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Contrary to the general view that decision difficulty is a stable characteristic of specific choice sets, the authors propose that decision difficulty depends on how the choice set is mentally represented. Comparing the difficulty associated with comparable and noncomparable choice sets, the authors find that changes in mental representation can make the same choice feel more or less difficult. They propose that the representation level influences the type of decision criterion that becomes readily available; whether this available criterion is appropriate for comparing the options in turn affects choice difficulty. Four studies demonstrate the proposed effect of representation level on the difficulty of comparable and noncomparable choices and its downstream implications for decision satisfaction.

Keywords: choice difficulty, mental representation, choice satisfaction, mindsets, construal, choice comparability

Comparing Apples to Apples or Apples to Oranges: The Role of Mental Representation in Choice Difficulty

A fundamental aspect of most consumer buying situations is the notion of choice; some choices are naturally more difficult than others. For example, a choice between two laptops requiring a consumer to make a trade-off between the laptops' memory and weight may be more difficult than a choice requiring a trade-off between the memory and the color. However, within a specific trade-off structure and set of choice options, choice difficulty is generally considered a stable characteristic of the choice set. For example, people generally perceive noncomparable choices (e.g., a choice between a DVD and a box of chocolates) as more difficult than comparable choices (e.g., a choice between two boxes of chocolates; Bettman and Sujan 1987; Johnson 1984; Zhang and Markman 2001).

Contrary to the view that difficulty is an inherent property of the choice set, we propose that choice difficulty can depend on how the choice options are mentally represented.

Building on prior findings that people can construe the same stimulus at different levels of abstraction (Trope, Liberman, and Wakslak 2007), we propose that differences in the mental representation of a choice set can influence (1) the type of decision criterion that is readily available to the consumer and (2) whether it can be used for comparing and choosing between the options. As a consequence, we show that people can perceive a choice between the same comparable options and between the same noncomparable options as being more or less difficult depending on the level of mental representation.

Specifically, we demonstrate that comparable choices are more difficult than noncomparable choices when represented abstractly, whereas noncomparable choices are more difficult than comparable ones when represented concretely. This is because an abstract representation focuses on high-level considerations and readily provides a criterion for deciding between noncomparable options but not for deciding between comparable options that differ on low-level attributes. To choose between comparable options, consumers who form an abstract representation must expend additional effort to first shift their focus to low-level differences. Conversely, noncomparable choices become more difficult than comparable choices under a concrete representation, which focuses on low-level attribute-based differences and provides an applicable decision criterion for choosing

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between comparable options but not for choosing between noncomparable options that do not have common attributes. To choose between noncomparable options, consumers who form a concrete representation must expend additional effort to first shift their focus to high-level differences.

The current research is the first to introduce the notion that decision difficulty is not a fixed property of the choice set but is influenced by the decision maker’s mindset or representation level. In addition to furthering the field’s understanding about consumer choice and choice difficulty, our work extends prior research on comparable and noncomparable choices and provides a framework to explain when a reversal might occur in the perception of difficulty level of these two types of choices.

We organize the remainder of the article as follows: A brief review of prior research leads to our prediction of the effect of representation and choice set comparability on choice difficulty. Four studies then test this prediction using both hypothetical and real choices. Study 1 examines how mental representation and choice set comparability affect decision difficulty and, consequently, decision satisfaction. Study 2 further demonstrates that changes in decision difficulty, which can be influenced by naturally occurring contextual cues prompting shifts in mental representation, underlie changes in decision satisfaction. Study 3 demonstrates how choosing for oneself versus choosing for others, as in a gift-buying context, naturally evokes concrete and abstract mental representations, respectively, and influences choice difficulty. Study 4 provides a boundary condition and evidence for the core psychological process by which mental representation influences choice difficulty. We conclude with a discussion of theoretical and practical implications and further research directions.

**CHOICE DIFFICULTY AND MENTAL REPRESENTATION**

Two broad factors that influence choice difficulty are the number and type of attribute comparisons involved in a choice (e.g., Bettman, Johnson, and Payne 1990; Luce, Bettman, and Payne 2000; Payne 1976). As the number of available alternatives or the attributes presented within the alternatives increases, the trade-offs required between them and the difficulty in choosing increase as well (e.g., Iyengar and Lepper 2000). The types of attributes that are traded off also influence choice difficulty (Nowlis, Dhar, and Simonson 2010). Trade-offs between attributes that correspond to highly valued goals, such as safety, lead to greater difficulty than trading off attributes that correspond to less valuable goals (Luce 1998); quantitative attributes, such as size, are considered easier to trade off than qualitative attributes, such as flavors (Nowlis, Dhar, and Simonson 2010). Another factor implicated in choice difficulty is the nature of comparison. People typically consider comparisons between different levels of alignable attributes to be easier than comparisons between nonalignable attributes (e.g., Zhang and Markman 2001). More generally, although difficulty across different choices can vary according to several factors, as we previously mentioned, previous research views the difficulty of any particular choice set as being relatively fixed and dependent only on the configuration of alternatives and attributes in the choice set. Contrary to this view, we propose that the difficulty involved in the same choice can vary depending on how a consumer mentally represents the choice set.

Our proposition rests on previous research, which states that the same stimulus can be represented at different levels of abstraction, ranging from low-level, concrete representations that focus on local features and contextualized details to high-level, abstract representations that are decontextualized and reflect the essence of the stimulus (e.g., Liberman and Trope 2008; Trope, Liberman, and Wakslak 2007). Participants in an object categorization task, for example, were more likely to focus on the essence of the given objects and classify them into fewer and broader categories when they adopted a high-level representation. In contrast, those who adopted a low-level representation were more likely to focus on the specific details and therefore classify the same set of objects into more and narrower categories (Liberman, Sagristano, and Trope 2002). In other recent choice research, people in a high (vs. low) representation level made fewer attribute-level trade-offs and were more likely to base their choices on high-level, generalized preferences rather than on the local context of a choice set (Khan, Zhu, and Kalra 2011).

