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The supremacy of singular subjectivity: Improving decision quality by removing objective specifications and direct comparisons

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Abstract

When making purchase decisions, consumers want objective product specifications and seek direct product comparison. The present research demonstrates that consumers can make better decisions (i.e., choose what yields a better consumption experience) if objective specifications are removed and direct comparison is inhibited than if not, and this is true even if consumers cannot experience the target products themselves at the time of choice (such as in online shopping). The reason is that consumption is largely subjective and non-comparative, and decisions based on subjective and non-comparative information are often more compatible with consumption. In general discussion, we explore the boundary conditions of our findings and the implications of this research for a new way of marketing that emphasizes subjectivity over objectivity and non-comparison over comparison.

Keywords: Product specifications; Surrogate; Consumption experience; Attribute evaluability; Online marketing; Web design

Imagine this: You will soon move to Chicago. You are looking to buy a home there and have narrowed your choices to two equally expensive lofts, M and N. The two units are adjacent to each other and are similar, except that M comes with indoor parking while N is larger. You know that indoor parking makes life easier but not how much larger N is relative to M, so you want to find out more information about their sizes. You make a trip to Chicago and contact your realtor. Consider three alternative scenarios (conditions) of what the realtor can do for you:

Condition A: She will give you the square footage information of the units, and will show you the two units at the same time so you can directly compare their sizes.

Condition B: Same as A except that she does not have the square footage information.

Condition C: Same as B except that she will show you one unit on one day and the other on another day so you cannot directly compare their sizes.

Which condition do you prefer? Probably you would prefer A the most and C the least. After all, having objective specifications (square footage) information is better than having only subjective experience and being able to directly compare is better than not being able to.

We will show in this research, however, that the least preferred condition can be a better decision environment than the most preferred condition: you are more likely in Condition C than in Condition A to choose the apartment that will make you happier afterwards. Later in the paper, we will further show that even if you cannot make a trip to Chicago and ask a friend there to see the lofts for you and then tell you his impressions, it may still be better if the square footage information is absent and the friend's impressions are formed without direct comparison.

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A few clarifications: First, we assume that consumers want to choose the option that brings them the best overall consumption experience, namely, the greatest satisfaction and happiness during consumption. Nevertheless, we do not claim that this is their only objective for all product circumstances or failure to do so is necessarily irrational; consumers sometimes prefer an unpleasant consumption experience in order to have a special memory or tell others about the experience (e.g., Keinan & Kivetz, 2011). In this research we have tried to focus on products from which it is unlikely that consumers would seek negative experience. Second, the primary aim of this research is to prove the *existence* of situations in which objective specifications and direct comparison can hinder consumers from choosing what brings the best experience. We do not claim that our findings apply universally, and in one of the studies as well as in the general discussion section we will explore the boundary conditions of our findings. Finally, some of the hypotheses we propose in this research were already conjectured in earlier writings (e.g., Gilbert, Killingsworth, Eyre, & Wilson, 2009; Hsee, Hastie & Chen, 2008; Hsee & Zhang, 2004), but none of the hypotheses has been directly tested. In general discussion we will elaborate on how the present research differs from and contributes to the existing literature.

Choice versus consumption

Typically, consumers choose (buy) an item in one environment and experience (consume) the chosen item in another environment. One buys a mattress while in a bedding store and uses it while in one's bedroom. The crux of our thesis is that in order to choose the option that yields the best experience, the environment in the choice phase should be congruent with the environment in the consumption phase.

In reality, the two environments often differ. This research examines two major naturally-occurring differences between choice and consumption experience: (a) objective specifications during choice versus subjective feelings during consumption, and (b) joint evaluation during choice versus single evaluation during consumption. Of course, choice and consumption may entail other differences, such as different arousal states (e.g., Loewenstein, 1996; Loewenstein & Lerner, 2003). In this research we keep these variables constant.

Objective specifications versus subjective feelings

In choice (purchase), consumers are usually inundated with objective specifications — numbers that describe underlying characteristics of the product, such as number of airbags in a massage chair (e.g., 38), square footage of a house (e.g., 1600), wattage of a stereo (e.g., 250) and pixel count of a digital photo frame (600×400). Yet when using these products, consumers do not consume these numbers — 38, 1600, 250 or 600×400; what they consume are the underlying experiences — how comfortable the massage chair is, how spacious the house feels, how powerful the stereo sounds, and how sharp the picture looks.

