar pattern of results is obtained when we examine the percent of respondents who either simplified or complicated their decision. Table 3 presents the percentage of respondents with either positive or negative SC scores (i.e., indicating simplifying or complicating behavior, respectively). A significant proportion of respondents simplified their decision when they anticipated low effort but encountered a difficult decision ($M = 77\%$ vs. $M_{\text{control}} = 47\%$, $Z = 2.44$, $p < .02$). By contrast, a significant proportion of

respondents complicated their decision when they anticipated high effort but encountered an easy decision ($M = 75\%$ vs. $M_{\text{control}} = 53\%$, $Z = 2.16$, $p < .03$). Furthermore, in the moderate difficulty condition, when the need for complicating or simplifying is lower, the proportion of respondents that neither simplified nor complicated was higher than in the easy or difficult choice conditions ($Z = 2.18$, $p < .03$ and $Z = 4.45$, $p < .001$ respectively). In all other cells, the percent of respondents that either complicated or simplified their choice did not significantly differ from that observed in the control condition. These results are consistent with the effort-compatibility framework, suggesting that complicating or simplifying behavior occurs when the anticipated effort and experienced difficulty do not match.

Table 3. Portions of Respondents that Simplified, Complicated or did Not Distort in Study 2

	Difficult	Moderately Difficult	Easy
Low Anticipated Effort	77% Simplified 14% Complicated 9% Neither	44% Simplified 15% Complicated 41% Neither	52% Simplified 29% Complicated 19% Neither
High Anticipated Effort	65% Simplified 35% Complicated 0% Neither	43% Simplified 26% Complicated 31% Neither	10% Simplified 75% Complicated 15% Neither

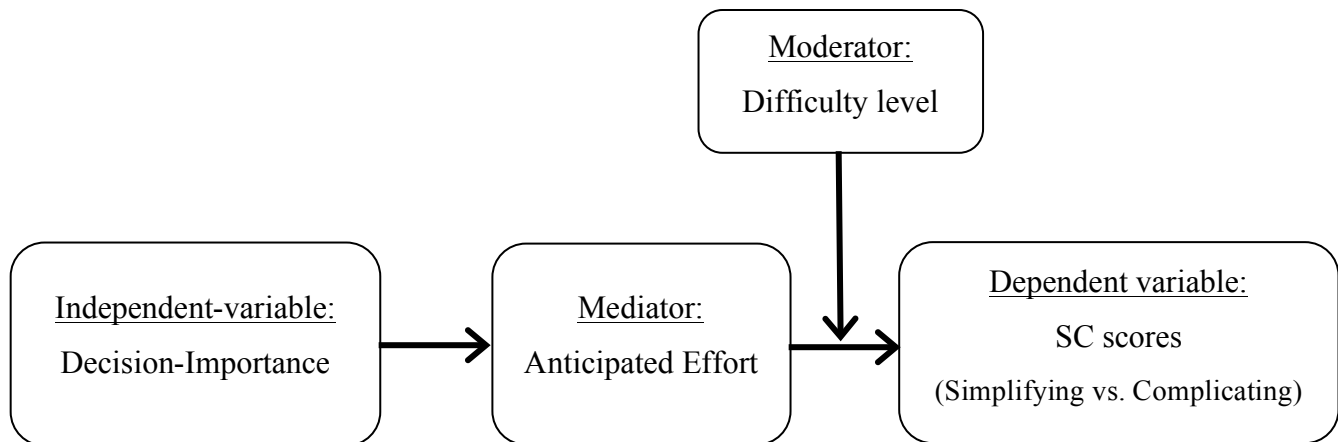
* Gray-shaded cells are significantly different from the control.

Moderated Mediation Analysis. Due to the known limitations of data discretization (Fitzsimons 2008), I also performed a co

continuous moderated mediation analysis. In particular, I predicted that respondents' anticipated effort will mediate the effect of the decision importance manipulation and that this mediation will be moderated by the level of choice difficulty (see Figure 6).

After mean-centering the mediator (anticipated effort), I regressed it on the independent variable (high vs. low decision importance). As expected, decision importance had a significant positive effect on anticipated effort ($\beta = .67, p < .0001$). Next, I regressed the dependent variable (SC score) on (i) the independent variable (decision importance), (ii) the mediator (anticipated effort), (iii) the moderator (decision difficulty level), and (iv) the interaction between the mediator and the moderator. As expected, lower choice difficulty (higher $\Delta R1$ levels) led to significantly lower SC scores ($\beta = -.33, p < .0001$), indicating that easier choices led to complicating behavior and that more difficult choices led to simplifying behavior. Importantly, the interaction between the moderator and mediator was negative and significant ($\beta = -.11, p < .01$), indicating that when confronted with an easy choice, respondents who anticipated high effort (as opposed to low effort) complicated their decision. Similarly, when confronted with a difficult choice, respondents who anticipated low effort (as opposed to high effort) simplified their decision. Finally, the decision importance variable (high vs. low) did not approach statistical significance, indicating that the effect of decision importance was fully mediated through the anticipated effort measure.

Figure 6: Moderated Mediation in Study 2



Study 2: Discussion

Study 2 provides additional evidence for complicating behavior and for the effort-compatibility framework as an underlying psychological mechanism. First, the study demonstrates complicating behavior by measuring overall liking in addition to the stated attribute weights used in Study 1. Second, I explicitly measured anticipated effort, confirmed its relationship with decision importance, and demonstrated its mediating effect on complicating and simplifying behaviors. Consistent with the effort-compatibility framework, complicating and simplifying behaviors were observed only when there was a mismatch between the expected effort and the choice's difficulty. Third, building on and extending Mann and Taylor (1970), I show the full continuum of simplifying behavior, its attenuation, and complicating behavior. Thus, I demonstrate that complicating behavior

and the effort-compatibility principle are complementary and not contradictory to previous findings. Finally, Study 2 demonstrated complicating behavior at the individual level using a within-subject design.

Study 2, also helps in ruling out alternative explanations, such as inferences regarding market efficiency and conversational norms. Inferences about market efficiency are less likely in the domain of artwork, because preferences for paintings and art are expected to be subjective and heterogeneous. Further, a choice between any two paintings may be considered difficult for some respondents but easy for others. Knowing this, respondents should be less likely to question the experimenters' motives when confronted with what subjectively feels to them as a decision that is "too easy," thus, ruling out conversational norms explanations.

2.3 Biased Retrieval from Memory (Study 3)

After demonstrating two ways by which consumers artificially construct a more effortful choice, I demonstrate that not only will consumer distort their preference structure, but also, distort and biasedly retrieve from memory the information characterizing the choice set. In particular, I hypothesize that in order to feel that enough effort was invested in the deliberation phase, consumers will recall information in a manner that will denigrate the leading alternative and bolster the inferior alternative in the set. Again, we would expect to observe such behavior only in the pre-decisional phase. Once the choice is made, such distortions of memory will attenuate.