To illustrate how the level of mental representation can affect decision difficulty, we examine the difficulty of choosing between comparable and noncomparable options. Broadly speaking, comparable options refer to options with alignable attributes, such as a choice between two cameras, in which consumers can readily weigh and trade off between different levels of shared attributes. Camera A might have a five-hour battery life but a smaller screen, whereas Camera B has a four-hour battery life but a larger screen. Consumers can readily compare and choose between these two options on the basis of the different levels of the shared attributes. In contrast, noncomparable choices refer to options with nonalignable attributes, for example, a choice between a camera and an MP3 player. Because people cannot make such choices on the basis of attribute-level differences, they require a decision criterion that focuses on high-level considerations, such as the overall value, essence, or enjoyment of the options (Johnson 1984). According to previous research, such criteria are not readily available (Bettman and Sujan 1987), and consumers must exert additional effort to create them. Thus, the generally accepted view in prior literature is that noncomparable choices are more difficult than comparable ones (Johnson 1984; Markman and Medin 1995; Zhang and Markman 2001).

Building on the aforementioned research, we predict that when consumers adopt a concrete mental representation, they are more likely to use a decision criterion that focuses on low-level considerations, such as specific attribute-level differences. Such a decision criterion readily allows consumers to discriminate between comparable options. However, focusing on attribute-level information is not helpful in choosing between noncomparable options. Thus, consumers must first shift the focus from low-level considerations and generate a usable decision criterion based on higher-level differences (Johnson 1984). We argue that although consumers will eventually use a criterion based on high-level considerations when choosing between noncomparable options (Johnson 1984), the choice process will be impeded and feel more difficult because of the effort.
expend in shifting from a concrete representation to an abstract one. This notion is consistent with recent literature showing that shifting from one mindset to another is an effortful and depleting process (Hamilton et al. 2011). Therefore, we posit that a noncomparable choice will be more difficult than a comparable choice when represented concretely.

Conversely, when consumers adopt an abstract representation, they are more likely to use a decision criterion that focuses on high-level differences. Such a decision criterion readily allows for the evaluation of noncomparable options, which makes the choice relatively easy. However, it increases the difficulty of discriminating between comparable options (Dhar 1997a) because consumers first must shift their focus away from high-level considerations to arrive at a criterion based on low-level distinctions. Although consumers will likely use a decision criterion that focuses on low-level considerations to choose between comparable options, the choice process can become more difficult due to the effort required in shifting from an abstract to a concrete representation. Thus, we posit that a comparable choice becomes more difficult than a noncomparable one when it is represented abstractly.

In summary, our framework delineates that decision difficulty can depend on the level at which a choice is mentally represented. This in turn influences the type of decision criterion that is readily available to consumers. It is important to understand how different mental representations change choice difficulty, because difficulty can lead to significant consequences for choice and for the evaluation of the choice outcome. Because consumers’ assessments are often based on their subjective experiences (Fitzsimons 2000), feelings of difficulty can lead to the inference that the choice outcome itself is less satisfactory. For example, Liberman and Forster (2006) show that high levels of choice difficulty influence the decision maker’s satisfaction with the choice and increase the likelihood of choosing the previously rejected option in a subsequent decision. Other evidence also suggests that as difficulty increases, satisfaction with the decision outcome decreases. For example, in the context of product customization, as the difficulty a consumer experiences uncovering his or her preferences increases, satisfaction with customized products decreases (Valenzuela, Dhar, and Zettelmeyer 2009). Similarly, people tend to derive less satisfaction from choosing between options that are presented on nonalignable rather than on alignable features (Zhang and Fitzsimons 2001) because it is more difficult to compare options on nonalignable features than on alignable features. Taken together, the general finding in previous literature is that difficulty experienced in a decision leads to lower satisfaction. In line with these findings, we posit that to the extent that a noncomparable choice (vs. a comparable choice) is more difficult in a concrete representation level, it leads to less decision satisfaction. Conversely, because a comparable choice is more difficult in an abstract representation level, it leads to less decision satisfaction than for a noncomparable choice. Thus, we expect that a noncomparable choice (vs. a comparable choice) will result in lower decision satisfaction in a concrete representation level, whereas a comparable choice (vs. a noncomparable choice) will result in lower decision satisfaction in an abstract representation level. Next, we present four studies that provide evidence in support of our proposition that choice difficulty and, consequently, decision satisfaction depend on the comparability of the options in the choice set and the mental level at which the choice is represented.

**STUDY 1: EFFECT OF REPRESENTATION ON CHOICE DIFFICULTY AND CHOICE SATISFACTION**

Study 1 demonstrates how a choice set’s level of representation affects choice difficulty and, consequently, choice satisfaction when making choices with real consequences between comparable and noncomparable options. We predict that choice difficulty for noncomparable options will be greater than for comparable options when people adopt a concrete representation of the choice options, whereas the reverse will be true when they adopt an abstract representation. Drawing on prior research that has identified decision time as a proxy for the difficulty experienced in making a choice (Otter, Allenby, and Van Zandt 2008; Tyebjee 1979), we measure the amount of time people take to reach a decision as a measure for choice difficulty. As an outcome of choice difficulty, Study 1 also examines the effect of representation on decision satisfaction. We predict that the effect of the representation of the choice options and choice set comparability interaction on decision satisfaction will be mediated by choice difficulty as measured in time spent making a decision.

**Method**

One hundred twenty-five participants from a national online pool completed two purportedly unrelated questionnaires online. The study had a 2 (representation: abstract vs. concrete) x 2 (choice set: comparable vs. noncomparable) between-participants design. The dependent variables were the amount of time participants took to decide and their ratings of decision satisfaction. The first questionnaire randomly assigned participants to either an abstract or a concrete representation condition. To manipulate representation level, participants were asked to imagine their life tomorrow and write a few sentences about how they expected it to be or to write about their life a year from now. Liberman, Sagristano, and Trope (2002) find that imagining what life will be like tomorrow activates a concrete, low-level mindset or cognitive orientation, whereas imagining what life will be like a year later activates an abstract, high-level mindset.

