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Relieving the regret for maximizers: The role of construal level across comparable and non-comparable choice sets

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Abstract

Purpose - Maximization orientation represents consumers' tendency to pursue the 'best possible' option as opposed to a 'good enough' option, which is acceptable for satisficers. Maximizers tend to experience greater regret over their choices than satisficers. Research to date has yet to show how the negative state of regret can be reduced for maximizers.

Design/methodology/approach – We examine construal level theory (CLT) in conjunction with the choice context (comparable and noncomparable choices). Three experimental studies tested our assertion that a match between CLT mindset and choice set relieves regret for maximizers.

Findings - We show maximizers experience similar levels of regret compared to satisficers, when considering comparable options in a concrete mindset, and noncomparable options in an abstract mindset. However, maximizers experience heightened regret in comparison to satisficers when considering noncomparable (comparable) options in a concrete (abstract) mindset. Choice difficulty mediates our effect.

Limitations, research and practical implications - Future research is needed to replicate our results in real-life settings. If marketers think that their product is likely to be compared with other comparable products, they should adopt product-specific information that focuses on how the product would be used. However, if marketers think that consumers will compare across noncomparable products, then they should focus on why their product is the most suitable to fulfil consumers' needs.

Originality/value - This research represents the first attempt at reducing regret for maximizers and answers the call for an examination of the relationship between

maximization and CLT. Our research adds to the maximization literature by evidencing a CLT-based strategy that attenuates the negative experience of regret for maximizers.

Introduction

Consider the scenario where two consumers subscribe to a magazine and as a reward can choose either a case of wines or a set of towels. Once the decision is finalised, one consumer is happy with her chosen reward, but the other consumer feels disappointed and regrets her decision. One reason for this divergent outcome may be that these consumers differ in their tendency to exhibit the maximizing trait, with the former consumer being a satisficer and the latter a maximizer (Schwartz *et al*., 2002). According to Schwartz *et al*. (2002), maximizers are individuals who strive to secure the 'best possible' option, as opposed to satisficers who aim to secure a 'good enough' option. For example, a maximizer would be reluctant to choose a reward unless she is certain that there is no 'better' alternative reward to be gained. Satisficers, on the other hand, would happily settle for a reward as long as it meets a predetermined set of criteria that signals the option is 'good enough'. One unpleasant problem maximizers face is the "maximize-regret-maximize cycle", whereby attempts to maximize unavoidably lead to further episodes of regret, despite maximizers investing greater time and effort during the decision-making process (e.g., Chowdhury *et al*., 2009; Pieters and Zeelenberg, 2007). A solution to the "maximize-regret-maximize cycle" and the inevitable regret maximizers face has yet to be found. Regret is an important outcome as it negatively impacts well-being (e.g., Polman, 2010; Purvis *et al*., 2011), causes rumination and brand-switching (Bui *et al*., 2011; Ma and Roese, 2014; Schwartz *et al*., 2002) and negatively biases decision-making (Saffrey *et al*., 2008). Our research attempts to find a way to prevent maximizers from experiencing heightened levels of post choice regret by drawing on construal level theory (CLT; Trope and Liberman, 2010). Specifically, we draw on research that has explored the link between CLT and comparable and non-comparable choice sets (Cho *et al*., 2013).

Consumers are often faced with making a choice between competing alternatives that are either comparable options (e.g., choosing between two or more laptop computers within a specified price range) or noncomparable options (e.g., choosing between spending disposable income on a holiday or on a new mobile phone). Previous research by Cho *et al*. (2013) showed that decision making for comparable options results in higher levels of satisfaction with the choice if the consumer adopts a concrete mindset, whereas decisions involving noncomparable options benefit from an abstract mindset. The rationale is that a match between the mindset and the choice set reduces the perceived difficulty of the choice. Thus, Cho *et al*.'s (2013) research potentially offers a solution to benefit maximizers. Such findings are consistent with similar arguments (see Broniarczyk and Griffin, 2014) that nonalignable attributes are more difficult to compare and hence require a wider comparison on a, higher level, global scale than alignable attributes. As such, an abstract mental representation of the choice set helps the decision maker to focus on high level considerations that facilitate processing of decision criteria across noncomparable options. On the other hand, a low level construal (concrete mindset) is more beneficial when deciding across comparable options that differ on concrete (low level) attributes.

This research makes two contributions to the maximization and CLT literature. Firstly, we propose and evidence that a match between the consumer's mindset and the choice set will benefit maximizers and provide a solution to break the "maximize-regret-maximize cycle". Our research is the first to evidence that elevated (post choice) regret is not a pre-determined outcome for maximizers but is influenced jointly by the consumer's (concrete vs. abstract) mindset and the choice context (comparable vs. noncomparable choice sets).

Secondly, we contribute to the CLT literature by evidencing the differential effects of CLT on affective outcomes depends on whether a match occurs between the mindset and the

choice set. Previous research has focused mainly on the effects of construal level and psychological distance on cognitive processes with limited insight gained regarding their effects on affective outcomes (Williams *et al*., 2014). Nevertheless, Trope and Liberman (2010) asserted that increased psychological distance to an object will reduce the intensity of affective response to that object. A test of this assertion was undertaken by Williams *et al*. (2014) who found that psychological distance indeed reduces the intensity of both the positive affect related to positive experiences and the negative affect linked to negative experiences. However, these authors did not examine the specific emotion of regret. Our research shows an abstract mindset does not always lead to reduced affective responses (such as regret) by showing that a beneficial effect of CLT is only present where the mindset fits with the choice context. Furthermore, fit effects in past studies mostly concern a match between construal level and individual goal orientation (such as regulatory focus; e.g., Lee *et al*., 2010). Our research, however, examines the effects of a fit (and non-fit) between the consumers' mindset and consumption situations that consumers often face in the marketplace. In particular, we demonstrate that, compared against satisficers, maximizers do not exhibit greater regret over their choices when they adopt an abstract mindset in choosing between noncomparable options and when they adopt a concrete mindset in choosing between comparable options. Further, we also evidence that this beneficial effect on choice regret is caused by a lowering of maximizers' perceptions of difficulty in making the choice.

This paper is organized as follows. First, we develop and justify our conceptual framework (see Figure 1) which is examined through three experimental studies. Next, we outline the methodological steps taken and discuss the analysis and results in each of the three studies. In particular, Study 1 proposes and evidences an interaction effect of maximization (maximizer vs. satisficer) and choice set (comparable vs. noncomparable) on post choice regret, whilst assuming that consumers will adopt a concrete mindset as a default.

Study 1 further demonstrates that under a (default) concrete mindset, the observed interaction exerts a continued (mediated) effect on choice satisfaction via regret. Study 2 extends the findings of Study 1 by manipulating construal level (how/concrete vs. why/abstract). Study 3 replicates the findings of Study 2 with a different manipulation of construal level, via the psychological distance of hypotheticality, and demonstrates the mediating role of choice difficulty on regret. Finally, we provide a discussion of the overall findings across the studies coupled with a discussion on implications and limitations arising from this research.

Theoretical Framework

Maximization and regret

Regret is a negative emotion based on a self-focused upward counterfactual inference (e.g., Ma and Roese, 2014; Zeelenberg and Pieters, 2007). In the context of consumers making consumption choices, it means that a regretful person believes that a different choice would have led to a different – and better – outcome. The literature shows that compared to satisficers, maximizers tend to experience greater regret (e.g., Besharat *et al*., 2014; Ma and Roese, 2014; Polman, 2010; Schwartz *et al*., 2002) even when getting objectively better outcomes (e.g., Iyengar *et al*., 2006).