In addition, in this Study I also examine some of the individual differences that may accentuate or attenuate complicating behavior. In particular, since I assert, that it is the need

for a diligent decision process that is driving the observed complicating behavior, interesting individual differences in perception of effort may play a moderating role. Therefore, in the current study I also measure participants' general attitude towards effort in life using the Protestant Ethic scale (Mirels and Garrett 1971). This scale includes items such as "I feel uneasy when there is little work for me to do", "life would have very little meaning if we never had to suffer" (the complete list of items is presented in Appendix B). The discussion above leads to the following hypotheses:

H3a: In the pre-decisional (but not in the post-decisional) phase of an easier than anticipated decision, consumers will distort information they recall about the alternatives in a direction that enhances their choice conflict and decreases the utility difference between the alternatives.

H3b: The tendency to increase choice conflict in the deliberation phase will be more pronounced among consumers that subscribe to high protestant work ethic scale.

Method

One hundred thirty nine students from a large east coast university participated in this study, which was comprised of three parts. In the first part, participants observed information about 12 potential job candidates. For each candidate participants observed four units of information: the candidate's name, his GMAT score (between 200 and 800), and

two scores pertaining to his recommendation and interview evaluations (between 0 and 3), ostensibly provided by the HR department that read the recommendation letters and conducted the interviews. The information about each candidate was displayed separately on the screen, and once participants finished reading the information they continued to review the information about the next candidate.

Next, participants were given an unrelated filler task that takes about three minutes to complete. In the third and final section of the study participants were given a choice scenario in which they had to imagine they are the CEO of a large firm and need to decide between two potential job candidates. The first factor that was manipulated (between subjects) was the decision importance. In the low decision importance, participants were told that although they will need to choose their most preferred candidate, because the firm is expected to expand, there is a good chance that eventually both candidates will be recruited. In the high importance condition, participants were told nothing about the expansion and were required to choose their most preferred candidate. After reading the choice scenario, participants observed two potential candidates out of the 12 they had originally observed, and were told that due to unrelated external factors all other candidates are unavailable.

The information describing the two candidates included the candidates' names, GMAT scores and recommendation evaluations. However, the information pertaining to their interview evaluation were omitted and marked with a blank line. Furthermore, the job candidates the participants observed were picked such that one candidate dominated the other on the GMAT score (706 vs. 678) and the recommendation evaluation (2.9 vs. 1.8).

Thus based on the available information one candidate appeared to be much better than the other. The actual interview scores that were omitted from the choice set but were given in the first part of the study, were identical for both candidates (score of 1.1).

Participants were asked to complete from memory the missing information. The second factor that was manipulated between subjects was the stage in which participants were asked to complete the missing information (pre-decisional vs. post-decisional stage). In the pre-decisional stage, participants were asked to complete the information prior to making their decision. In the post-decisional stage participants were first asked to choose their most preferred candidate and only then complete the missing information from memory. Finally, the study also employed a control condition in which participants were asked to recall the information about the two candidates outside the context of any choice. After completing all sections participants completed the Protestant Ethic Scale (Mirels and Garrett, 1971; see Appendix B for complete list of items).

Results

Dependent variable. In order to examine the manner by which participants distorted their recall of the missing attribute I computed that difference in retrieved interview evaluations of the two candidates. The retrieved evaluation of the inferior candidate was deducted from that of the superior candidate. Since the true interview score of the two candidates was identical, perfect recall of information will result in no difference (i.e., DV = 0). However, negative score will indicate that memory was distorted in a manner that bolstered the evaluation of the inferior candidate and denigrated the evaluation of the

superior candidate. This recall pattern will correspond to complicating behavior.

Conversely, positive score will correspond to a simplifying pattern.

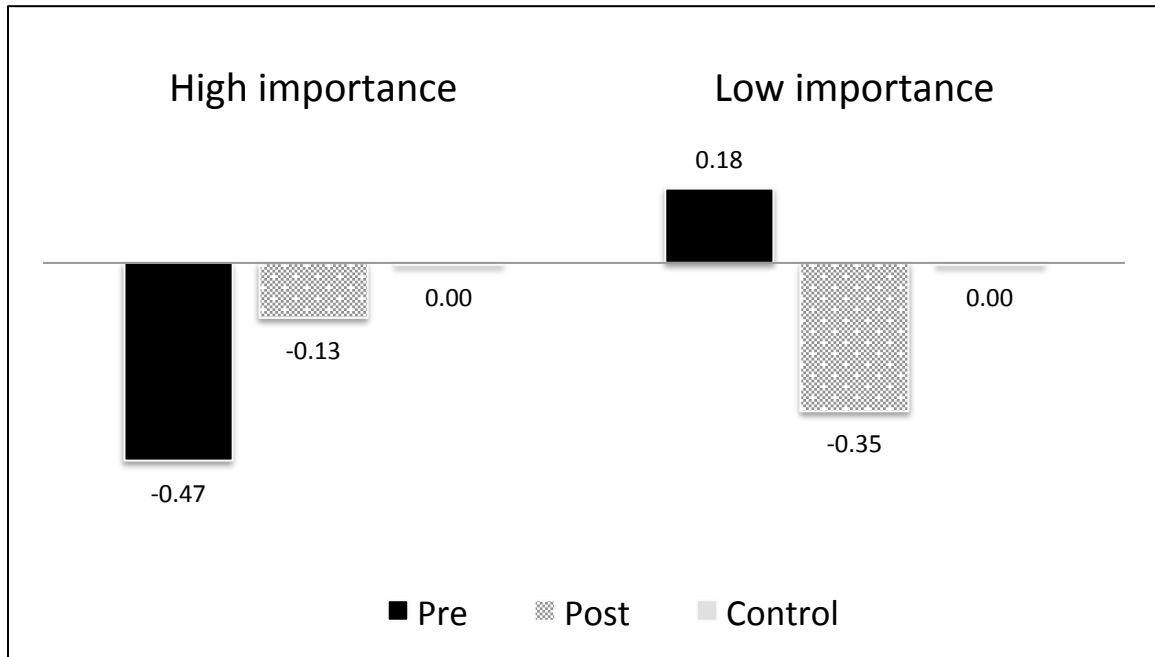
In order to test the predictions a regression analysis was performed in which I regressed the experimental conditions (decision importance: high vs. low; stage of retrieving information: pre vs. post choice) as well as the Protestant ethics scale measures on the DV. In the regression we also included all of the 2-way as well as 3-way interactions. As expected, retrieving information in the pre-decisional stage led participants to recall information in a manner that increased the choice conflict ($\beta = -.53, p < .01$). No other main effects were observed. However, as hypothesized, the two-way interaction between stage of retrieving information and decision importance was found to be significant ($\beta = .75, p < .01$). Thus, supporting H3a, retrieving information in a manner that intensified choice conflict was stronger in the pre-decisional stage when decisions were framed as important. No other two-way interactions were observed. Finally, consistent with H3b, a significant three-way interaction was found ($\beta = .05, p < .04$). Indicating that the protestant ethic scale moderated the observed complicating pattern in the expected direction. Table 4 summarizes the results of the regression analysis employed.