In return for participating in the first study, respondents next entered a lottery to receive a gift certificate. Participants were asked to choose the gift certificate they preferred to receive if they won the lottery. They were randomly shown either two comparable or two noncomparable choice options. The comparable choice set presented a choice between a $50 gift card for movie rentals or purchases at Blockbuster and a $50 gift subscription to Netflix. The noncomparable choice set presented a choice between a $50 gift card for movie rentals or purchases at Blockbuster and a $50 iTunes gift card for purchasing and downloading music (for study stimuli, see Web Appendix A at www.marketingpower.com/jmr_webappendix). A pretest confirmed that the options were balanced such that they did not differ in their overall attractiveness. After making their selection, participants indicated their decision satisfaction on a nine-point scale (1 = “not at all difficult,” and 9 = “very difficult”). The amount
of time it took them to make their choice was recorded. Finally, participants were thanked and questioned about the purpose of the study, which no one correctly guessed.

Results and Discussion

We predicted that the effect of representation of the choice options on decision difficulty would be moderated by choice set comparability. To test this notion, we recorded the amount of time participants took to make their decision as a proxy for choice difficulty. Before analysis, we log-transformed the decision time data. For ease of interpretation, however, we present the raw times. As we expected, an analysis of variance (ANOVA) on decision time revealed a significant representation × choice set interaction (F(1, 121) = 6.9, p = .01; see Figure 1). Direct contrasts revealed that participants spent more time deciding between the noncomparable choice options than the comparable choice options when they were represented concretely (M comparable = 9.8 seconds, SD comparable = 4.3 vs. M noncomparable = 7.9 seconds, SD noncomparable = 2.9; t(61) = 2.1, p < .05). When the options were represented abstractly, however, the pattern reversed such that participants spent more time deciding between the comparable choice options than the noncomparable choice options (M comparable = 10.3 seconds, SD comparable = 5.9 vs. M noncomparable = 8.1 seconds, SD noncomparable = 3.9; t(60) = 1.74, p = .08). There was no significant main effect of representation or choice set on decision time.

We further predicted that the effect of representation on choice difficulty across different choice sets would subsequently affect decision satisfaction. As we expected, an ANOVA yielded a significant effect of the representation × choice set interaction on decision satisfaction (F(1, 121) = 16.9, p = .001; see Figure 2). Planned contrasts revealed that the noncomparable choice, relative to the comparable choice, resulted in lower decision satisfaction when the choice options were represented concretely (M comparable = 6.3, SD comparable = 1.6 vs. M noncomparable = 7.8, SD noncomparable = 1.7; t(61) = 3.67, p < .01). However, when the choice options were represented abstractly, the comparable choice resulted in lower decision satisfaction than the noncomparable choice (M comparable = 6.5, SD comparable = 1.7; t(60) = 2.15, p < .05). There was no significant main effect of representation or choice set on decision satisfaction. Thus, the results show that the level of representation and choice set comparability interact to influence choice difficulty (as evidenced by the amount of time participants took to make a choice) as well as the degree of satisfaction that participants experienced with their decision.

Furthermore, the data showed that decision time mediated the effect of representation and choice set comparability on decision satisfaction. First, a regression with decision satisfaction as the dependent variable and the interaction of representation × choice set as the independent variable revalidated the interactive effect of representation and choice set comparability on decision satisfaction (β = −2.4, t(124) = −4.1, p < .001). A second regression indicated that representation × choice set also significantly affected decision time (β = 4.2, t(124) = 2.7, p < .01). Furthermore, a regression showed that decision time significantly affected decision satisfaction (β = −.16, t(124) = −5.1, p < .001). Finally, when we regressed decision satisfaction on both the representation × choice set interaction and decision time, the effect of representation × choice set interaction decreased (β = −1.9, t(124) = −3.3, p = .001), whereas the effect of decision time remained unchanged (β = −.14, t(124) = −4.4, p < .001), suggesting that decision time mediated the interactive effect of representation and choice set comparability on decision satisfaction. A Sobel (1982) test revealed that the decrease in the effect of the representation × choice set interaction was significant (z = 2.3, p < .05).
Moreover, we established that this mediation was indeed significant, because the bias-corrected confidence interval (CI) of the bootstrapping mediation test (Preacher and Hayes 2008) did not include zero (95% CI = -1.108, -.168; 5,000 resamples).

Study 1 indicates support for our proposition that choice difficulty is not a stable property of the choice set configuration but depends on the mental level at which a choice is represented. Contrary to prior research, which has generally noted that noncomparable choices are intrinsically more difficult than comparable choices, we show that decision makers perceive noncomparable choices as more difficult than comparable choices when they adopt a concrete representation but view choices between the same comparable options as more difficult than the same noncomparable options when they form an abstract representation.

One way to explain why prior research has found noncomparable choices to be more difficult than comparable choices is that a consumer's default mindset is likely to be more concrete than abstract (Khan, Zhu, and Kalra 2011). The decision criteria readily accessible in the default mindset should, therefore, be based on concrete, low-level considerations, making comparable choices easier than noncomparable ones.

To test whether the default construal is indeed more concrete than abstract, we conducted a posttest and measured how participants in different construals identified certain actions. Previous research (e.g., Liberman and Trope 1998) has used this approach to measure shifts in construal, distinguishing a high-level identification in which the activity is linked to its superordinate purpose (the "why" of the activity) and a low-level identification in which the activity is linked to its subordinate means (the "how" of the activity). Participants from a national online pool (N = 149) completed the Behavioral Identification Form (BIF; Vallacher and Wegner 1987, 1989), a previously established measure of action identification. For each of the 25 activities listed in this measure (e.g., "locking a door"), participants chose between one of two identifications: an option related to the "why," or the abstract aspect of the activity (e.g., "securing the house"), and one related to the "how," or the concrete aspect of the activity (e.g., "putting a key in the lock"). Before beginning the BIF, participants were randomly assigned to a concrete, abstract, or control representation condition. As in Study 1, participants wrote what they imagined their life to be like tomorrow (in the concrete condition) and one year later (in the abstract condition). In the control condition, they proceeded directly to the BIF. We assigned 1 point if participants chose an abstract identification for the action and 0 if they chose a concrete identification. This resulted in a composite score ranging from 0 to 25, with higher scores corresponding to more abstract ratings. A one-way ANOVA on this composite score yielded a significant effect of representation condition (F(2, 146) = 3.5, p < .05). Planned comparisons showed that although participants identified actions at a higher level in the abstract representation condition (Mabstract = 17.43, SDabstract = 5.29) compared with the control condition (Mcontrol = 14.86, SDcontrol = 5.66; F(1, 98) = 5.52, p < .05), there was no significant difference in the level of action identification between the control and the concrete representation conditions (Mconcrete = 14.67, SDconcrete = 6.51; F(1, 96) = .02, p = n.s.), suggesting that a consumer’s default mindset is indeed likely to be more concrete than abstract. This finding explains why prior research has reported noncomparable choices to be more difficult than comparable choices.