Maximizers and satisficers have a different approach to making choices. Satisficers choose the first option that meets their (good enough) standards (Cheek and Schwartz, 2016). In contrast, maximizers want the best of all possible options. Maximizers are motivated to engage in an exhaustive search of all available options, continuing their search for the 'best possible' option even after finding an option that meets their initial standards (Cheek and Schwartz, 2016). Furthermore, maximizers are more willing to expend effort and sacrifice resources to obtain a larger assortment (Dar-Nimrod *et al*., 2009), and compare more options more deeply (e.g., Chowdury *et al*., 2009; Dar-Nimrod *et al*., 2009; Polman, 2010; Schwartz *et al*., 2002) than satisficers.

The 'best possible' option is illusive in the marketplace given regular promotions as well as entrance of new 'improved' models and products. Thus, maximizers are likely to find making a decision more difficult (e.g., Schwartz *et al*., 2002). When practical constraints make an exhaustive search, and comparisons across all alternatives, impossible or impractical, maximizers experience regret about options foregone, fearing that they may have missed the best option (Schwartz *et al*., 2002). Satisficers, on the other hand, perceive less complexity regarding the choice decision because they are looking for an option that meets their threshold of acceptability, namely something that is 'good enough' as opposed to something that is the 'best possible'. As a consequence, satisficers find making a choice across available options less difficult, report lower levels of regret, and are more satisfied with their choice (Huber *et al*., 2012). Critically, the threshold of acceptability for maximizers (acceptable only if the option is the best possible) is much higher than that for satisficers (acceptable if the option is good enough). Moreover, options not yet considered have no relevance to satisficers once they have found their 'good enough' choice. However, the potential for regret is ever present for maximizers because they cannot be sure if there exists somewhere an option left unexplored that might be better than all the alternatives so far examined.

Construal level theory

Construal level theory (CLT; Trope and Liberman, 2010) is a leading contemporary theory, explaining how mental construal affects people's perception of objects or events. CLT asserts that individuals can move from a concrete representation of an object (e.g., as a mobile phone) or event (e.g., revising for an exam) to a relatively abstract representation of the same object (e.g., as a communication device) or event (e.g., learning). CLT further predicts a bidirectional relationship between level of construal and psychological distance (Trope and Liberman, 2010). Psychological distance refers to the perceived distance of a target

event/object to the self on one of four dimensions. Trope and Liberman (2010) distinguished between spatial ("where" - how distal in physical space is the event/object from the self?), temporal ("when" - how far removed in time – past or future – is the event/object?), social ("who" - how different is the social target from the self?; e.g., self vs. friend, self vs. stranger), and hypotheticality ("whether" – the likelihood of the event happening or the amount of uncertainty involved) dimensions. Across all dimensions, the anchoring point is the perceiver's direct experience of the target event/object, with psychologically distant entities lying outside the perceiver's direct experience. In particular, the more distant an event/object is perceived on any of the four dimensions, the more abstractly it is represented in one's mindset (Trope and Liberman, 2010). Due to the bidirectional relationship between psychological distance and level of construal, a high/low level of construal in turn results in greater/lower perceived psychological distance (e.g., Liberman and Förster, 2009; Smith *et al*., 2008).

Research shows that at high levels of construal, an event/object is conceptualized in terms of its central and enduring features, while peripheral and contextualized characteristics are ignored (Trope and Liberman, 2010). This change in focus has implications for consumers' cognitive processes and perceptions. In the context of making choices, when the outcome of the decision is proximal, people adopt a concrete mindset, and pay more attention to alignable over non-alignable attributes (e.g., Malkoc *et al*., 2005) and find choices across noncomparable options more difficult than comparable options (Cho *et al*., 2013). Lastly, previous research shows that people tend to, by default, approach and make decisions at a low level concrete representation (Cho *et al*., 2013; Khan *et al*., 2011; Malkoc *et al*., 2010). In particular, Malkoc *et al*. (2010; experiment 1B) evidenced that the default mindset for people is concrete, leading to high levels of present (temporal) bias.

To the best of our knowledge, only one paper has examined the influence of CLT on maximization wherein Luan and Li (2017) clarified why satisficers might settle for a less valued option. In their 2 (choice level: desirability vs. feasibility) × 2 (orientation: maximizing vs. satisficing) mixed design study, with choice level as the within-subjects factor, these authors found that feasibility (low level concerns), but not desirability (high level concerns), was more important to satisficers than to maximizers, and that satisficers are less likely to sacrifice feasibility in order to secure a desirable choice. However, whilst urging future research to examine the relationship between maximization and CLT, these authors did not examine regret nor did they consider the role of (comparable vs. noncomparable) choice sets.

Fit effect of CLT

Past research evidenced beneficial effects from a match (or fit) between mindset and choice set (e.g., lower decision difficulty and higher post choice satisfaction; Cho *et al.,* 2013). Therefore, it is important to review the existing literature in CLT that has indicated or evidenced similar fit effects. For example, Eyal *et al*. (2009), in their review, made the suggestion that a match between the construal of the decision and the consumer's mindset might help to reduce regret. A fit effect between CLT and regulatory focus has also been evidenced in the literature. For example, Lee *et al*. (2010) showed a fit effect occurred, when prevention- (vs. promotion-) focused consumers are presented with low (vs. high) level construed information, leading these consumers to "feel right" about their choice and more favourable attitudes. Moreover, a fit effect between CLT and psychological distance has also been evidenced (e.g., between CLT and temporal distance; Kim *et al*., 2009).

The literature also provides other examples of the beneficial effects of a fit from construal. In examining the effectiveness of health messages, Han *et al*. (2015) found such a beneficial effect where consumers primed with problem- (vs. emotion-) focused strategies are

more persuaded by messages framed at lower (vs. higher) levels of construal. Similarly, Spassova and Lee (2013) evidenced an increase in advertising effectiveness when there is a match between the temporal (distal vs. proximal) frame of the advert and the self-view (independent/abstract vs. interdependent/concrete) of the perceiver. In a service context, Jin and He (2013) found a construal fit between service guarantees (guarantee element: full satisfaction/abstract vs. attribute-specific/concrete) and temporal distance (purchase time frame: distal vs. proximal) enhances perceptions of effectiveness of the guarantee. In examining the process of making decisions, Yao and Chen (2014) evidenced the beneficial effect of a fit from construal. These authors found a fit between the decisional task (gift card / low level construal vs. gift cash / high level construal) and persuasive message, framed to match the level of construal, led to more favourable attitudes and higher purchase intentions.