Table 4. Regression Coefficients in Study 3

	Coefficient	P-Value
β_0 intercept	0.31	0.02
β_1 dummy for pre-decisional phase	-0.53	0.01
β_2 dummy for high importance	-0.09	0.65
β_3 centered protestant ethic scale	-0.01	0.34
β_4 interaction: pre x high importance	0.75	0.01
β_5 interaction: pre x protestant ethic scale	0	0.76
β_6 interaction: high importance x protestant ethic scale	0	0.98
β_7 interaction: pre x high importance x protestant ethic scale	0.05	0.04

In order to get better intuition for the pattern of results a dichotomized analysis was performed as well. Figure 7 displays the pattern of results obtained without incorporating the protestant ethic scale measures. As hypothesized, in the high importance conditions, the distortions of memory in the pre-decisional condition were consistent with complicating behavior and were significantly different than those observed in the control ($M_{pre} = -.47$ vs. $M_{control} = .07, p < .04$) and post-decisional phase ($M_{pre} = -.47$ vs. $M_{post} = -.13, p < .08$). However, in the low importance conditions, a different pattern was observed. In particular,

Figure 7. Dichotomized Analysis of Memory Distortions in Study 3



2.4 Selective Interpretation of Information (Study 4)

As mentioned in Chapter 1, existing literature had documented simplifying behavior through the distortions of information in the pre-decisional stage (e.g., Russo Medvec, and Melloy 1996, Russo, Melloy, and Medvec 1998). In particular, some of this literature had demonstrated that consumers selectively interpret incoming information in a manner that will support the leading alternative in the set. An opposite prediction can also be made when consumers face easier than anticipated decisions. Specifically, consumers may employ the same tactic and interpret ambiguous information in the opposite direction in order to complicate their decisions.

In addition, in order to further rule out several of the aforementioned rival accounts and to support the proposed theoretical explanation, in this study I also demonstrate that the motivation to complicate is inherently triggered by consumers' need to invest adequate effort. In particular, I expect that when one makes a choice for himself, the experiences during the deliberation phase which may include the lack of effort will trigger complicating behavior. However, when the decision seems more distant and detached from the individual (e.g., helping a friend decide) such behavior will attenuate. This discussion leads to the following two hypotheses:

H4a: In the pre-decisional phase of an easier than anticipated decision, consumers will selectively interpret ambiguous information in a direction that enhances their choice conflict and decreases the utility difference between the alternatives.

H4b: Complicating behavior during the pre-decisional phase will be pronounced when one is choosing for himself, but will attenuate when the decision involves helping a friend decide.

Method

Ninety-seven students from a large east coast university were presented with two alternative car models. For each car, participants were given information containing the car's brand name, model, rating-scores on 5 dimensions (ostensibly taken from a reputable car magazine), and a picture of the car. The five dimensions on which rating scores were

provided were: performance, interior, exterior, safety, and overall score (each ranging from 4 to 10). While the safety score were held the same for both cars (9.8) one brand had superior scores on all other dimensions (see Appendix C for detailed description of the stimuli). Thus, one alternative was set to dominate the other on all specified attributes. Finally, participants were given a paragraph containing a consumer-review about one of the car models, either the superior or inferior model (manipulated between subjects). The consumer-review was intentionally ambiguous and addressed both positive and negative aspects of the car (see Appendix C for the consumer-review used).

The second factor that was manipulated between subjects was the decision situation. The decision was to either choose for oneself, or choose in order to help a friend decide which car to purchase. Thus, the study consisted of a 2 (consumer review of the superior vs. inferior car) x 2 (choice for oneself vs. friend) between-subjects design. Finally, 2 control conditions were employed in which participants observed the description of only one car (the superior or the inferior manipulated between subjects) and then read the consumer-review. Thus, these control conditions measured participants' attitudes towards the product review outside the context of any choice.

After observing the information about the cars but before deciding, participants were asked several questions regarding the (ambiguous) consumer-review they had read. First, participants were asked to estimate what was the overall rating that the consumer who wrote the review gave to the car model (between 4 and 10). Next, participants were asked to indicate on a 1-7 scale the degree to which they consider the review to be positive vs.

negative, and the degree to which they found the review to be informative vs. uninformative.

Results

In order to examine whether participants complicated their decision by interpreting the ambiguous review in a different manner, I analyzed the conditions in which the review relates to the superior and inferior alternative separately. As hypothesized, when participants made a purchase decision for themselves and the review related to the superior alternative, participants scored the review lower ($M_{\text{superior}} = 7.06$, $M_{\text{control}} = 8.02$, $p < .01$), rated it as less positive ($M_{\text{superior}} = 5.56$, $M_{\text{control}} = 4.56$, $p < .03$), and less informative ($M_{\text{superior}} = 5.38$, $M_{\text{control}} = 4.56$, $p < .04$) compared to those assigned to the control condition. However, this pattern attenuated for participants that did not make a choice for themselves. In particular, participants assigned to the choice-for-friend-condition did not interpret the review any differently from those assigned to the control condition ($p > .25$, $p > .5$, and $p > .3$ respectively).

Analyzing the conditions in which the review pertained to the inferior alternative, mixed results were observed. First, compared to the control conditions, participants assigned to the choice-for-friend condition, rated the review as less positive ($M_{\text{inferior}} = 4.59$, $M_{\text{control}} = 5.44$, $p < .06$), and less informative ($M_{\text{inferior}} = 4.47$, $M_{\text{control}} = 5.38$, $p < .03$), however, no difference was found in the review score ($M_{\text{inferior}} = 7.4$, $M_{\text{control}} = 7.4$, $p > .8$). This pattern is consistent with the expected simplifying pattern. However, when examining the results obtained for participants assigned to the choice-for-self conditions no complicating pattern

is observed. That is, while those participants did not simplify their decisions, their interpretation of the review did not differ from that obtain in the control. The results in these conditions partially support the predicted pattern, however, it is possible that a ceiling effect made it difficult to observe the entire hypothesized pattern. Having said that, the results of this study, taken together, support the notion that consumers distort the way they interpret the information in a manner that enhances choice conflict prior to choice. Furthermore, when the decision maker is more distant and detached, i.e., helping a friend decide, complicating behavior was found to attenuate.