The purpose of the next study is threefold. First, we aim to test the robustness of the effects by using a fully balanced design to ensure that the findings in Study 1 cannot be attributed to specific choice option pairings. Second, in Study 2, we use a more naturalistic manipulation of the representation level to demonstrate that shifts in representation can occur naturally through everyday situational and contextual cues. Third, instead of using an indirect measure of difficulty, we directly assess participants’ experienced level of difficulty.

**STUDY 2: EFFECT OF DELIVERY TIME ON CHOICE DIFFICULTY AND CHOICE SATISFACTION**

In Study 2, we use the length of the delivery time of an item to evoke an abstract or concrete mental representation naturally. Previous research has found that distant future occurrences are represented abstractly, whereas near future occurrences are represented concretely (Trope and Liberman 2003). Thus, we expect that choice options with a delivery date in the distant future will be represented more abstractly than those with a delivery date in the near future; because these shifts in representations can make different decision criteria more accessible, they will moderate the difficulty of choosing between comparable and noncomparable options as well as consumers’ satisfaction with the decision.

**Method**

Two hundred twenty-five participants from a national online pool completed a questionnaire online. In a between-participants design, we manipulated level of representation (abstract vs. concrete) and the choice set composition (comparable vs. noncomparable). Choice difficulty and decision satisfaction served as the dependent variables. Participants were asked to imagine that they had won a $100 prize and could choose one of two options they would like to receive. They were randomly shown either a choice set with two comparable or two noncomparable options. The comparable choice set either featured two Blu-ray players or two event tickets. The noncomparable choice set featured a Blu-ray player and an event ticket (for study stimuli, see Web Appendix B at www.marketingpower.com/jmr_webappendix). We chose these items on the basis of a separate pretest for the same online pool in which participants rated the items as similarly attractive. We used a balanced design such that all possible Blu-ray player and event ticket pairings were featured in the noncomparable choice sets. We manipulated the representation level by informing participants in the abstract representation condition that their chosen option would be shipped to their home in four weeks (i.e., in the distant future), whereas participants in the concrete representation were informed that their chosen option would be shipped to their home in two business days (i.e., in the near future). Thus, the full balanced design comprised 12 conditions (six choice pairings × two representation levels). All partici-

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1The choice pairs comprised four noncomparable sets (i.e., “Blu-ray 1 and Event ticket 1,” “Blu-ray 1 and Event ticket 2,” “Blu-ray 2 and Event ticket 1,” “Blu-ray 2 and Event ticket 2”) and two comparable sets (i.e., “Blu-ray 1 and Blu-ray 2” and “Event ticket 1 and Event ticket 2”).
pants then rated how difficult it was to choose between the two offerings on a nine-point scale (1 = “not at all difficult,” and 9 = “very difficult”) and indicated their choice. Afterward, they also rated how satisfied they were with their selection on a nine-point scale (1 = “not at all satisfied,” and 9 = “very satisfied”). We did not measure the amount of time participants took to choose because the difficulty rating question, which came first, could potentially contaminate the deliberation process and render a response time measure less meaningful. At the end, participants were thanked and questioned about the purpose of the study, which no one guessed correctly.

Results and Discussion

All possible noncomparable choice set combinations yielded a similar pattern of results (i.e., there was no differential effect of specific pairings on choice difficulty or on decision satisfaction, ps > .39) and were collapsed into a single set of noncomparable options. Similarly, the different comparable choice sets did not differ from one another (ps > .42) and were collapsed into a single set of comparable options. Thus, our study consisted of a 2 (representation: concrete vs. abstract) x 2 (choice set: comparable vs. noncomparable) design. Consistent with our prediction that choice difficulty is not stable but is instead influenced by representation level, an ANOVA yielded a significant representation x choice set interaction on choice difficulty (F(1, 224) = 11.10, p < .001; see Figure 3). Specifically, participants viewed a comparable choice as being more difficult than a noncomparable choice in an abstract representation (Mnoncomparable = 2.61, SDnoncomparable = 1.98 vs. Mcomparable = 4.19, SDcomparable = 1.87; t(99) = -3.94, p < .001), but the pattern reversed in a concrete representation; that is, participants directionally considered the noncomparable choice more difficult than the comparable choice (Mnoncomparable = 3.58, SDnoncomparable = 2.47 vs. Mcomparable = 3.13, SDcomparable = 2.28; t(122) = 1.03, p = .3). There was no main effect of representation or choice set on reported difficulty.

Consistent with the notion that decision difficulty can influence choice satisfaction, an ANOVA yielded a significant effect of the representation x choice set interaction on decision satisfaction (F(1, 220) = 5.42, p < .05; see Figure 4): relative to the comparable choice, the noncomparable choice resulted in lower decision satisfaction when the choice options were represented concretely (Mnoncomparable = 6.68, SDnoncomparable = 2.31 vs. Mcomparable = 7.48, SDcomparable = 1.75; t(122) = -2.05, p < .05), whereas when the choice options were represented abstractly, the comparable choice resulted in lower decision satisfaction than the noncomparable choice (Mnoncomparable = 7.38, SDnoncomparable = 2.07 vs. Mcomparable = 6.35, SDcomparable = 2.14; t(99) = 2.36, p < .05). There was no significant main effect of representation or choice set on decision satisfaction.