Hypotheses development

Research has evidenced the beneficial effects of a fit between (concrete vs. abstract) mindset and the choice set (comparable vs. noncomparable). In particular, Cho *et al*. (2013) showed that consumers perceive noncomparable options as more difficult to choose from than comparable options when a concrete mindset is adopted, but this effect reverses when an abstract mindset is adopted. These authors further evidenced the downstream effect of choice difficulty on choice satisfaction. A lack of congruency between the consumer's mindset and the choice context would heighten choice difficulty with subsequent negative outcomes such as lower decision satisfaction. Heightened perception of choice difficulty arises because when deciding between comparable options under an abstract mindset, the decision maker must shift and maintain their focus on low level differences across options. Similarly, when deciding between noncomparable options under a concrete mindset, the decision maker needs to shift and maintain their focus on high level differences across options. This line of reasoning is consistent with Hamilton *et al.*'s (2011) findings that showed switching from one

mindset to another is effortful and leads to a lack of confidence and feelings of difficulty in making the decision. However, Cho *et al*.'s (2013) findings may not be applicable to post choice regret. Indeed, previous research has shown that satisfaction and regret are distinct constructs with different antecedents and consequences (Tsiros and Mittal, 2000). In particular, regret is conditional on the generation of counterfactuals regarding the option(s) foregone (Pieters and Zeelenberg, 2007), whereas dissatisfaction is a consequence of a disconfirmation between reality and prior expectation (Anderson, 1973). Moreover, research has shown that regret can have a negative consequence on satisfaction (Inman *et al*., 1997; Taylor, 1997; Tsiros and Mittal, 2000). Nevertheless, the linkage between a (non-fit) fit and regret can be argued because in addition to the findings of Cho *et al*. (2013), those of Lee *et al*. (2010) also offer support. Specifically, a fit from construal leads the decision maker to perceive the choice made as being more correct (feeling right about the decision/choice; Lee *et al*., 2010). As a consequence, one would expect such a fit to also reduce the potential for feeling (post choice) regret. The reason is that post choice regret arises from feelings that the choice made was wrong or at least that it was less than correct (Pieters and Zeelenberg, 2007).

The literature also provides supporting arguments as to why such a fit would offer different levels of benefits between maximizers and satisficers. Research shows that it is generally difficult for decision makers to single out the best option and the next-best alternative (Sagi and Friedland, 2007), a factor pertinent to maximizers, but not to satisficers. With a 'good enough' (vs. 'best possible') decision criterion, satisficers would generally find the decision to be less difficult than maximizers. Given the relatively low (high) levels of perceived decision difficulty for satisficers (maximizers), the impact of a fit (or non-fit) on decision difficulty will be less pronounced for satisficers when compared against that of maximizers. The underpinning rationale is that maximizers adopt a strategy that combines the

process of seeking out and comparing across alternatives. For them, seeking out alternatives is relevant when evaluating across many options, but when faced with only a few options, maximizers would seek out more information about the available options and compare extensively among them (Cheek and Schwartz, 2016). When maximizers have been primed into a mindset that does not fit the choice context, the process of seeking out and evaluating trade-offs is made much more difficult, as their mindset is not conducive to the type of choice comparisons needed to make a decision. In contrast, when they have been primed into a mindset compatible with the choice context, they should find it much less difficult to make a comparison. On the other hand, satisficers do not engage in an extensive comparison and information seeking process, and would not consider further trade-off comparisons once a suitable (good enough) option has been identified (Cheek and Schwartz, 2016). As a result, the impact of a non-fit (vs. fit) should be much less for satisficers than for maximizers.

Drawing together the above discussions, we would expect maximizers (vs. satisficers) to report higher levels of decision difficulty and post choice regret when there is a lack of fit between their mindset and the choice set (concrete mindset and noncomparable options or abstract mindset and comparable options). Importantly, we would also expect a fit (vs. a non-fit) to attenuate the disparities in decision difficulty and post choice regret across maximizers and satisficers. We thus hypothesize the following:

> *H1a.* Under concrete construal, maximizers, compared to satisficers, will report higher levels of post choice regret when choosing between noncomparable options.

> *H1b.* Under abstract construal, maximizers, compared to satisficers, will report higher levels of post choice regret when choosing between comparable options.

H2. The difference in post choice regret hypothesized in *H1a* and *H1b* will be

attenuated when choosing between comparable (noncomparable) options under

concrete (abstract) construal.

H3. The effects outlined in *H1a* and *H1b* will be mediated by choice difficulty.

Overview of our studies

We test our theory and hypotheses across three studies (see Figure 1 conceptual framework).

Studies 1 and 2 examine our hypotheses that a match between choice context (comparable vs.

noncomparable) and CLT (concrete vs. abstract) will help to reduce maximizers' level of post

choice regret. Study 1 examines the default position where CLT was not manipulated (with a

concrete construal level assumed across all participants). Study 3 replicates the findings of

Study 2 using a psychological distance (hypotheticality) manipulation for CLT and provides

mediational evidence of choice difficulty as our proposed underlying psychological

mechanism. Across all studies, participants took as much time as needed to make their

choices. PROCESS (version 3.1; Hayes, 2017) was used within SPSS across all studies.

Spotlight analyses were undertaken and reported in Studies 2 and 3 where maximization

orientation was measured, with the means reported representing maximizers at 84th and

satisficers at 16th percentiles.

Insert Figure 1 about here

Study 1

Study 1 assumed that consumers will adopt a concrete mindset as a default and tested *H1a*

that maximizers would experience higher regret when choosing between noncomparable

versus comparable options. Further, it was expected that the difference in regret between

maximizers and satisficers will be attenuated when choosing from comparable options (*H2*).

Maximizing and satisficing orientations were manipulated in line with Ma and Roese (2014).

Additionally, Study 1 assessed if regret mediates the interaction effect of maximization and choice set on choice satisfaction.

Pretests

Two separate pretests were conducted to assess the effectiveness of the maximization manipulation (Pretest 1), and to ensure that the comparable and noncomparable choice sets are perceived as equally attractive (Pretest 2). In Pretest 1, 71 MTurk participants (41 male, 30 female; $M_{age} = 39$ years) answered 9 multiple choice and 2 open response questions designed to activate a satisficing or maximizing orientation. The manipulation was similar to that used by Ma and Roese (2014, Experiment 2) but also included open response questions similar to their open-ended items in other experiments reported in their paper (See Appendix 1 for full manipulation items). The participants then answered a bi-polar scale item "When deciding among the options to what extent was your choice motivated by.....?" (1 = "choosing one that is good enough" to 9 = "choosing the optimal option"). This item was adapted from Luan and Li (2017). As expected, participants under the maximizing condition were more likely to be motivated to choose the optimal option ($M_{satisficers} = 5.03$, $M_{maximizers} = 6.79$; $t(69) = 2.79$, $p < .01$).

In Pretest 2, 60 MTurk participants (31 male, 29 female; $M_{age} = 36$ years) rated the attractiveness of a set of either comparable (4 keychains available for sale from Amazon around $4.00 each) or noncomparable (4 products: USB, salt grinder, house plant, and keychain; all available for sale from Amazon around $4.00 each) options. Attractiveness was measured by a single item using a 9-point scale (1 = "very unattractive" to 9 = "very attractive") adapted from Page and Herr (2002). Results of a repeated-measures ANOVA assessing if there were differences in attractiveness, within the comparable or noncomparable choices shown, revealed no difference in attractiveness for the comparable ($F(3,26) = .49$, $p > .7$) or noncomparable ($F(3,28) = .91$, $p > .4$) choice sets. Furthermore, no difference in

attractiveness was found when comparing average attractiveness of the options across the two choice sets ($M_{\text{comparable}}$ = 4.97, $M_{\text{noncomparable}}$ = 5.36; $t(58)$ = 1.02, p > .3).