2.5 Reversing Preference Ordering (Study 5)

The findings so far provide evidence for several ways by which consumers complicate their decisions. The next study examines additional manifestation of complicating behavior. In particular, I examine whether consumers would reverse their preference ordering of attribute levels (e.g., “more is better” would become “less is better”) in a direction that detracts from a near-dominant alternative. I hypothesize that consumers who face an important, yet relatively easy, decision will re-construe their preference for the level of an attribute as either desirable or undesirable in a manner that weakens their preferred alternative and bolsters the other alternative. Naturally, such a preference reconstruction process is more likely to occur when the inherent (ordinal) value of the attribute is ambiguous. The discussion leads to the following hypothesis:

H5: In the pre-decisional phase of an easier than anticipated decision, consumers will re-construe the preference ordering of attribute levels in a direction that

complicates their choice and decreases the utility difference between the alternatives.

In order to test this hypothesis, I constructed a low difficulty choice between two possible job opportunities, with one opportunity nearly dominating the other. I rotated, between-subjects, the value of an ambiguous attribute (i.e., working in a team of 3 or 6 members) across the two alternative jobs. I elicited respondents' ordinal preference toward this ambiguous attribute either before they viewed the choice set (control condition) or afterwards (during the pre-decisional phase).

Method

One hundred and eighty three undergraduate students from a large university in northern Israel were presented with a choice between two job opportunities. The two job opportunities were described along three attributes that assumed one of two levels: (a) average salary or 10% above average salary; (b) 15 or 45 minutes of commute time to work; and (c) working in a team of three or six members. The dependent variable was respondents' preference for having three versus six team members, an attribute that was pre-tested and found to be the least important attribute.

Using these attributes, I constructed the two low difficulty choice sets shown in Table 5. In both of these low difficulty choice sets, one alternative was superior on the two important attributes (i.e., attributes (a) and (b)). The third attribute (number of team members) was counterbalanced between the two choice sets, such that the nearly-

dominated alternative had either three or six team members. In both choice sets, the two alternatives were said to be identical on all aspects besides the three detailed attributes.

Respondents were randomly assigned to one of three conditions, a control condition or one of two pre-decisional conditions. In each of the three conditions, respondents were asked to indicate whether they preferred to work with three or six team members. In the control conditions, respondents indicated their preference prior to observing any choice task. This control condition was intended to measure the baseline preference in the sampled population toward working with three versus six team members. In the pre-decisional conditions, respondents were first presented with one of the low difficulty choice sets depicted in Table 5 (Choice Set 1 or 2, manipulated between-subjects); these respondents were then instructed to indicate their preference between working with three or six team members before choosing between the two alternative job opportunities.

Table 5. Two Low-Difficulty Choice Sets Used in Study 4

Choice Set 1

Attributes	Alternative A	Alternative B
Commute	15 minutes	75 minutes
Salary	10% above average	average
Number of Team Members	6 members	3 members

Choice Set 2

Attributes	Alternative A	Alternative B
Commute	15 minutes	75 minutes
Salary	10% above average	average
Number of Team Members	3 members	6 members

Results

When faced with a choice set in which the nearly dominating alternative had three team members, respondents' preference for three team members was 73%. By contrast, when respondents considered an easy choice in which the less attractive option had six team members, their preference for three team members decreased to 54% ($z = 2.21, p < .03$). In the control condition, 64% of respondents preferred working with three rather than six team members. This pattern of results supports H5 and is consistent with the notion that, in the pre-decisional phase of an easy decision, consumers reconstruct their preferences in a direction that enhances their choice conflict and decreases the utility

difference between the alternatives. Further, these results indicate that consumers complicate their decisions also by reversing their preference ordering.

2.6 The Effect of Complicating Behavior on Choice (Study 6)

In the studies reported thus far, although respondents complicated their decision, all of them eventually chose the near-dominant alternative. In addition, in these studies, the respondents were interrupted in the middle of their natural decision process (in the pre-decisional phase) and were asked to indicate their attribute weights (Study 1), overall liking (Study 2), recall information (Study 3), interpret information (Study 4), or about their preferences towards an attribute level (Study 5) giving rise to potential measurement effect issues. In the current study I address both of these concerns. First, I demonstrate that a complicating process could also influence and reverse the ultimate choice. Second, I provide evidence for complicating behavior without interrupting the decision maker's natural decision process.

Method

Seventy undergraduate students from a large university in northern Israel were presented with a choice between three job opportunities. Similar to Study 5, each alternative was described along three attributes: commute time, salary, and the number of team members. Using these attributes, three alternatives (denoted A, B, and C) were constructed (see Table 6). Alternatives A and C were constructed such that choosing between them will involve a tradeoff between the two most important attributes, salary and commute (*Alternative A*: 15 minutes commute, 8% above average salary, 6 team

members; *Alternative C*: 45 minutes commute, 10% above average salary, 3 team members). In contrast, *Alternative B* was constructed to be inferior on the two most important attributes, making it an unattractive option compared to alternatives A and C (*Alternative B*: 75 minutes commute, average salary, 3 team members). Therefore, as supported by a pre-test⁷, choosing from the set {A, B, C} is a relatively difficult task as alternatives A and C create a high conflict. In contrast, choosing from the set {A, B} is a relatively easy task as A nearly dominates B.

Respondents were randomly assigned to one of three conditions: a simultaneous-choice control condition, a sequential-choice test condition, and a sequential-choice control condition. In the simultaneous-choice control condition, participants were presented simultaneously with alternatives A, B and C and were asked to choose their most preferred alternative. Because choosing between alternatives A and C involves a relatively high level of conflict, no complicating behavior was predicted. In the sequential-choice test condition, respondents were first presented with a binary choice set containing alternatives A and B and were informed that they would have to choose between these two alternatives. However, before actually making a choice, a third alternative (alternative C) was added to the choice set, and respondents were asked to choose from the triplet {A, B, C}. Therefore, in both conditions, respondents eventually observed and were asked to choose among the same three alternatives: A, B, and C.

Accordingly, one should not expect to see any difference in choice shares of the

⁷ In a pretest ($n = 102$, between-subject design) the choice set {A, B, C} was rated as being more difficult than the choice set {A, B} ($M_{\text{triplet}} = 3.17$, $M_{\text{binary}} = 2.16$, $p < .001$). In addition, 90% of respondents rated the binary choice set as easier than what they would anticipate (compared with 58% in the in the triplet choice set; $z < .0001$).

alternatives across the two conditions. However, the effort-compatibility framework predicts a difference in choice shares. Specifically, because alternative A is superior to alternative B on the two most important attributes, consistent with the results of Study 5, we would expect respondents to bolster the attractiveness of Alternative B by constructing a preference toward three rather than six team members. Additionally, and consistent with Study 1, we would also expect that these respondents will increase the weight they assign to this attribute. Both of these effects together should enhance the attractiveness and importance of having three team members. Moreover, both of these effects would make any other alternative that offers three team members more desirable than it would have been had a complicating process was not triggered. Therefore, Alternative C, which offers three team members should be preferred more when a complicating process is triggered (in the sequential-choice test condition) compared to when it is not (in the simultaneous-choice control condition).