Specifications will be useful if in the choice phase consumers cannot experience the choice items themselves and the specifications can help them predict their future experience. Yet these conditions do not always hold. In the choice phase, consumers can often experience the choice items themselves; even if they cannot, they can usually learn the opinions of other consumers who have experienced the items. For example, when shopping for a television set, potential buyers can view the alternative models themselves if they shop in a conventional store, or read the ratings of other users if they shop online.

Moreover, objective specifications do not always reflect subjective experiences (e.g., Hsee, Yang, Gu, & Chen, 2009; Hsee, Yang, Li, & Shen, 2009; McCabe & Nowlis, 2003). For example, the felt spaciousness of an apartment depends not only on its square footage, but also on many other factors, such as floor plan, ceiling height, and lighting condition. Even if such other factors are held constant, experience and specifications do not always match. Often, the ratio difference in specifications is greater than the ratio difference in real experiences (Fechner, 1966; Hsee, Yang, Gu, & Chen, 2009; Hsee, Yang, Li, & Shen, 2009). For example, a 2000-square-foot apartment does not feel twice as spacious as a 1000-square-foot apartment, just as a 200-watt bulb does not feel twice as bright as a 100-watt bulb. Although there are also occasions in which specified differences are smaller than experienced differences (see Hsee, Yang, Gu, & Chen, 2009; Hsee, Yang, Li, & Shen, 2009 for details), these occasions are rare. In the present research, we focus on situations where the specified differences are greater than the experienced differences.

Despite the availability of subjective experiences during choice and the mismatch between specifications and experience, consumers believe in objectivity; when objective information is available, they cannot resist the temptation to use it (Hsee, Yu, Zhang, & Zhang, 2003). Consequently, such information carries more weight in consumer choice than does the underlying experience it purports to represent. To make one's choice more compatible with experience, it is better to remove the objective information. This is our first hypothesis:

H1. Consumers are more likely to choose what brings them the best experience during consumption if objective specifications information is absent than if it is present during choice.

Joint versus single evaluation

Another major naturally-occurring difference between choice and consumption is in evaluation mode: Choice is typically made in the joint-evaluation ("JE") mode whereas the chosen item is usually experienced in the single-evaluation ("SE") mode (Hsee & Zhang, 2004). In JE, two or more alternatives are juxtaposed and can be directly compared. In SE, only one item is presented and it is evaluated in isolation. When shopping for a home, one usually compares different options; when experiencing (living in) the eventually purchased home, the home-owner is in SE of that home. When shopping for a digital photo frame, one compares different models; when experiencing (using) the actual purchased frame, the consumer is in SE of that model alone. Of course, even during consumption, people occasionally compare. For example, home owners may compare their current homes with previous homes, neighbors' or friends' homes, or with homes they considered

buying but didn't. However, we consider JE–SE as a continuum. Relative to choice, consumption in most cases resides more toward the SE end on the continuum. Even though consumers may occasionally engage in JE during consumption, they do not do so as often or as actively as they do so during choice.

As extensive previous literature has demonstrated, JE and SE can yield predictably different evaluations (e.g., Chatterjee, Heath, & Min, 2009; Hsee, 1996; Hsee, Loewenstein, Blount, & Bazerman, 1999; Hsee & Zhang, 2004, 2010; Kogut & Ritov, 2005; List, 2002; Nowlis & Simonson, 1997; Schmeltzer, Caverni, & Warglien, 2004; Van Buiten & Keren, 2009; Willemsen & Keren, 2004; Yeung & Soman, 2005). For example, when two second-hand dictionaries are evaluated — one in perfect condition and containing 10,000 entries and the other having a torn cover and containing 20,000 entries, the perfect-condition/fewer-entry dictionary was favored in JE but the torn-cover/more-entry dictionary was favored in SE. More generally, if two items are evaluated, one superior on an independently-easy-to-evaluate attribute, such as whether or not a dictionary is in perfect condition, whether an apartment has indoor, and the other option superior on an independently-difficult-to-evaluate attribute, such as how many entries a dictionary contains or low many square feet an apartment has, the option superior on the easy-to-evaluate attribute will be favored in SE and the option superior on the difficult-to-evaluate attribute will be favored in JE.

Because JE and SE can yield different preferences and also because choice is usually JE and experience is usually SE, what people choose may not be what actually makes them happy. For example, at the time of choice (in JE), the difference in size between the lofts in the opening example may look salient, and thus choosers may opt for the larger loft without parking. However, at the time of consumption (in SE), the difference in size may not matter much, but the presence or absence of parking may make a big difference, and people who choose the smaller loft with parking may end up being happier.