Main Study

Method. One hundred and fifty two MTurk participants took part in the main study (73 male, 79 female; M_{age} = 39 years). The satisficing (coded -.5) and maximizing (coded .5) conditions were primed as detailed in Pretest 1 (see Appendix 1 for items). Following the priming task, participants were asked to choose from either the comparable (coded -.5) or noncomparable (coded .5) choice sets. Participants were simultaneously shown images of all four options with the order within the presentation randomized. A list of four attributes for each option, as well as the price, was presented beneath each product. Prior to showing the images, participants were told that they would be entered into a lottery where 10 lucky winners will be given the product they choose as a free gift. This information was intended to increase the realism of the scenario whilst heightening the potential for regret. In line with Ma and Roese (2014; Experiment 2), prize winners received an Amazon gift token for $4 which is slightly above the cost of the products shown. After indicating their preferred option, participants rated their level of regret and satisfaction regarding their choice. Choice regret was captured with two items ("Imagine that you have received the free gift from us, you will regret your choice" and "Imagine that you have received the free gift from us, you will think you should have chosen another option"). These two items, adapted from Tsiros and Mittal (2000), were combined into a single score (α = .93). Choice satisfaction was measured with one item ("I am satisfied with my choice"). Regret and satisfaction items were measured on 7-point degree of agreement scale (1 = "strongly disagree" to 7 = "strongly agree"). To assess if respondents were in a default concrete mindset when undertaking the choice task, we asked them towards the end of the questionnaire to indicate their level of construal. This was captured with an item adapted from Irmak *et al*. (2013; "When making your evaluations of

the products did you think more about how you would use the product or why you would use the product?") on a 7-point scale (1 = "focused on how" to 7 = "focused on why"). Taken together, Study 1 was a 2 (maximization orientation: satisficing vs. maximizing) × 2 (choice set: comparable vs. noncomparable) between-subjects design.

Results. The data supported a default concrete mindset with respondents more focused on how they use the product. Specifically, a one-sample t-test showed that the mean value of the single item capturing participants' level of construal was significantly lower than the mid-point of 4 ($M = 3.41$; $t(151) = -3.47$, $p < .01$). To ensure that there were no differences in the level of construal reported across the conditions, a PROCESS Model 1 examining the effects of maximization orientation and choice set on the measure of construal revealed no significant main or interaction effects (p's > .5).

To test *H1a* and *H2*, PROCESS Model 1 examined the effects of maximization orientation and choice set on choice regret, revealing the predicted two-way interaction ($b = .89$, $t = 2.52$, $p < .05$). Neither main effects were significant (p's > .1). As expected, spotlight analysis revealed that levels of choice regret were not different across maximizers ($M_{maximizers} = 1.30$) and satisficers ($M_{satisficers} = 1.55$) in the comparable condition ($p > .3$), but differed ($M_{maximizers} = 1.99$, $M_{satisficers} = 1.35$) in the noncomparable condition ($b = .63$, $t = 2.55$, $p < .05$). Figure 2 illustrates the observed interaction effect. Thus, *H1a* and *H2* are supported.

To test if choice regret mediated the observed interaction effect on choice satisfaction, an analysis employing PROCESS Model 7 (5,000 bootstrap samples, 95% CI) was undertaken and confirmed that regret played a significant mediational role (index of moderated mediation = -.47, $CI_{95\%} = [-.86, -.12]$). The analysis further revealed that the conditional indirect effect of maximization on choice satisfaction was only significant in the

noncomparable condition (indirect effect = -.32, $CI_{95\%}$ = [-.69, -.05]), but not in the

comparable condition (indirect effect = .12, $CI_{95\%}$ = [-.09, .32]).

Insert Figure 2 about here

Discussion

The findings of our first study provided initial support of our theorizing underpinning *H1a*

and *H2*. With a default concrete mindset, maximizers experienced higher levels of post

choice regret compared to satisficers when faced with noncomparable choices. The

moderated mediation analysis showed the importance of choice regret as an antecedent of

choice satisfaction. Importantly, Study 1 indicated a way in which the level of choice regret

felt by maximizers can be attenuated. To provide further evidence of the critical role of

(concrete vs. abstract) mindsets in alleviating regret for maximizers, Study 2 directly

manipulated (concrete/abstract) mindset. Study 2 also employed a different choice context

and study population while maintaining a focus on the key outcome of choice regret.

Study 2

The objective of Study 2 is to provide evidence that the heightened levels of choice regret for

maximizers (relative to satisficers) will be attenuated when their mindset fit the choice set.

We tested our hypothesis using a scenario based around a free gift that accompanies a

magazine subscription. By manipulating CLT, Study 2 extends the findings of Study 1 by

examining the role of both concrete and abstract mindsets in their interaction with the choice

context.

Pretest

Participants were recruited from a lifestyle event (N = 32; 14 male, 18 female; M_{age} = 36

years) and rated the attractiveness of either two sets of towels (comparable choice set), or a

set of towels and a case of wine (noncomparable choice set). Participants were told that the

gifts were of equal monetary value. Each option was further described by six attributes (see Appendix 2). Participants were randomly assigned to view either the comparable or the noncomparable choice set and indicated the level of attractiveness of the options ("How attractive do you think the two 'free gift' options are?") on a 7-point scale (-3 = "Option A is much more attractive" to 0 = "Options A and B are equally attractive" to 3 = "Option B is much more attractive"). Results of two separate one-sample t-tests showed that the level of attractiveness did not differ from zero (i.e. the options are equally attractive) within both the comparable and the noncomparable choice sets (p's > .1). Further, an independent samples t-test comparing the level of attractiveness showed that the attractiveness of the gifts did not differ across the choice sets ($M_{comparable}$ = .88, $M_{noncomparable}$ = .58; $t(30)$ = .67, p > .6).

Main Study

Method. Two hundred and twenty nine participants (93 male, 136 female; M_{age} = 38 years) were recruited at a lifestyle event in exchange for a snack. Participants were randomly assigned to one of four conditions in a 2 (Choice set: comparable vs. noncomparable) × 2 (Construal level: concrete vs. abstract) × maximization design. Choice set and construal level were manipulated between subjects and maximization measured. The same choice sets as the pretest were employed. Construal level was manipulated in line with Freitas *et al*. (2004) who showed that when individuals are primed to think repeatedly in terms of "why" (as opposed to "how"), superordinate, abstract thoughts are activated. Subordinate, concrete thinking was activated under the "how" condition. Thus, prior to the main experiment, participants assigned to the abstract (coded .5) construal condition were asked to consider why they would want to maintain and improve their health. Participants assigned to a concrete construal (coded -.5) condition were asked to consider how they would go about maintaining and improving their health. In a following separate task, a scenario was presented which offered participants a free gift if they took out a magazine subscription. Participants were

randomly assigned to either the comparable (coded -.5) or noncomparable (coded .5) free gift condition. Participants were told that the gift options were of equivalent value. All other scenario aspects were held constant across the four conditions. Participants then indicated which gift they would choose followed by the same (2-item) measure of regret that was used in Study 1 ($\alpha = .87$). At the end of the task, participants completed Schwartz *et al.*'s (2002) 13-item maximizing orientation scale ($\alpha = .74$; 0 = "strongly disagree" to 6 = "strongly agree") on a separate sheet, with higher values indicating a stronger maximizing orientation.

Results. We conducted PROCESS Model 3 to examine if regret differed across the (choice set and construal level) conditions and maximization. The results revealed a conditional direct effect of maximization ($b = .36$, $t = 4.26$, $p < .001$) on regret, consistent with prior literature. The results also revealed a significant conditional two-way interaction between choice set and construal level ($b = 2.82$, $t = 2.71$, $p < .01$). More importantly, a three-way interaction effect was evidenced ($b = -1.02$, $t = -2.99$, $p < .01$). No other effects reached significance (p's > .4).

Spotlight analysis (see Figure 3) further showed that when choosing from comparable options in an abstract mindset, maximizers reported increased regret compared to satisficers ($M_{maximizers} = 3.20$, $M_{satisficers} = 1.98$; $b = .71$, $t = 3.98$, $p < .001$), supporting *H1b*. A significant difference also emerged when choosing from noncomparable options in a concrete mindset, where maximizers reported increased regret compared to satisficers ($M_{maximizers} = 2.49$, $M_{satisficers} = 1.58$; $b = .53$, $t = 3.13$, $p < .01$), supporting *H1a*. No differences in regret between maximizers and satisficers were found when choosing between comparable options in a concrete mindset or when choosing from noncomparable options in an abstract mindset (p's > .4). Thus, *H2* is supported.