To control for an alternative explanation, whereby the sequential and delayed presentation of alternative C might make it more salient and, therefore, increase its choice share, I added a sequential-choice *control* condition. The only difference between the sequential choice control and the sequential choice test conditions was that in the sequential choice control alternative C included six rather than three team members. Thus, according to the complication process that entails the construction of a preference toward having three team members we should not observe an enhanced preference for a sequentially-presented alternative C when that alternative includes six, rather than three, team members.

Results and Discussion

The choice shares across the different conditions are presented in Table 6.

Consistent with our predictions, the choice share of alternative C increased dramatically from 13% in the simultaneous-choice control condition to 58.3% in the sequential-choice test condition ($p < .01$). Further, consistent with the effort-compatibility hypothesis and inconsistent with the saliency rival account, when alternative C offered six team members in the sequential-choice control condition, no difference in choice shares was observed between the two control conditions ($p > .6$).

The results of Study 6 demonstrate the impact of complicating behavior on choice. Specifically, the choice shares of an alternative increased when it offered an aspect that became more desirable due to a complicating process in the pre-decisional phase.

Table 6. Experimental Conditions and Choice Shares in Study 6
Simultaneous-Choice Control Condition

Attribute	Alternative A	Alternative B	Alternative C	
Commute	15 Minutes	75 Minutes	45 Minutes	
Salary	8% above average	average	10% above average	
Number of team members	6	3	3	
Choice Share	87%	0%	13%	

Sequential-Choice Test Condition

Attribute	Alternative A	Alternative B	delay	Alternative C
Commute	15 Minutes	75 Minutes		45 Minutes
Salary	8% above average	average		10% above average
Number of team members	6	3		3
Choice Share	42%	0%		58.3%

Sequential-Choice Control Condition

Attribute	Alternative A	Alternative B	delay	Alternative C
Commute	15 Minutes	75 Minutes		45 Minutes
Salary	8% above average	average		10% above average
Number of team members	6	3		6
Choice Share	82.7%	0%		17.3%

3. CHAPTER THREE: The Underlying Mechanism and Alternative Explanations

The results of the studies thus far indicated that respondents simplified difficult choices by bolstering their preferred alternative; conversely, respondents complicated easy choices by weakening their preferred alternative. These findings are consistent with the effort-compatibility framework, which suggests that simplifying and complicating decision processes are determined by two constructs, namely, the anticipated and the experienced effort. In this chapter I directly test the effort-compatibility framework by manipulating these two constructs.

Based on the effort-compatibility framework, I predict that in the pre-decisional phase of an easy decision, increasing the anticipated effort will lead to increased complicating behavior. Further, holding the anticipated effort constant, higher experienced decision effort is expected to attenuate complicating behavior. Finally, the effort-compatibility principal implies that because decisions of greater importance are associated with higher expected effort, such decisions are more likely to produce complicating behavior. Specifically, consumers who perceive the decision as more important should be more motivated to engage in a rigorous decision process and should anticipate the impending decision to be more difficult and, thus, require more effort. Accordingly:

H6: In the pre-decisional phase of an easy decision, consumers will be more likely to distort their attribute weighing in a direction that enhances choice conflict when they anticipate the decision to be more effortful.

H7: In the pre-decisional phase of an easy decision, consumers will be less likely to distort their attribute weighing in a direction that enhances choice conflict when the decision feels more effortful.

H8: In the pre-decisional phase of an easy decision, consumers will be more likely to distort their attribute weighing in a direction that enhances choice conflict when they perceive the decision as more important.

Next, I report a series of three studies that test each of the aforementioned hypotheses. In Study 7, I manipulate the anticipated decision effort by suggesting to participants the typical time required to complete the task at hand. In Study 8, I manipulate the experienced decision effort by representing the stimuli using either easy- or hard-to-read fonts. Finally, in Study 9, I manipulate the importance of the decision by framing the choice as being either binding or non-binding.

In all three studies, respondents were presented with two alternatives; each described using three binary attributes. Similar to the low difficulty choice sets employed in Study 1, one alternative was superior on the two most important attributes but inferior on the less important attribute, giving rise to low choice conflict choice sets.⁸ As in Study 1, respondents were asked to allocate a constant sum of 100 points across the three attributes, reflecting the relative weight they assigned to each attribute, either before they observed the choice set (control condition) or after they viewed the choice set but before

⁸ A manipulation check examining the attribute weights in the control condition confirmed that the choice conflict in experiments 2a-2c was indeed low.

they made their choice (pre-decisional condition). In Study 8 I also added a post-decisional condition, in which respondents assigned attribute weights after they had made their choice.

In all three studies, I tested for complicating behavior by analyzing the weight of the least important attribute, which opposed the nearly-dominant alternative. Since I employed in Studies 7-9 only low-difficulty choice sets, performing such analysis is more intuitive and mathematically equivalent to the measure of utility difference (as computed in Equation 1). A higher weight assigned to the attribute opposing the nearly-dominant alternative indicates a lower utility difference and a more pronounced complicating process. Table 7 provides a detailed description of the stimuli employed in Studies 7 - 9.

Table 7. Description of Stimuli Used in Studies 7, 8, and 9
(the least important attribute opposing the superior alternative is marked with an asterisk)

Study 7

Attribute (MP3 players)	Option A	Option B
Memory	2 Gb	1 Gb
Battery	14 Hours	8 Hours
*Receive Radio Transmission	No	Yes

Study 8

Attribute (MP3 Players)	Option A	Option B
Memory	2 Gb	1 Gb
Battery	10 Hours	5 Hours
*Recording Option	No	Yes

Study 9

Attribute (Physicians)	Option A	Option B
Evening and weekends office hours	Yes	No
Time to schedule an appointment	3 days	10 days
*Home Visits	No	Yes

3.1 The Role of Anticipated Effort (Study 7)

Study 7 consisted of a 2 (anticipated effort: low vs. high) x 2 (time of measuring attribute weights: control vs. pre-decisional) between-subjects design. After completing a non-related lab study, respondents were asked if they would like to receive an extra dollar for participating in a short survey that takes about one minute or three minutes to complete (low vs. high anticipated effort, respectively, manipulated between-subjects).

Based on a pretest, the actual time took for the completion of this task averaged one minute and forty eight seconds with all respondents taking more than one but less than three minutes. The compensation-to-time ratio in both conditions was much higher than the ratio respondents experienced in the prior, non-related lab study; this was intended to eliminate any differences in respondents' involvement across the two conditions. Indeed, the participation rate was very high in both conditions (with only one student refusing to participate).