Despite the mismatch between JE and SE, choosers prefer JE, believing that being able to compare is invariably better than not being able to compare. Moreover, while in JE, it is difficult for choosers to ignore the difference they see through the comparison (e.g., the size difference between the two lofts) and difficult to put themselves in the shoes of their future self who will use only one of the lofts (e.g., Conlin, O'Donoghue, & Vogelsang, 2007; Loewenstein, O'Donoghue, & Rabin, 2003; Wilson & Gilbert, 2005).

The preceding analysis suggests that it will be easier for consumers to choose what yields the best experience during consumption if they engage in SE during choice than if they engage in JE. Practically, however, it is impossible for choosers to engage in pure SE during choice. The closest to SE they can do during choice is to refrain from direct comparison. For example, instead of viewing two apartments side by side, they view one apartment on one occasion and the other on another occasion. Thus, we propose the following hypothesis:

H2. Consumers are more likely to choose what brings them the best experience during consumption if direct comparison is inhibited than if it is facilitated during choice.

We now report experiments that tested these hypotheses.

Study 1

Method

Stimuli

The stimuli used in the study were two digital photo frames, M and N. They were similar in all aspects (both 8 in., both having remote controls and music playing functionality, etc.), except for appearance and resolution (sharpness). We chose digital photo frames as our stimuli because they are both decoration items and photo display devices and so both their appearance and their screen resolution are important. Of the two models used in our study, model M was better looking: model M featured a metallic silver frame and a transparent glass trim while model N was made of a cheap-looking greenish plastic frame and lacked the glass trim. On the other hand, model N housed a sharper 800 × 600 pixel screen, while model M (the better-looking model) had only a 400 × 300 pixel screen. We placed an identical photo (of the Great Wall of China) in both frames. The photo was of a much higher resolution (3200 × 2400 pixels) than either of the two frames could display, so the sharpness of the image was limited by the resolution of the frames, not by the photo.

To ensure that model M indeed looked better and model N indeed looked sharper, we asked a group of pretest participants ($n=26$) to evaluate the two models in JE and rate their appearance and sharpness on scales ranging from 1 (very bad-looking/blurry) to 4 (very good-looking/sharp). As expected, M was rated as better looking than N ($Ms=2.44$ and 1.92; $t(49)=2.04$, $p<.05$) and N as sharper than M ($Ms=2.24$ and 2.88, $t(49)=2.98$, $p<.01$).

We assumed that appearance was independently easier to evaluate and sharpness was independently more difficult to evaluate. To confirm that, we recruited another group of participants ($n=52$) and asked them to evaluate the two models in SE. As expected, M was still rated as significantly better-looking than N ($Ms=2.54$ and 2.08; $t(50)=2.14$, $p<.05$), but N was no longer rated as sharper than M ($Ms=2.65$ and 2.73; $t(50)<1$, *ns.*).

Most importantly, we expected, given the characteristics of the stimuli, that the better-looking model (M) would generate better overall experience during SE consumption than the sharper model (N). To confirm that, we recruited yet another group of pretest participants ($n=94$), and ushered them to one of two rooms, one containing frame M and the other frame N. Each room contained a table, upon which the digital frame was placed, displaying the Great Wall picture. These rooms were designed for the participants to simulate their consumption experience. Participants were asked to imagine the room a part of their home in which they were using the frame. They then rated their overall feeling with the picture frame by placing a mark on a 100-millimeter line anchored by "very unhappy" at its left end and "very happy" at its right end. In our analysis the marks were converted to numbers such that a mark x millimeters from the left was coded as x. (We used the line method to assess overall feelings in the pretest, because we used the same method to assess overall feelings in the main experiment, as described below.) As expected, respondents exposed to model M (the better-

looking model) reported significantly better experience than respondents exposed to model N (the sharper model) (Ms=7.98 and 5.87, t (87)=2.32, p<.05).

Participants and procedure

Participants in the main study were 165 college students from a large public university; they participated in the study for course credit or a nominal payment. They were asked to assume that they were shopping for a digital photo frame and had narrowed their choices to two models and that the two models were identical except for their appearance and their screen resolution. The participants were then shown the two frames with their power off so that their appearance was visible but screen resolution was not.

Screen resolution was the attribute on which we manipulated specification and JE/SE. Appearance was merely a tradeoff attribute included to prevent a ceiling effect (that everyone chose the sharper model). Information about appearance was held constant in all the conditions: participants could always see the exteriors of the two frames and there were no labels for their appearance.

The study consisted of three between-participant conditions for resolution: JE-with-specs, JE-without-specs and SE-without-specs. They correspond to Conditions A, B and C in the home-purchase example.