Insert Figure 3 about here

Discussion

Study 2 replicated and extended Study 1 by showing that maximizers experienced similar levels of regret compared to satisficers when considering comparable (noncomparable) options in a concrete (abstract) mindset, but higher levels of regret when considering noncomparable (comparable) options in a concrete (abstract) mindset. Thus, Study 2 confirmed the rationale underpinning *H2* that a match between the consumer's mindset and the choice set has a beneficial effect for maximizers. Afforded such a match, the level of choice regret for maximizers was attenuated with maximizers not suffering more regret than satisficers. The next study elucidates the underlying mechanism by examining the mediating effect of choice difficulty.

Study 3

Study 3 investigated the proposed psychological process resulting in maximizers feeling more regret than satisficers when experiencing a mismatch between the choice set (comparable vs. noncomparable) and their mindset (concrete vs. abstract). Our hypothesis (*H3*) was that a mismatch (non-fit) will lead maximizers to feel a heightened sense of difficulty in choosing between the options presented, thus leading to increased choice regret. Therefore, we tested a moderated mediation model in which a mismatch/non-fit (vs. match/fit) between choice set and mindset leads maximizers (vs. satisficers) to experience higher levels of choice difficulty, which in turn makes them report higher levels of choice regret. An additional objective of Study 3 was to replicate the findings of Study 2 using a different manipulation of CLT based on psychological distance (hypotheticality). Psychological distance can be manipulated by a variety of means, including varying temporal, social, spatial, or hypotheticality dimensions (see Trope and Liberman, 2010 for a discussion). We chose to manipulate psychological distance by means of hypotheticality

because varying the probability associated with obtaining a free gift in return for taking out a magazine subscription is realistic.

Method

Two hundred and fifty three participants (90 male, 161 female, 2 gender unknown; $M_{age} = 40$ years) were recruited at a food fair in exchange for a snack. Participants were randomly assigned to one of four conditions in a 2 (Choice set: comparable vs. noncomparable) × 2 (Hypotheticality: high vs. low) × maximization design, with choice set and hypotheticality manipulated between subjects and maximization being measured. Participants were offered a chance of winning a free gift if they took out a magazine subscription. Participants were told that all new subscribers would be entered into a prize draw and would have either an almost guaranteed chance or a low chance of winning the free gift. This manipulation of hypotheticality was similar to two approaches taken by Wakslak *et al*. (2006), who in their Study 2 used a raffle scenario and told participants that they were either "almost certain" (concrete construal) or had a "1/100 chance" (abstract construal) of obtaining a voucher for a product that they had evaluated during the experiment. In their Study 3, they used 95% and 5% to signal high and low probability respectively. As a result, in developing our manipulation we decided to combine the approaches taken by Wakslak *et al*. (2006) in their Studies 2 and 3 by using percentages within our free gift scenario which is analogous to a raffle. Using percentages made the phrasing of the manipulations more similar and ensured that respondents were clear of the exact chance of obtaining the gift in both construal level conditions. Thus, participants were randomly assigned to one of two conditions (concrete construal: high 95% probability, coded -.5; abstract construal: low 5% probability, coded .5) related to winning a gift if the respondent took out a magazine subscription. In all other respects, the scenario was identical to that employed in Study 2, with coding for the choice set conditions as Studies 1 and 2. Participants indicated which gift

they would choose followed by a two-item measure of choice difficulty ("How difficult was it for you to decide which option to choose?" 1 = "Very easy" to 7 "Very difficult"; "How complex did you find it to make your decision?" 1 = "Not at all complex" to 7 = "Very complex"). The measure of choice difficulty was adapted from Chatterjee and Heath (1996). Participants then reported their level of choice regret based on the same measure of regret as in previous studies (α = .88). Participants also completed a single item manipulation check ("The probability of you winning the 'free gift' is …." 1 = "Very low" to 7 = "Very high"). At the end of the task participants completed Schwartz *et al.*'s (2002) 13-item maximizing orientation scale (α = .72; 0 = "Strongly disagree" to 6 = "Strongly agree") on a separate sheet, with higher values indicating a stronger maximizing orientation.

Results

Analysis via PROCESS Model 3 revealed that the manipulation of hypotheticality was successful with a direct effect of hypotheticality (b = -4.44, t = -7.18, p < .0001) on the manipulation check question (M_{high} = 5.94, M_{low} = 2.16). Neither choice set, or maximization exerted a significant direct effect (p's > .4) nor did the two-way or three-way interactions reach significance (p's > .2).

Analysis based on PROCESS Model 3 revealed a conditional direct effect of maximization (b =.32, t = 3.88, p < .001) and hypotheticality (b =.98, t = 2.04, p < .05) on regret. The results also revealed two significant two-way interactions between choice set and hypotheticality (b = 2.07, t = 2.16, p < .05) and between hypotheticality and maximization (b = -.41, t = -2.54, p < .05) on to regret. Importantly, as in Study 2, a three-way interaction effect was evidenced (b = -.92, t = -2.81, p < .01). No other effects reached significance (p's > .2).

Spotlight analysis further revealed that, when choosing from comparable options in an abstract mindset (i.e., low hypotheticality condition), maximizers reported increased regret compared to satisficers ($M_{maximizers} = 2.45$, $M_{satisficers} = 1.95$; $b = .31$, $t = 2.43$, $p < .05$), supporting *H1b*. A significant difference also emerged when choosing from noncomparable options in a concrete mindset (i.e. high hypotheticality condition), where maximizers reported increased regret compared to satisficers ($M_{maximizers} = 2.69$, $M_{satisficers} = 1.43$; $b = .78$; $t = 4.25$, $p < .0001$), supporting *H1a*. No significant differences in regret between maximizers and satisficers were found when they chose between comparable options in a concrete mindset or when they chose from noncomparable options in an abstract mindset (p's > .1). Thus, *H2* is supported. Figure 4 illustrates the findings of Study 3 which echoed those of Study 2, thereby offering additional support to our theorizing with an alternative manipulation of construal level based on psychological distance.

Insert Figure 4 about here

We hypothesized in *H3* that maximizers will experience greater choice difficulty when their level of construal does not match the choice set and that this would result in increased regret over their choice. We tested this hypothesis using the moderated mediation PROCESS Model 12 (5,000 bootstrap samples, 95% CI). The results revealed a significant indirect effect of the three-way interaction between maximization orientation, choice set, and construal level on choice regret through choice difficulty (Index of moderated moderated mediation = -.29; $CI_{95\%} = [-.56, -.07]$). The analysis further revealed a significant indirect path from maximization to regret through choice difficulty when the choice set was comparable and hypotheticality was low (i.e. abstract mindset was induced; point estimate = .10; $CI_{95\%} = [.002, .226]$) as well as when the choice set was noncomparable and hypotheticality was high (i.e. concrete mindset was induced; point estimate = .20; $CI_{95\%} = $

[.07, .38]). Thus, *H3* is supported. In contrast, choice difficulty did not mediate the conditional effect in the comparable and high hypotheticality (concrete mindset) condition ($CI_{95\%}$ = [-.05, .21]) nor in the noncomparable and low hypotheticality condition ($CI_{95\%}$ = [-.139, .006]).