Results. In the high anticipated effort condition (“typical completion time of three minutes”), the average weight of the attribute opposing the superior alternative was significantly higher in the pre-decisional condition than it was in the control condition ($M_{\text{control}} = 10.9$, $M_{\text{pre}} = 20.9$, $F(1, 63) = 5.55$, $p < .03$). That is, in the high anticipated effort condition, respondents complicated their decision and increased their experienced effort by increasing the weight of the attribute that weakened their preferred alternative. Conversely, in the low anticipated effort condition (“typical completion time of one minute”), no significant difference in the attribute weights was observed between the pre-decisional condition and the control condition ($M_{\text{control}} = 10.3$, $M_{\text{pre}} = 6.75$, $F(1, 63) = .7$, $p > .4$). Interestingly, the results in the low anticipated effort condition were directionally consistent with a simplifying process, whereby respondents distorted their attribute weights in a manner that decreased the (already low) choice conflict. Overall, Study 7 supports H6 and highlights the role of anticipated effort in the observed complicating behavior.

3.2 The Role of Experienced Effort (Study 8)

In the previous study, I directly manipulated the anticipated effort. In the present study, I hold the anticipated effort constant and increase the experience effort exogenously using a fluency manipulation. More specifically, Study 8 consisted of a 2 (experienced effort: low vs. high) x 3 (time of measuring attribute weights: control vs. pre-decisional vs. post-decisional) between-subjects design. In order to manipulate the experienced effort, I built on recent research on perceptual fluency (e.g., Schwarz 2004). Such research has demonstrated that, for example, when choice alternatives are described using degraded, difficult-to-read fonts, consumers experience greater choice difficulty and tend to defer their choices (Novemsky et al. 2007). In the context of the present research, I predict that, increasing the experienced choice difficulty --- by decreasing the perceptual fluency of the choice alternatives --- will attenuate the tendency to complicate choices. Accordingly, the fonts used to describe the alternatives were either easy to read (i.e., Times New Roman 14 pts. with regular character spacing) or difficult to read (i.e., Times New Roman 9 pts. with condensed character spacing of 1 pts.),⁶ representing low versus high experienced difficulty, respectively.⁷

Results. In the low experienced effort condition (easy-to-read fonts), significant differences in the reported attribute weights were observed between the control and pre-decisional phase conditions ($M_{\text{control}} = 10.6$, $M_{\text{pre}} = 19.8$, $F(1, 192) = 7.06$, $p < .01$). Replicating the results obtained in Study 1, respondents in this low experienced difficulty condition complicated their choice by nearly doubling the weight of the attribute that opposed the leading alternative in the choice set. However, in the high experienced effort

condition (degraded fonts), no significant difference in the reported attribute weights was observed between the control and pre-decisional phase conditions ($M_{\text{control}} = 9.3$, $M_{\text{pre}} = 12.6$, $F(1, 192) = 1.1$, $p > .25$). These results support Hypothesis H7. Additionally, consistent with hypothesis 1b, no significant differences were found between the control and post-decisional conditions in either the easy-to-read font condition ($M_{\text{control}} = 10.6$, $M_{\text{post}} = 14.0$, $F(1, 192) = .8$, $p > .37$) or the hard-to-read font condition ($M_{\text{control}} = 9.3$, $M_{\text{post}} = 11.25$, $F(1, 192) = .38$, $p > .5$).

Overall, the results supported the role of experienced effort in the observed complicating behavior. Using a well-accepted procedure to manipulate experienced effort in choice (perceptual fluency), I found that consumers' tendency to complicate their choices was attenuated when an external source of decision effort was used to increase the experienced effort. Such external effort substituted for consumers' need to internally and artificially enhance their effort during the decision process. Next, in Study 9, I manipulate the anticipated effort by manipulating the perceived importance of the impending decision.

3.3 The Role of Decision Importance (Study 9)

Study 9 consisted of a 2 (decision importance: low vs. high) x 2 (time of measuring attribute weights: control vs. pre-decisional) between-subjects design. Respondents were asked to imagine that they were about to join a new health plan that required them to choose a physician. Respondents in the high decision importance condition were asked to imagine that their choice was binding for a year and that

switching physicians before the year ended would be difficult and would require paying additional fees. Conversely, respondents assigned to the low decision importance condition were told to imagine that their choice was not binding and that they could easily switch doctors whenever they wanted without paying any additional fees. I predict complicating behavior when respondents' anticipated effort is high (high decision importance condition) but not when it is low (low decision importance condition).

Results. In the high-importance decision condition (i.e., the binding choice), the weight of the attribute opposing the superior alternative was significantly higher in the pre-decisional phase than in the control ($M_{\text{control}} = 6.25$, $M_{\text{pre}} = 13.1$, $F(1, 82) = 6.89$, $p < .01$). Conversely, in the low-importance decision condition (i.e., the non-binding choice), no significant difference in attribute weights was observed between the pre-decisional condition and the control condition ($M_{\text{control}} = 9.1$, $M_{\text{pre}} = 7.7$, $F(1, 82) = 0.28$, $p > .5$). Therefore, framing the decision as less important attenuated the observed complicating behavior. These results support H8 and the proposed effort-compatibility framework. More specifically, respondents who faced an important yet seemingly easy choice were motivated to complicate their decision and overweighed an attribute that opposed their ultimate choice in order to match the anticipated and experienced effort. This complicating process disappeared when the same easy choice was framed as less important. These findings suggest that a motivation to engage in a diligent decision process, which is particularly likely to exist when consumers make important decisions, is the psychological mechanism underlying the observed complicating behavior.

Studies 7 – 9: Discussion

The results of Studies 7 through 9 are summarized in Table 8. The findings provide direct support for the proposed effort-compatibility conceptualization.

Table 8. Weight of the Attributes Opposing Choice in Studies 7, 8, and 9

Study 7 (n = 64) Stimuli: MP3 players		Weight of “Receive radio transmission”		
		Control	Pre	Post
Anticipated Effort	Low (1 min.)	10.3	6.75 ^a	-
	High (3 min.)	10.9 ^b	20.9 ^{a,b}	-

Study 8 (n = 193) Stimuli: MP3 players		Weight of “Recording option”		
		Control	Pre	Post
Experienced Effort	Low (clear)	10.6 ^a	19.8 ^{a,b}	14.0
	High (degraded)	9.3	12.6 ^b	11.25

Study 9 (n = 83) Stimuli: Physician services		Weight of “Home visits”		
		Control	Pre	Post
Decision Importance	Low (non-binding)	9.1	7.7 ^a	-
	High (binding)	6.25 ^b	13.1 ^{a,b}	-

* Means with the same letter (within each pane) are significantly different.