Furthermore, decision difficulty mediated the interactive effect of representation and choice set comparability on decision satisfaction. First, a regression with decision satisfaction as the dependent variable and the interaction of representation x choice set as the independent variable revaluated the interactive effect of representation and choice set comparability on decision satisfaction (β = 1.71, t(223) = 3.04, p < .01). A second regression showed that representation x choice set also significantly affected choice difficulty (β = -1.93, t(223) = -3.25, p < .001). Furthermore, a regression revealed that choice difficulty significantly affected decision satisfaction (β = -0.63, t(223) = -13.15, p < .001). Finally, when we regressed decision satisfaction on both the representation x choice set interaction and choice difficulty, the effect of representation x choice set interaction became nonsignificant (β = .53, t(222) = 1.2, p = .23), whereas the effect of choice difficulty remained significant (β = -.61, t(222) = -12.61, p < .001). A Sobel (1982) test revealed that the decrease in the effect of the representation x choice set interaction was significant (z = 3.15, p < .01), indicating...
that choice difficulty explains the interactive effect of representation and choice set comparability on decision satisfaction. Moreover, we established that this mediation was indeed significant, because the bias-corrected CI of the bootstrapping mediation test (Preacher and Hayes 2008) did not include zero (95% CI = .365, 1.755; 5,000 resamples).

The two studies thus far have illustrated support for our proposed effect both with various choice sets and with two different manipulations of the representation level. The data also suggest that different mental representations can affect decision satisfaction by influencing choice difficulty. Whereas Studies 1 and 2 focused on the difficulty of choices that participants made for their own personal consumption, Study 3 examines how choices made for others can naturally shift mental representation and influence choice difficulty.

**STUDY 3: THE EFFECT OF CHOOSING FOR OTHERS ON CHOICE DIFFICULTY**

Study 3 compares and contrasts choice difficulty in the context of choosing for oneself versus choosing for someone else. Baskin et al. (2012) find that when a person chooses a gift for someone, he or she conceptualizes it abstractly and focuses on desirability. Similarly, Trope and Liberman (2003) suggest that people may apply a high-level representation to others and out-group people, whereas they may apply a low-level representation to themselves and in-group people. From the notion that the mental representation of the self is more concrete compared with mental representations of other people, we expect that participants’ choosing for themselves will naturally encourage them to form a more concrete representation of the options. This concrete representation makes decision criteria based on low-level considerations more readily accessible, thus leading to more choice difficulty when choosing between noncomparable options than between comparable options. In contrast, choosing for another person, as in a gift-buying context, will naturally lead to a more abstract representation of the choice options and a reliance on decision criteria based on high-level considerations, thus leading to greater difficulty when choosing from comparable options than from noncomparable options.

**Method**

Two hundred twenty-one participants from a national online pool completed an online questionnaire. In a between-participants design, we manipulated level of representation (abstract vs. concrete) and the choice set composition (comparable vs. noncomparable). Choice difficulty served as the dependent variable. Participants were randomly assigned to either the abstract or the concrete representation conditions. Participants in the abstract representation condition were first asked to think of an acquaintance, picture that person in their minds, and write down his or her initials. This manipulation, adapted from Eyal, Liberman, and Trope (2004), has been shown to focus people on someone else and subsequently engage them in abstract processing. Then, participants were told that that acquaintance they had pictured had received a gift certificate worth $50 and could redeem it on one of two options. Next, all participants were randomly shown either two comparable or two noncomparable options from which to choose. The comparable choice set presented a choice between either two chess sets or two cheese sampler box sets, whereas the noncomparable choice set presented a choice between a chess set and a cheese sampler box set (for study stimuli, see Web Appendix C at www.marketingpower.com/jmr_webappendix). We chose the items on the basis of a separate pretest in which participants rated the items as similarly attractive. Again, we used a balanced design such that all possible chess set and cheese sampler box set pairings were featured in the noncomparable choice sets. Thus, the full balanced design comprised 12 conditions (six choice pairings x two representation levels).

All participants then rated the difficulty of choosing between the two offerings on a nine-point scale (1 = “not at all difficult,” and 9 = “very difficult”) and indicated their choice (either for themselves or for someone else). Last, participants were thanked and questioned for any suspicion about the purpose of the study. No one correctly guessed the hypothesis.

**Results and Discussion**

All possible noncomparable choice set combinations yielded a similar pattern of results (i.e., there was no differential effect of specific pairings on choice difficulty, p > .45) and were collapsed into a single set of noncomparable options. Similarly, the different comparable choice sets did not differ from each other (p > .66), so we collapsed them into a single set of comparable options. This resulted in a 2 (choice recipient: self vs. other) x 2 (choice set: comparable vs. noncomparable) design.

Next, we conducted a recipient x choice set ANOVA on choice difficulty. The results revealed a main effect of choice recipient such that participants rated the act of choosing an option for an acquaintance as being more difficult than choosing for themselves (F(1, 220) = 5.42, p < .05). Notably, a significant recipient x choice set interaction emerged on choice difficulty (F(1, 220) = 34.95, p < .001; see Figure 5). When choosing for an acquaintance, participants viewed the comparable choice as being more difficult than the noncomparable choice (Mcomparable = 4.00, SDcomparable = 1.71) as compared with the noncomparable choice (Mnoncomparable = 2.34, SDnoncomparable = 1.88; t(97) = -4.45, p < .001), whereas when choosing for themselves, they considered the noncomparable choice more difficult than the comparable choice (Mnoncomparable = 3.21, SDnoncomparable = 1.93 vs. Mcomparable = 2.02, SDcomparable = 1.18; t(120) = 3.84, p < .001). There was no main effect of choice set on reported difficulty.

The results of Study 3 support the idea that choosing for oneself compared with choosing for someone else naturally leads to different mental representations of the same choice options, which then systematically influence the accessibility of different decision criteria and affect choice difficulty. Specifically, we find that it is more difficult to choose between noncomparable options when choosing for oneself, but the reverse is true when choosing for someone else.