Discussion

Study 3 replicated the pattern of effects found in Study 2 and offers strong support for the beneficial effect of a match between the consumer's level of construal and the choice set for maximizers. This study further confirmed the mediating role of choice difficulty in influencing post-choice regret in our context. With the consistent results reported across multiple target audiences and scenarios, our studies jointly offer strong evidence of the efficacy of our proposed mechanism that would alleviate the heightened levels of choice regret consistently reported in the literature for maximizers.

Discussion

Theoretical contributions

This research answers the call for further research into how the negative state of regret can be reduced for maximizers (Dar-Nimrod *et al*., 2009; Lia, 2010) and for an examination of the relationship between maximization and CLT (Luan and Li, 2017). The maximization literature has consistently reported on the negative effect of maximization whereby maximizers feel more regret when compared against satisficers (e.g., Besharat *et al*., 2014; Ma and Roese, 2014; Polman, 2010; Purvis *et al*. 2011; Schwartz *et al*., 2002). However, research has yet to provide a solution to alleviate the heightened feelings of regret suffered by maximizers. The current research is the first to deliver such a relief for maximizers by drawing on CLT and evidencing the beneficial effect of a fit (or match) between the consumer's mindset (concrete vs. abstract construal) and the choice task (choice set:

comparable vs. noncomparable choices). Taken together, across three studies we found support for our hypothesis that regret for maximizers can be attenuated when the choice set is presented in a way that matches their current level of construal, or their default (concrete) construal. Further, this beneficial effect for maximizers occurs through a reduction in the perceived difficulty of making the choice. Moreover, our findings have practical relevance, as consumers often face consumption choices that are presented as either comparable or noncomparable. Given the default (concrete) mindset adopted by consumers, marketers need to be aware of the detrimental effect on post choice regret by maximizers who are looking for the best option across noncomparable choice sets. Our findings also show that if maximizers are inadvertently induced into an abstract mindset (e.g., led to consider why they want to buy the options on offer) when choosing across comparable options, heightened regret will ensue.

Our research adds to findings in construal level theory literature (Williams *et al.*, 2014) that found differences in the effects of psychological distance, and construal level, on affect-based evaluations. In particular, Williams *et al.* (2014) showed that psychological distance (i.e. closeness) affects the intensity of felt emotions with abstract (vs. concrete) mindset affecting a (positive) valence shift. However, our results suggest a more complex pattern of effects depending on the choice set being evaluated. Williams *et al.* (2014) considered a range of scenarios that were not choice-based nor did they involve a comparison among alternatives. Thus, our findings contribute to construal level theory by extending insight into affective responses in decision-making contexts.

Our research builds on Cho *et al.*'s (2013) work that suggested the potential for a fit effect in the context of choosing between comparable versus noncomparable options. Whilst past studies mainly focused on fit effects between the level of construal of the task, object, or framing of a message, and the goal orientation of the individual, our research addresses the role of a fit between the consumer's (concrete vs. abstract) mindset and the contextual

demands of the task. In particular, the task of choosing between comparable options naturally directs cognitive attention toward low level attribute-based comparisons (such as screen size, processing speed, etc.), which are not afforded when comparing across noncomparable options. Rather, deciding between noncomparable options requires higher level considerations (such as how much pleasure or other benefits can be gained) that are less influenced by the specific attributes of the options shown. Unfortunately for many marketers, whether their products are offered in a comparable or noncomparable retail (in-store or online) setting is often out of their control. As such, an understanding of the consequences of a fit and non-fit between the consumers' mindset and the retail setting is important. Moreover, past studies on fit effects focused on cognitive outcomes (such as attitudes and purchase intention) with no attention paid to affective outcomes. Yet negative emotional outcomes (such as regret) are important from a well-being as well as marketing management perspective.

Managerial implications

Firms need to take into account the way in which consumers may categorise or compare their product offerings. If their products are primarily grouped within distinct product categories (e.g., mobile phones) where potential buyers are likely to make a choice across comparable options, then a default (concrete) mindset would yield a match and serves their customers well regardless of their tendency to maximise. The approach that many stores use to group comparable products together (e.g., all hairdryers) should therefore work equally well for maximizers and satisficers. However, for firms where customers are more likely to consider options across product categories (e.g., weight loss solutions), it is then prudent to introduce a mechanism whereby potential buyers are induced into a more abstract mindset. For example, faced with a customer who is hunting for that perfect birthday present for a loved one, the sales person should communicate higher level aspects related to the products on offer (such

as benefits and pleasures one might derive from each product, or the reasons to own said product) and not focus on specific product features and other details such as how one would go about using the product.

For e-marketing, an abstract mindset could be induced online by focusing on benefits of the product (e.g., saves you time) rather than its features (e.g., has 10 settings). Marketers could also make use of the psychological distances as a way of inducing an abstract or concrete mindset. For instance, by changing the delivery timescale, (e.g., Cho *et al*., 2013), or suggesting narrow-appeal (e.g., perfect for you) versus broad-appeal (e.g., best seller). Psychological distance can also be primed by using signal words in describing the product (e.g., right now vs. in the long run; certain vs. likely; you vs. everyone).

Given the central role of choice difficulty, firms will need to take care that the choice situation does not become perceived as complex and difficult. In particular, large assortments likely lead to increased decision difficulty for maximizers as many more choice evaluations need to be undertaken. New technology such as Amazon's Echo, with the ability to ask Alexa, provides potential useful solutions for the problems associated with large assortments. Alexa typically provides the consumer with the top three results for comparable products, for instance in response to a shopping query on candle making kits. Hence, reducing the difficulty in sifting through the 1000's of results available on Amazon. However, if Alexa is asked for gift options for a baby shower, a list of many noncomparable products from hoodies, baby carriers, photo albums, storage baskets, and quirky t-shirts is provided. Furthermore, many online retailers allow consumers the option to compare a small number of products directly on one screen. Such comparisons, although available for noncomparable products (e.g. John Lewis allows comparisons across noncomparable products such as a camcorder vs. headphones vs. pizza oven vs. tablet), make little sense given that the product features are not directly comparable. Thus, these technological

innovations are less adept at providing reduced choice sets for noncomparable options. Moreover, the reduced set of products suggested by Alexa may not suit maximizers as these consumers would harbour doubts that they could have found a better option by searching more extensively.

To reduce the complexity of the decision making process for maximizers, marketers need to make clear the unique advantages of their product over others. One way this can be achieved is through information on product updates or upgrades. For example, a search on Amazon for Philips Sonicare toothbrush replacement heads, potential customers are notified of newer 'improved' versions of some available products. Another tactic is the use of recommendations. For example, Amazon now provides signages to categorize products as best seller, most gifted, most wished for, recommended for you, as well as providing endorsements such as Amazon's choice. These marketing tools can be useful in breaking down the level of complexity in making choices and highlighting the most relevant products for further comparison. Signal words such as 'best' and 'most' may appeal to maximizers's quest for the 'best possible' option. However, caution must be heeded as research shows that generic recommendation signages have the potential to increase decision difficulty unless they are tailored to individual preferences and decision history (Goodman *et al*., 2013).

Lastly, given that consumers are likely to adopt a concrete mindset as default and the technological innovations and marketing tools discussed above are mostly applicable to comparable products, marketers need to invest in alternative mechanisms that would induce an abstract mindset for considerations across noncomparable products. To do so, marketers could explore the ideas listed above (such as priming increased psychological distances or leading the consumer to reflect on why they might want the product as opposed to how to buy or use the product) or try more novel approaches. One such novel idea worth exploring is to

include a picture of bank notes on the website or promotion materials, as doing so has been found to induce an abstract mindset (Hansen *et al*., 2013).