3.4 Alternative Explanations

Taken together, the aforementioned studies help rule out several alternative explanations. One rival account involves inferences of market-efficiency (Chernev and

Carpenter 2001), whereby consumers believe that alternatives in the marketplace are likely to be Pareto-optimal. According to this market-efficiency inference account respondents reconstruct their preferences in a manner that strengthens the near-dominated alternative because they infer that the marketplace would not sustain such an alternative. However, this rival account cannot explain why respondents do not bolster the weaker alternative when (a) they weigh attributes in the post-decisional phase (Studies 1 and 8); (b) no choice is required (Study 1); (c) an external source of decision effort is introduced (Study 9); (d) the anticipated effort is low (Studies 2 and 7); (e) the decision is perceived as unimportant (Studies 3 and 9); and (f) the decision is not for oneself (Study 4). Furthermore, Study 2 provides additional support for the mediating role of anticipated effort in the observed complicating behavior. This study explores complicating behavior in a domain (artwork) that is less likely to trigger market efficiency inferences. It is important to note that, for similar reasons, the results of the aforementioned studies cannot be fully explained by rival accounts based on social inference (Prelec, Wernerfelt, and Zettelmeyer 1997), conversational norms (Grice 1975), or impression management (e.g., respondents wishing to portray the outward appearance of engaging in sufficient deliberation). Overall, the current findings are consistent with a motivational (rather than an inferential) process whereby consumers complicate their decisions in order to feel that they are investing enough effort to make an adequate choice. Further support for this argument can also be found in Study 3, which demonstrated the moderating role of the Protestant Ethic scale.

4. CHAPTER FOUR: General Discussion and Summary

A great deal of research indicates that consumers limit their cognitive effort and deliberation about choices by bolstering their preferred choice alternative and/or denigrating the other alternatives. In this article I hypothesize and empirically demonstrate that, under predictable conditions, consumers construct an effortful and deliberative decision even when such a process is normatively superfluous. I demonstrate that consumers complicate their decisions, at times even creating an “illusion of choice.” Such behavior may first appear contradictory to well-documented simplifying processes, such as pre-decisional distortion of information and post-choice cognitive dissonance. However, I test and support an effort-compatibility framework that accounts for both simplifying and complicating processes.

4.1 Review of Key Findings

I have proposed that consumers value and strive for compatibility between the effort they anticipate and the actual effort they exert. Consistent with existing literature, when choices seemed harder than anticipated, consumers simplified their decisions. However, when choices seemed easier than anticipated, consumers complicated their decisions. I demonstrated that consumers artificially increased their experienced conflict by enhancing the importance of attributes that opposed the superior alternative (Studies 1, 7, 8, and 9), by distorting the overall evaluation of the alternatives (Study 2), by distorting information recall (Study 3) and interpretation (Study 4), and by reversing their preference ordering in a manner that intensified their choice conflict (Study 5). In

addition, I showed how complicating behavior, once triggered, could alter the ultimate choice (Study 6). Consistent with the proposed effort-compatibility principle, complicating behavior is attenuated when effort regulation becomes irrelevant, that is, after the choice is finalized or when no choice is required. Further, I demonstrated that introducing an exogenous source of difficulty (by decreasing perceptual fluency) attenuated complicating behavior (Study 8). Directly manipulating consumers' expectations of high versus low effort resulted in either a complicating versus a simplifying behavior, respectively (Study 7). I demonstrated that complicating behavior is consistent with a motivation to engage in adequate due diligence by observing complicating behavior in a decision that was framed as important but not when the same decision was framed as unimportant (Study 9). And that such motivation, and hence complicating behavior, is stronger for people who subscribe to protestant work ethic (Study 3). Finally, I found that anticipated effort mediates the effect of decision-importance on the emergence of complicating versus simplifying behaviors (Study 2).

4.2 Relationship to Prior Research

In the present research, I demonstrated that deviations from compatibility between the exerted and anticipated effort may lead to complicating or simplifying behaviors, and accordingly, may bias preferences and choices. It is important to note that the complicating behavior reported throughout this research is not merely an attenuation of a simplification or bolstering process, which may be explained and predicted by other theories or frameworks such as the effort-accuracy framework. Instead, the present

findings demonstrate that complicating behavior consists of a diametrically opposed bias. For example, relative to consumers' context-independent preferences (when no choice was required or no choice set was observed), simplifying resulted in *overweighting*, and complicating resulted in *underweighting*, of attributes that supported the near-dominant alternative, which was ultimately chosen.

The effort-compatibility framework may also help reconcile findings from prior research. First, supporting the effort-compatibility framework, I found that respondents simplified difficult choices, and justified past choices, by bolstering their preferred alternative. These results are consistent with a great deal of research on motivated reasoning, confirmation bias, cognitive dissonance, search for dominance, and distortion of information.

Second, previous research demonstrated that pre-decisional bolstering is attenuated when decisions are relatively easy (e.g., Mann and Taylor 1970). As demonstrated in Study 3, such a null effect can be consistent with the proposed effort-compatibility principle if the decisions in these past studies actually involved a moderate level of choice difficulty (i.e., produced a match between the anticipated and experienced effort). Indeed, a careful review of the aforementioned articles indicates that the authors used either high or moderate levels of decision difficulty, obtaining either simplifying or null effects, respectively. To the best of our knowledge, the only exception is a study that examined the impact of extremely difficult versus extremely easy decisions (Tyszka 1998). Similar to Mann and Taylor (1970), Tyszka (1998, Study 1) employed a test-retest design and examined how the evaluations of target stimuli changed prior to choice. Interestingly, the results obtained in the extremely easy condition appear to reflect

complicating behavior prior to choice (convergence of evaluations). However, because the author did not predict this result, the design used in the study did not employ a control condition that would allow ruling out regression to the mean as an alternative explanation. As Tyszka noted: “...*for the distant alternatives there was a decrease in the assessments of overall attractiveness of the chosen alternative and an increase in the assessments of overall attractiveness of the non-chosen alternatives... perhaps this is an effect of the regression toward average*” (Tyszka, 1998, p.200).

Third, scholars have raised the notion that deliberation may lead to worse decisions (see, e.g., Wilson and Schooler 1991). I argue that enticing consumers to deliberate about their decisions may generate complicating behaviors by creating an expectation that more effort is adequate to make the decision at hand. Relatedly, Dijksterhuis et al. (2004) demonstrated that respondents who carefully deliberated relatively easy, yet important decisions made worse decisions relative to respondents who engaged in a distraction task. Dijksterhuis et al. (2004) interpreted this result as the benefit of unconscious thought. This finding is consistent with the effort-compatibility principle, as the careful deliberation condition may have triggered complicating behavior by implying a need for investing greater effort in the decision (akin to Study 7), whereas the unrelated task condition may have introduced an exogenous source of effort that relieved respondents from the need to complicate (akin to our Study 8). This argument is supported by Payne et al. (2008) who found that respondents made better decisions when they were instructed to “choose whenever ready” (self-paced condition, which can be

interpreted as a match between exerted and anticipated effort) compared to when they were asked to think about the problem for a long and fixed time period.

4.3 Underlying Processes and Future Directions

Although the effort compatibility hypothesis was tested and validated as the underlying mechanism, one could go a step further and raise the question of why do consumers need such effort compatibility? What is the reason behind consumers' attempts to match the effort they invest to the effort they anticipate or think it is reasonable to exert? Throughout this research, I have focused mainly on one reason. In particular, I advanced the notion that consumers seek effort compatibility because they tend to link an effortful decision process to the potential quality of the outcome. That is, consumers use the effort they experience as a proxy for how well the resulting outcome will be. Therefore, if a decision seems too easy, they will seek to artificially create a more effortful choice in order to feel that an adequate alternative has been chosen. This assertion is supported throughout the reported research in several studies and several ways. One way that directly pertains to this argument is the protestant ethic scale used in Study 3. Specifically, this study shows that individuals who generally believe that good outcomes arrive from effortful processes, are more likely to exhibit complicating behavior.