The next study provides support for the underlying process by directly testing the idea that mental representation affects the difficulty in comparable and noncomparable choices by influencing the decision criterion used to make
the choice—that is, whether the criterion is based on low- or high-level differences. If an abstract representation indeed facilitates use of a decision criterion that is based on higher-level considerations, such as abstract values or goals (Eyal et al. 2009), providing participants in an abstract representation condition with an explicit criterion that focuses them on high-level differences should have no further effect on choice difficulty: the comparable choice should remain more difficult than the noncomparable choice because effort will be required to switch from the high-level decision criterion to concrete, low-level differences. In contrast, externally providing participants with a decision criterion that focuses on low-level differences should reverse the difficulty levels: the noncomparable choice should now become more difficult than a comparable choice because effort will now be required to shift the focus from the decision criterion based on low-level differences to abstract, high-level considerations.

Similarly, if a concrete representation naturally focuses people on low-level differences, providing participants in a concrete representation condition with an explicit criterion based on low-level considerations should not affect the choice difficulty level: a noncomparable choice should remain more difficult than a comparable choice due to the effort required to shift the focus from a low-level decision criterion to abstract, high-level considerations. In contrast, explicitly providing a criterion based on high-level considerations should reverse the difficulty level choices: a comparable choice should become more difficult than a noncomparable choice because effort will be needed to shift to concrete, low-level considerations.

STUDY 4: MODERATING THE EFFECT OF REPRESENTATION ON CHOICE DIFFICULTY

Study 4 examines the proposition that a concrete representation facilitates the use of decision criteria that focus on low-level considerations (low-level criteria), whereas an abstract representation facilitates the use of decision criteria that focus on high-level considerations (high-level criteria). We tested this by explicitly providing respondents with and instructing them to focus on a high-level criterion, a low-level criterion, or no criterion and then comparing the difficulty experienced in a comparable and a noncomparable choice. To the extent that people are more likely to use a decision criterion provided in the stimuli rather than construct one or retrieve one from their memory (Bettman and Sujan 1987; Dhar and Simonson 1992), an externally provided criterion should moderate the effect of representation level on the difficulty of comparable and noncomparable choices. In other words, the effect of an abstract (concrete) representation on difficulty experienced in the two choice sets should remain unchanged when an explicit high-level (low-level) criterion is given, but it should not be present when an explicit low-level (high-level) criterion is provided.

Method

Two hundred one participants from a national online pool participated in a two-part study to be entered into a lottery to win a gift certificate. The study had a 2 (representation: abstract vs. concrete) x 2 (choice set: comparable vs. noncomparable) x 3 (explicit criterion: high-level vs. low-level vs. none) between-participants design with choice difficulty as the dependent variable. First, participants completed a choice representation manipulation, which randomly assigned them to either an abstract or a concrete representation. In this study, we used yet another manipulation of representation level. Participants in the abstract representation condition were asked to list five reasons “why one would greet someone,” whereas those in the concrete representation condition were asked to list five ways “how one would greet someone.” We adapted this manipulation from Freitas, Gollwitzer, and Trope (2004), who demonstrate that thinking about “why” an event occurs leads people to form a more abstract representation of the event than when thinking about “how” an event occurs. Next, participants completed a choice questionnaire. They were randomly shown either two comparable or two noncomparable options from which to choose. The comparable choice set presented a choice between two high-definition (HD) television sets and the noncomparable set presented a choice between a laptop and an HD television set (for study stimuli, see Web Appendix D at www.marketingpower.com/jmr_webappendix). We chose these items on the basis of two separate pretests in which participants rated the two items as being similar in attractiveness and enjoyment. Next, participants rated choice difficulty on a nine-point scale (1 = “not at all difficult,” and 9 = “very difficult”) and indicated which option they would choose. After making their selection, participants indicated their decision satisfaction on a nine-point scale (1 = “not at all,” and 9 = “very”). Before indicating their choice and their level of difficulty in making that choice, a third of the participants were instructed to think about the overall enjoyment they would derive from each option and to base their choice on that criterion (high-level criterion). Another third of the participants were instructed to base their choice on specific features of each option (low-level criterion). The last third of the participants were not given any special instruction (no explicit decision criterion). In summary, participants were assigned to either an abstract
Comparing Apples to Apples or Apples to Oranges

or a concrete representation and were then provided with an explicit high-level criterion, a low-level criterion, or no criterion before making a choice between comparable or non-comparable options.

Results and Discussion

Consistent with our prediction, there was a significant three-way representation x choice set x explicit criterion interaction on choice difficulty (F(2, 201) = 6.32, p = .002; see Figure 6). Planned contrasts showed that when participants in the abstract representation were not provided with a decision criterion, they rated the comparable choice as more difficult than the noncomparable choice (M_{noncomparable} = 4.31, SD_{noncomparable} = 2.02 vs. M_{comparable} = 6.13, SD_{comparable} = 2.23; t(29) = 2.38, p = .024). As predicted, when participants in the abstract representation were provided with a high-level decision criterion, the comparable choice remained more difficult than the noncomparable choice (M_{noncomparable} = 5.61, SD_{noncomparable} = 3.47 vs. M_{comparable} = 3.35, SD_{comparable} = 1.27; t(32) = 3.94, p < .001). In contrast, when participants in the abstract representation were given a low-level decision criterion, they rated the noncomparable choice as more difficult than the comparable choice (M_{noncomparable} = 5.54, SD_{noncomparable} = 1.54 vs. M_{comparable} = 3.88, SD_{comparable} = 1.45; t(32) = 3.37, p = .002).