Limitations and future research directions

The current research is not without limitations that open up numerous avenues for future research. First, the research suffers from the problems generally associated with scenario-based experiments, although non-student samples were used. The hypothetical and low involvement nature of the scenarios adopted has likely led to overall low levels of choice regret felt by participants. Future research should aim to replicate our findings using alternative scenarios with high involvement products in a real-life field experiment. Second, we assumed that the choice regret felt arose from self-blame as the choice scenarios did not involve information regarding others. But future research should consider that regret can be focused on self-blame or other-blame with Wu and Wang (2017) finding important differences in negative emotions associated with these different conceptualisations of regret. Third, despite replicating the findings using different manipulations of construal level, researchers may wish to further replicate these findings using other psychological distance manipulations (temporal, social, and spatial). Future research could also take into account consumers' chronic level of construal in building on our modelled effects. Fourth, we did not examine within our scenarios the possibility of allowing the consumer to change the choice made. Future studies should explore the importance of choice reversibility, given that maximizers are more satisfied with a decision when it is reversible (Shiner, 2015). Relatedly, previous research has found negative emotions to lead to choice deferral (Garg *et al*., 2017) and therefore future studies could include the option of deferring to make a choice. Fifth, we employed Schwartz *et al*.'s (2002) scale in two of our studies. It is important to note that this scale, although still widely used in research, has been criticized because its items extend beyond the definition of maximization theorized by the authors (see Dalal *et al*., 2015; Diab

et al., 2008). As a result, several other maximization scales have been developed and future research should assess if our findings hold across different ways of assessing maximization orientation. Sixth, given the gain-framing of our scenarios, future research should examine if a choice context that could be perceived as a negative event would lead to findings counter to those reported in the current research. Lastly, we have used product options throughout our studies. Future research could clarify if our findings would also apply to consumers making choices across service offerings.

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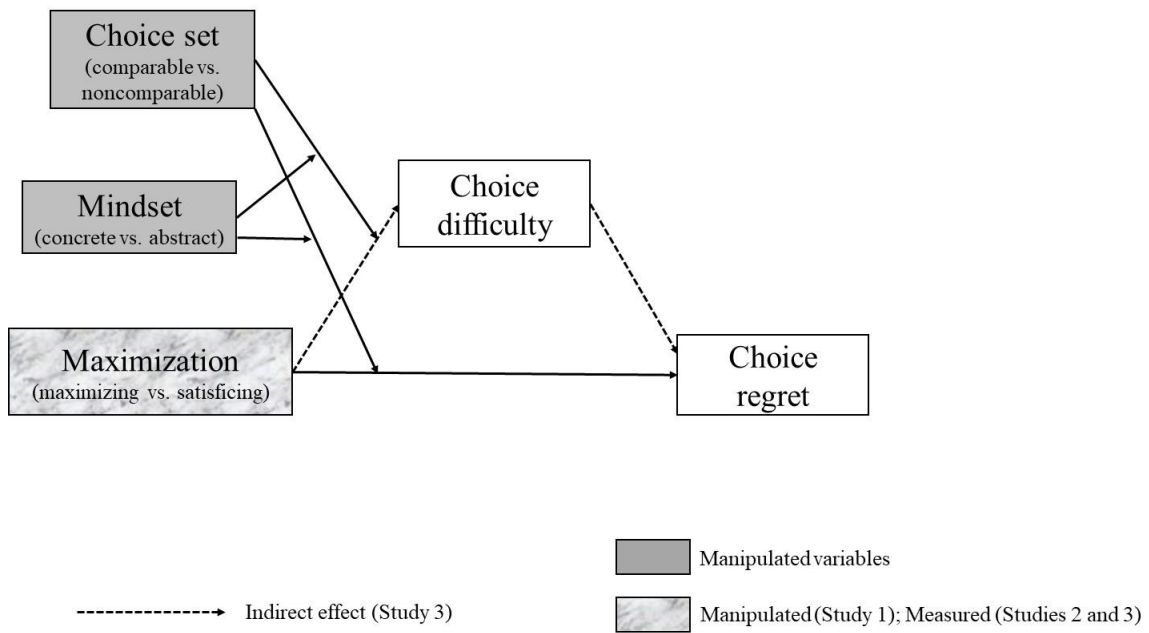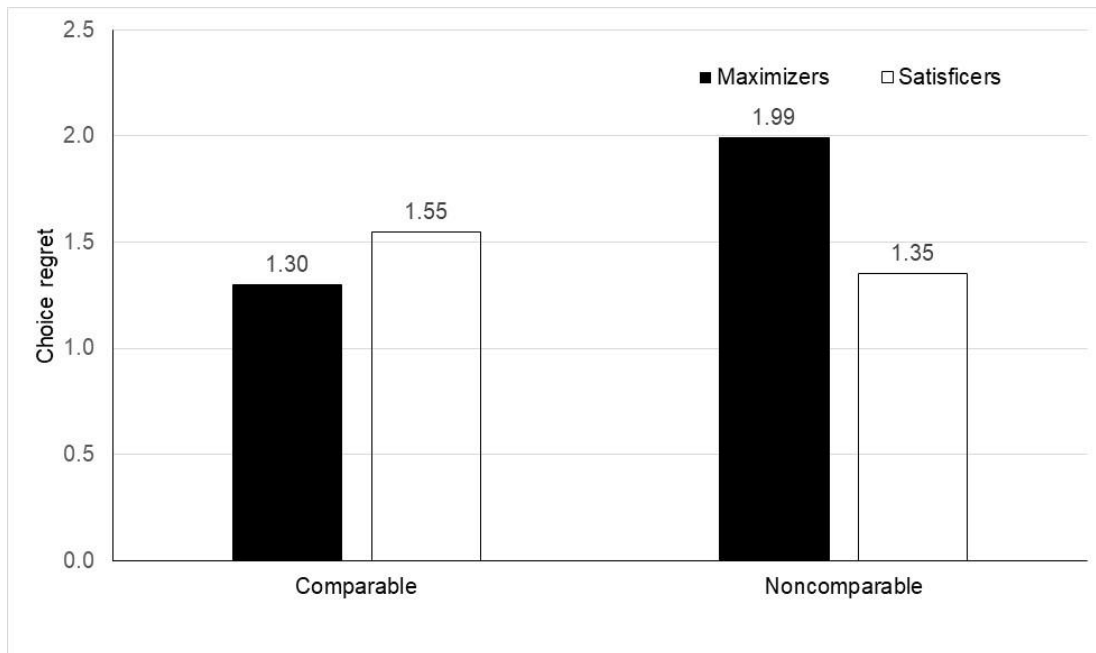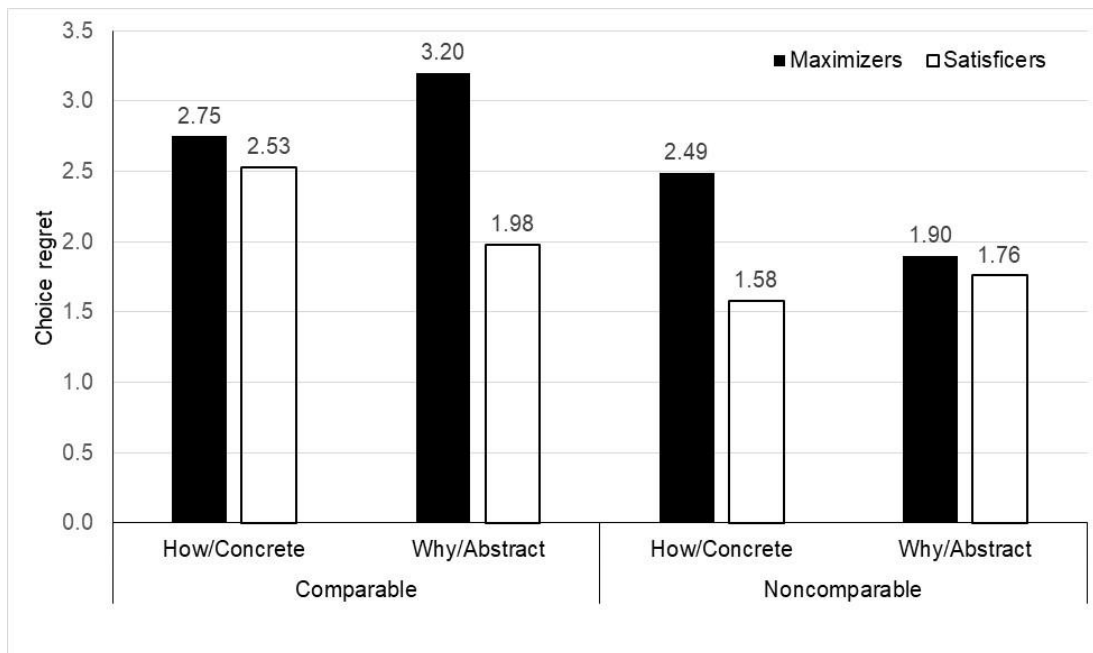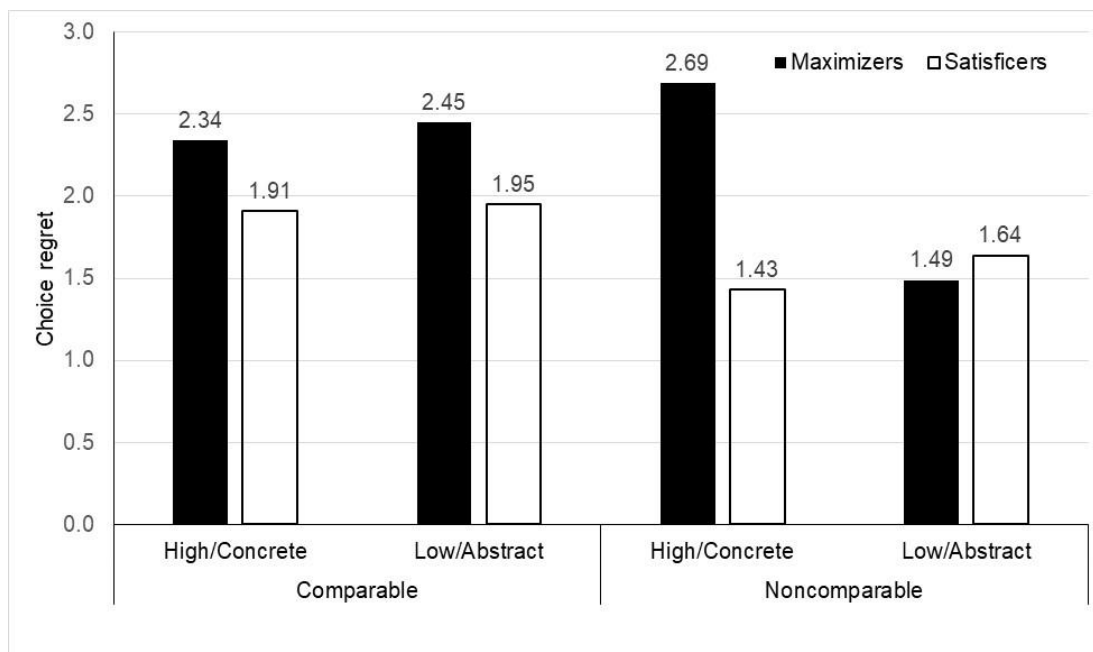
Figure 1. Conceptual framework