It is noteworthy that, although I advance the link between effort and outcome quality as one of the drivers, I do not suggest that it is the only one. In particular, I argue that there could be several different reasons underlying the need to attain effort

compatibility, and that exploring such reasons may be a fruitful avenue for future research. For example, it is possible that as decision makers experience an easier-than-anticipated decision they feel reactant to the intensity of their own preferences. More specifically, if the decision seems too easy because one alternative appears much more attractive compared to the rest, one's freedom may be threatened, as the preferences for this single alternative are so strong. Therefore, in an attempt to restore this sense of freedom, one may artificially detract from the attractiveness of the superior alternative and enhance the attractiveness of other alternatives in the set. Doing so, will increase the choice conflict and experienced difficulty, and may therefore, attenuate the decision maker's reactance.

Another potential explanation, which shares resemblance to the previous one, relates to the notion of free choice. Specifically, it is possible, that one way, by which decision makers perceive a choice as a free choice, is through the sense of experienced effort. That is, a really easy decision does not constitute a free choice in the eyes of the decision makers, and therefore, one would artificially create a more effortful decision in order to feel that a free and "real" choice was made. Additional explanations for why consumers seek to attain effort compatibility may relate to anticipated regret (i.e., further deliberations may "shield" consumers from counterfactual thoughts in the post-decisional phase), and choice confidence. All seem viable and interesting directions for future research.

4.4 Boundary Conditions and Ecological and Managerial Relevance

The effort-compatibility principle suggests boundary conditions for both simplifying and complicating behavior. Throughout this article I have explored these boundary conditions and provided evidence for both simplifying and complicating processes. For example, as demonstrated in Study 2, the moderating role of anticipated effort suggests that simplifying and complicating behaviors are likely to occur only when there is a mismatch between the anticipated effort and the experienced choice difficulty. However, a question that may arise is how often do we face in the “real world” important, yet easy, decisions that could trigger complicating behavior? Admittedly, many day-to-day decisions, such as grocery purchases, are habitual or easy to make and may often lead to simplifying behavior. However, it is the less frequent, yet potentially life-changing consequential decisions, involving our careers, homes, care-takers, and life partners, that motivate us to engage in due diligence and (often unnecessarily) complicate our decisions. Further, while the pre-decisional phase is short-lived in a lab setting, in real world decisions, the pre-decisional phase can span a greater period of time, thus creating days, weeks, or months of deliberation and agonizing over decisions, some of which might even consist of “illusionary choices.”

The potential duration of the pre-decisional phase (in which complicating behavior may take place) in “real world” situations open an opportunity for marketers, policy makers, and advisors to influence and intervene in such behavior. For example, easy or even illusionary choices in the real world may stem from short-lived or expiring opportunities (e.g., a new listing of an exceptionally attractive apartment or a most

eligible bachelor). Complicating behavior in such situations may carry dire consequences, as one could miss an “opportunity of a lifetime”. Helping consumers overcome the need for effort regulation, or providing consumers with a more constructive outlet to exert their effort, may help consumers make better decisions. Furthermore, in decision contexts that involve sequential presentation of alternatives (e.g., buying a house using a real estate agent), the order in which the alternatives are presented may trigger simplifying or complicating behavior, which, in turn, may influence which alternative will eventually be chosen (see Study 6). Finally, one could explore additional methods by which consumers may complicate their decisions. For example, consumers may look for additional information about the alternatives or search for more alternatives in order to prolong their decisions. In addition, consumers may selectively look for information that will increase the conflict they experience in choice in order to feel as if a diligent decision process has been carried out. Such behavior may have important theoretical and practical implications.

To summarize, the present research demonstrates that consumers not only simplify and bolster the difficult choices they make, but also make harder and less appealing the obvious choices that they might “fake”. Such an “illusion of choice” can often lead consumers to agonize over (non) decisions.

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APPENDICES

Appendix A. Pretests for Study 1

Pre-tests 1. In order to design easy versus difficult choices, I conducted a pre-test ($n = 30$). In this pre-test, respondents were asked to allocate a constant sum (of 100 points) across the three attributes, used in Study 1, to reflect the relative weight that they assigned to each attribute. The average weights of the three attributes were 48 points for “office hours include evenings and weekends,” 41 points for “average time to schedule an appointment,” and 11 points for “services include home visits.” The average weight of the two most important attributes was 89%, and for all 30 respondents, the sum of the weights of these two attributes was greater than 50%.

Pre-test 2. In order to confirm that the choice sets shown in Table 1 evoked the intended levels of difficulty I conducted a pre-test ($n = 31$). In this pre-test, respondents were shown either the low-difficulty or high-difficulty choice sets and were asked to (i) rate on a 7-point scale how difficult they found the decision to be and (ii) rate on a 9-point scale how much the decision seemed easier or harder than anticipated. As expected, the high difficulty choice set was rated as being more difficult compared to the low difficulty choice set ($M_{\text{high}} = 4.86$ vs. $M_{\text{low}} = 2.75$, $p < .01$). Further, the majority of the respondents (80%) rated the high-difficulty choice set as being *harder than anticipated* (above the scale’s midpoint). Conversely, the majority of respondents (64%) rated the low-difficulty choice set as being *easier than anticipated* ($z = 2.67$, $p < .01$).

Appendix B. Protestant Ethic Scale (Mirels and Garret 1971) Used in Study 3

1. Most people spend too much time in unprofitable amusements.
2. Our society would have fewer problems if people had less leisure time.
3. Money easily acquired (e.g., through gambling or speculation) is usually spent unwisely.
4. There are few satisfactions equal to the realization that one has done his or her best at a job.
5. The most difficult college courses usually turn out to be the most rewarding.
6. Most people who don't succeed in life are just plain lazy.
7. The self-made man is likely to be more ethical than the man born to wealth.
8. I often feel I would be more successful if I sacrificed certain pleasures.
9. People should have more leisure time to spend in relaxation.
10. Any man or woman who is able and willing to work hard has a good chance of succeeding.
11. People who fail at a job have usually not tried hard enough.
12. Life would have very little meaning if we never had to suffer.
13. Hard work offers little guarantee of success.
14. The credit card is a ticket to careless spending.
15. Life would be more meaningful if we had more leisure time.
16. The man or woman who can approach an unpleasant task with enthusiasm is the man or woman who gets ahead.

17. If one works hard enough he or she is likely to make a good name for themselves.

18. I feel uneasy when there is little work for me to do.

19. A distaste for hard work usually reflects a weak character.