A second set of planned contrasts focused on participants in the concrete representation. When no decision criterion was given, participants rated the noncomparable choice as more difficult than the comparable choice (M_{noncomparable} = 5.61, SD_{noncomparable} = 2.30 vs. M_{comparable} = 3.13, SD_{comparable} = 1.50; t(32) = 3.675, p = .001). However, when a low-level decision criterion was given, the noncomparable choice remained more difficult than the comparable choice (M_{noncomparable} = 5.84, SD_{noncomparable} = 2.94 vs. M_{comparable} = 2.94, SD_{comparable} = 1.89; t(31) = 4.65, p < .001). Conversely, when a high-level decision criterion was provided, participants rated the comparable choice as more difficult than the noncomparable choice (M_{noncomparable} = 3.61, SD_{noncomparable} = 1.42 vs. M_{comparable} = 5.24, SD_{comparable} = 1.56; t(33) = 3.22, p = .003). There was no main effect of representation or choice set on choice difficulty. Furthermore, there was no main effect of explicit decision criterion on the choice share of the options. Specifically, we find that the type of criterion provided had no effect on the choice shares of the noncomparable options (percentage of participants choosing the television over the laptop: high-level criterion = 49%, low-level criterion = 59%, no criterion = 41%; n.s.). We aimed to control for option enjoyment through a pretest (in which participants perceived the laptop and the HD television set as providing the same amount of enjoyment; M_{laptop} = 7.09, SD_{laptop} = 2.07 vs. M_{HDTV} = 7.00, SD_{HDTV} = 1.18; n.s.; nine-point scale); therefore, the choice results further rule out any potential confound between the explicit criterion used for choice (enjoyment) and the choice options. That is, the results cannot be attributed to the enjoyment criterion favoring a particular option (e.g., the HD television set).

Consistent with the notion that decision difficulty can influence choice satisfaction, an ANOVA yielded a significant three-way representation x choice set x explicit criterion interaction on decision satisfaction (F(2, 200) = 3.31, p < .05). Planned contrasts showed that when participants in the abstract representation were not provided with a decision criterion, the comparable choice resulted in lower decision satisfaction than did the noncomparable choice (M_{noncomparable} = 6.31, SD_{noncomparable} = 1.08 vs. M_{comparable} = 4.6, SD_{comparable} = 1.4; t(29) = 3.82, p = .001). As we predicted, when participants in the abstract representation were provided with a high-level decision criterion, the comparable choice remained to result in lower decision satisfaction than did the noncomparable choice (M_{noncomparable} = 6.88, SD_{noncomparable} = 1.32 vs. M_{comparable} = 4.41, SD_{comparable} = 1.33; t(32) = 5.45, p < .001). In contrast, when participants in the abstract representation were given a low-level decision criterion, the noncomparable choice resulted in lower decision satisfaction than did the comparable choice (M_{noncomparable} = 4.28, SD_{noncomparable} = .96 vs. M_{comparable} = 6.0, SD_{comparable} = 1.16; t(32) = 4.75, p < .001).
A second set of planned contrasts focused on participants in the concrete representation. When no decision criterion was given, the noncomparable choice resulted in lower decision satisfaction than did the comparable choice (M_{noncomparable} = 4.94, SD_{noncomparable} = 1.35 vs. M_{comparable} = 6.13, SD_{comparable} = 1.20; t(32) = 2.68, p = .01). However, when a low-level decision criterion was given, the noncomparable choice continued to result in lower decision satisfaction than the comparable choice (M_{noncomparable} = 3.50, SD_{noncomparable} = 1.86 vs. M_{comparable} = 6.71, SD_{comparable} = 1.36; t(31) = 5.68, p < .001). In contrast, when a high-level decision criterion was provided, the comparable choice resulted in lower decision satisfaction than did the noncomparable choice (M_{noncomparable} = 6.44, SD_{noncomparable} = 1.29 vs. M_{comparable} = 4.59, SD_{comparable} = .94; t(33) = 4.83, p < .001).

By manipulating the explicit decision criteria, this study demonstrated that an abstract representation leads to a focus on high-level considerations, which provide a useful criterion for selecting from noncomparable options; this is not true for comparable options because effort is needed to switch to concrete, low-level considerations. In contrast, a concrete representation leads to a focus on low-level, attribute-based considerations that provide useful criteria for choosing from comparable options but not for noncomparable options, which do not possess shared attributes and require additional effort to switch the focus to abstract, high-level differences. More specifically, on the one hand, providing participants in an abstract representation with explicit instructions to focus on a high-level criterion had no significant effect on decision difficulty, which suggests that they were already making a decision based on high-level considerations. A low-level criterion, however, did significantly influence difficulty. On the other hand, providing participants in a concrete representation with explicit instructions to focus on low-level criteria had no significant effect, which suggests that they were already making a decision based on low-level considerations. A high-level criterion, however, had a significant effect on difficulty.

**GENERAL DISCUSSION**

Consumers are often faced with the task of choosing one option and forgoing others. Previous research has typically viewed the level of difficulty experienced in making such decisions as a fixed property of a particular choice set. The current research, however, suggests that different mental representations of the same decision can moderate the choice difficulty. We illustrate our proposition by juxtaposing comparable and noncomparable choices. Contrary to the general view that noncomparable choices are always more difficult than comparable choices, we demonstrate that noncomparable choices are more difficult than comparable choices when represented concretely, but the same comparable choices become more difficult than noncomparable choices when represented abstractly. Furthermore, we show that different mental representations can affect decision satisfaction when people choose from comparable and noncomparable options by influencing choice difficulty (Studies 1 and 2). We also reveal that contextual cues of estimated delivery time (Study 2) and choice recipient (Study 3) naturally elicit shifts in representation level and thereby moderate choice difficulty. Finally, we provide support for the idea that different levels of representation can either promote or impede comparable and noncomparable choices by enhancing focus on and the accessibility of different decision criteria (Study 4).

It is important to note that although choices between comparable options can potentially be represented both abstractly and concretely, noncomparable options by definition are often impossible to compare and decide on at a concrete level. Therefore, if the only way to choose between noncomparable options is to compare them abstractly and focus on high-level differences (Johnson 1984), it is reasonable to question why our manipulation of representation has a differential effect. Our results are based on the idea that although consumers (in a concrete representation) might overcome their default tendency to focus on the alternatives' low-level attributes and eventually use a criterion based on high-level considerations, the choice process can become more difficult due to the effort required to shift from a concrete representation to an abstract one to generate a decision criterion that is not readily accessible in the current representation. This notion is consistent with recent research demonstrating that shifting from one mindset to another (e.g., shifting from a concrete to an abstract representation level) is effortful and depleting (Hamilton et al. 2011). In line with this research, we demonstrate that forming an abstract representation of the choice decreases the difficulty associated with a noncomparable choice by eliminating the need to switch the focus to high-level considerations but increases the difficulty of a comparable choice by requiring a shift in the focus.