Figure 2. Study 1: Maximization × choice set on post choice regret

Figure 3. Study 2: Maximization × choice set × construal level (how/why) on post choice regret

Notes: Maximizers (84th percentile), Satisficers (16th percentile)

Figure 4. Study 3: Maximization × choice set × construal level (hypotheticality high/low) on post choice regret

Notes: Maximizers (84th percentile), Satisficers (16th percentile)

Appendix 1. Maximizing versus satisficing priming

Items to prime maximizing have a dark circle and items to prime satisficing have a clear circle.

- Please choose the male actor you think has the best acting skill: (choose only one)
○ Please choose the male actor(s) whose acting skill you think is good enough? (choose at least one)
  - Robert De Niro
  - Tom Hanks
  - Denzel Washington
  - Morgan Freeman
  - Matt Damon
- Please choose the country you think is the best place to visit: (choose only one)
○ Please choose the countries you think would be acceptable to visit: (choose at least one)
  - Belgium
  - Denmark
  - The Netherlands
  - Sweden
  - Norway
- Please choose the university you think offers the best education: (choose only one)
  - Harvard
  - Yale
  - Princeton
  - UPenn
  - Columbia
○ Please choose the universities you think are affordable to study at: (choose at least one)
  - The Ohio State University
  - Boston College
  - University of Phoenix
  - University of Washington-Seattle
  - University of Delaware
- Please choose the industry sector you think offers the best job: (choose only one)
○ Please choose the industry sector(s) you think offers jobs that pay well enough to live on: (choose at least one)
  - Professional and business services
  - State and local government
  - Charity / non-profit (Non Governmental Organization)
  - Health care and social assistance
  - Manufacturing
- Please choose the type of pet you think is the smartest: (choose only one)
○ Please choose the pets that you would be willing to live with: (choose at least one)
  - rabbit
  - hamster
  - turtle

- fish
- cat

- Please choose the best snack for you: (choose only one)
o Please choose snack(s) that are good enough to eat: (choose at least one)
  - a piece of fruit
  - cookie
  - chocolate
  - yogurt
  - popcorn
- Please choose the best thing to do during a lunch break: (choose only one)
o Please choose the things you wouldn't mind doing during a lunch break: (choose at least one)
  - go for a walk or exercise
  - catch up on social media
  - go shopping
  - play a game
  - listen to music
- Please choose the best gift to take to a dinner party: (choose only one)
o Please choose gift(s) that are acceptable to take to a dinner party: (choose at least one)
  - wine
  - house plant
  - candles
  - flowers
  - gourmet coffee
- Please choose the best thing to do on a night out: (choose only one)
o Please choose the things you find acceptable to do on a night out: (choose at least one)
  - cinema
  - meal at restaurant
  - theatre
  - bowling
  - bar
- Please state the best movie you have ever watched:
o Please state a movie you have recently watched that was good enough to recommend to a friend:
- Please state what you consider the best day trip you can have:
o Please state what you would consider as an OK/acceptable day trip to go on:

Appendix 2. List of attributes used in Experiment 2 and 3

Comparable

Product features	Towel option A	Towel option B
Organic	100% organic	20% organic
Fair trade	No	Yes
Weight (g/m^2)	550 gsm	700 gsm
Absorbent	Super absorbent	Absorbent
Pile	Short pile	Deep pile
Colour	Cream	Cream

Noncomparable

Option A - towels	Option B - wine
Colour: Classic cream	750 ml each
Super absorbent and luxurious	3 red and 3 white
Weight 550 g/m^2	Country of origin: Various
Machine washable at 40° C	Fairtrade certified
100% organic cotton	Organic
Fairtrade certified	Suitable for all occasions