Some may question why we did not observe a main effect of choice comparability in our studies even though previous research has reported noncomparable choices to be more difficult than comparable ones (Bettman and Sujan 1987; Johnson 1984; Zhang and Markman 2001). The most likely reason for our finding is that a consumer's default mindset is often more concrete than abstract (Khan, Zhu, and Kalra 2011). This probably has led to the general belief in prior literature that noncomparable choices are always more difficult than comparable ones. However, we show that choice difficulty depends on representation level, which elicits the use of different decision criteria based on certain types of considerations. In addition, given that the representation level can shift naturally with everyday cues, such as shipping time and recipient of the chosen option (self vs. others), our findings update the conventional view that choice difficulty between comparable and noncomparable choice sets is fixed to a more nuanced view that accounts for the role of mental representation.

We note, however, a few boundaries for our effects. Our finding that a concrete representation can lead to lower choice difficulty for comparable alternatives is based on the assumption that consumers are able and willing to arrive at a clear preference ordering using low-level, feature-based decision criteria. If consumers' preferences are uncertain, however, either because of the attribute trade-offs involved or because of the newness of the attributes, it is possible that a concrete representation would not simplify the decision because the best choice is difficult to determine regardless of representation. Similarly, if the choice is between two new products for which consumers are unable to evaluate the concrete attributes (Dahl and Hoeffler 2004), they may...
be unable to use a suitable attribute-based, low-level criterion effectively to compare the options and therefore may rely on other heuristics.

Similarly, an important boundary for the finding that an abstract representation can lead to lower choice difficulty for noncomparable alternatives is based on the assumption that the higher-level decision criterion can be readily applied to the choice. In some cases, however, the application of a particular decision criterion may be hindered if the person does not have a readily stored evaluation based on that criterion but rather must construct it from a detailed evaluation of the attributes. Further research could examine how the effects shown here would vary with the attribute structure of a choice set and thus influence the decision criterion that becomes readily available.

Another worthwhile research avenue is to investigate the impact of an increased number of choice alternatives on our effects. Goodman and Malkoc (2012) suggest that consumers may find that low-level, feature-based comparisons require greater effort as the number of comparable alternatives increases. In such situations, shifting to high-level, holistic comparisons, which may blur some of the distinctions between the options, may reduce the difficulty arising from choice overload. Thus, as the number of choice alternatives increases, both comparable and noncomparable choices become less difficult in an abstract representation.

Although this article focused on choice difficulty and its downstream effect on decision satisfaction, choice difficulty also has other important implications. For example, it also affects whether consumers even make a purchase. Unlike our current studies, which employed forced-choice contexts, there are many instances in which consumers have the option of not choosing any of the options provided. An increase in choice difficulty can lead to indecision and preference for a no-choice option as a means to reduce the psychological discomfort experienced from the demanding decision (Dhar and Simonson 2003). For example, research has shown that when faced with several equally attractive alternatives, people tend to avoid commitment by not choosing at all (Dhar 1997b; Tversky and Shafir 1992).

That is, as choice difficulty increases, so does the preference for a no-choice option (Dhar 1997a; Dhar and Simonson 2003). Thus, our findings would imply that a noncomparable choice (vs. a comparable choice) would result in greater choice deferral when people adopt a concrete representation, whereas a comparable choice (vs. a noncomparable choice) would result in greater choice deferral in an abstract representation. We tested this idea in a study in which participants could choose between two options (either comparable or noncomparable) or opt for a cash prize. The cash prize served as an operationalization of avoiding choosing between the two options (Dhar and Nowlis 2004). As expected, we found a significant representation × choice set interaction on the share of the no-choice option (Wald = 6.5; \( \beta = -2.6, p = .01 \)). In the abstract representation, the proportion of participants who opted to keep the cash (i.e., the no-choice option) was higher for the comparable choice options than for the noncomparable choice options (50% vs. 20%; \( \chi^2(1) = 3.96, p < .05 \)), but in the concrete representation, a higher proportion of participants opted for the cash prize in the noncomparable options choice than in the comparable options choice (47% vs. 21%; \( \chi^2(1) = 2.9, p = .08 \)). Thus, the mental representation of a choice also influences other downstream consequences of decision difficulty, such as choice deferral, and has significant relevance for marketers.

Another important implication of our findings relates to the comparability of the options. The current research considers comparability in terms of whether the provided choice options were within or across product categories. However, comparability can also be examined within categories, such as by varying the comparability or uniqueness of feature-level attributes. Consider, for example, making a choice between two vacation packages to the Caribbean: Jamaica versus Aruba. Depending on whether the client plans to travel in the distant or near future, a travel agent could highlight either the differences in overall "hedonic value" (e.g., rating out of 100) or the unique feature-level attributes of each destination (e.g., nightlife in Jamaica; scuba diving in Aruba) to encourage choice, reduce deferral, and increase satisfaction with the decision. Malkoc, Zauber, and Ulu (2005) lend support to the idea that comparability can vary within product categories by demonstrating that when choosing between bags of pop-corn, the use of alignable and nonalignable attributes is affected by manipulations of representation levels. Thus, our framework may also be applied to understand difficulty in within-product category options that are described along nonalignable attributes.

Last, although we focused on manipulating representation levels and examining their impact on choice difficulty between comparable and noncomparable options, making a noncomparable choice may affect people's cognitive orientation such that they are more likely to form an abstract representation of a subsequent task. Another promising direction for further research would be to examine the implications for sequential choices whereby selecting between noncomparable options can make subsequent noncomparable choices less difficult because a shift in focus is not required, whereas making subsequent comparable choices requires a shift in focus, thereby making the decision more difficult. However, an initial choice between comparable options may lead to a concrete representation of future tasks and demonstrate the opposite pattern of results in subsequent noncomparable and comparable choices.

REFERENCES