In the JE-with-specs condition, the participants were presented with the two frames again, this time with their power on, each displaying the same Great Wall photo. The two frames were juxtaposed so the participants could directly compare their resolutions. In addition, the participants saw a label on each frame describing its pixel counts; it said "Screen resolution: 400×300 pixels" on model M and "Screen resolution: 800×600 pixels" on model N.

The JE-without-specs condition was identical to the JE-with-specs condition except that the pixel counts were removed. The SE-without-specs condition was identical to the JE-without-specs condition, except that participants were not shown the photos inside the two models simultaneously. Instead, they were asked to view the picture inside one of the models first, wait 10 min, and then view the picture inside the other frame. The order of the two frames was counterbalanced and had no effect on the results. During the 10-minute waiting period, the respondents did a filler task, an unrelated survey on investment.

In all the conditions participants were asked to assume that they would buy one of the two frames, the one they bought would be their only digital frame, and they would use it alone at their home. The last two statements were to remind the participants that consumption would occur in SE. The participants were then asked to make a choice between the two models.

We assumed that consumers would be happier with model M than with model N during consumption, and, as reported above, we verified this assumption in a pretest. Recall that the pretest was conducted under pure SE, in which the participant saw only one of the two models and did not make a choice themselves. In real life, however, consumption often takes place after the consumer saw multiple items during the choice phase and made a choice him or herself.

We expected that model M would still render better experience than model N during consumption even for consumers who saw both models during choice and made a choice themselves, because during consumption consumers encountered only one model (their chosen model) and they would not as actively compare it with the other model as they must have done during choice.

To verify this, we asked the participants in the main study to wait 15 min after they had made their choice, and then ushered those who had chosen M to a room containing model M, and those who had chosen model N to another room containing model N. These rooms were the same as used in the pretest. Both frames were powered on, and displayed the same Great Wall picture as during the choice phase. Participants were reminded that the frame they saw was the one they had chosen. They then rated their overall feeling with the frame using the same scale as in the pretest.

Results and discussion

Lay preference

Before reporting the main results, let us examine which of the three conditions lay consumers prefer. We recruited another group of participants (n=18) from the same population as the participants in the main study, described the procedures of the three conditions to them, and asked them which condition they most preferred to be in if they were shopping for a digital frame. The vast majority (94.1%) preferred the JE-with-specs condition, a tiny minority (5.9%) (only one participant) preferred the JE-without-specs condition and nobody preferred the SE without-specs condition. These results reflected strong lay preferences for objectivity and direct comparison.

Now we report the main results — choice and post-choice consumption experience.

Choice

Fig. 1A summarizes the percentage of participants in each condition choosing the model that generated better overall experience (M). To test H1 concerning the effect of objective specifications, we compared the choice results between the JE-

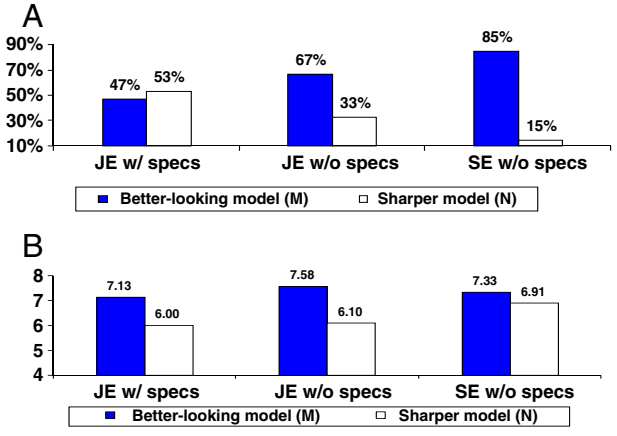

Fig. 1. A. Study 1 choice results. B. Study 1 post-choice experience results.

with-specs condition and the JE-without-specs condition; confirming H1, we found more participants choosing model M in the JE-without-specs condition ($\chi^2(1, N=111)=4.21$, $p<.05$). In other words, more participants chose the overall more satisfying frame (M) when resolution information was removed than when it was presented.

To test H2 concerning the effect of JE/SE, we compared the choice results between the JE-without-specs and the SE-without-specs condition; confirming H2, we found more participants choosing model M in the SE-without-specs condition ($\chi^2(1, N=108)=5.07$, $p<.05$). In other words, more participants chose the more satisfying frame when they had to wait a while between the examinations of the two models than when they could compare the two models side by side.

Post-choice consumption experience

The results are summarized in Fig. 1B. Consistent with the pretest results, those who chose the better-looking model (M) were significantly happier than those who chose the sharper model (N) ($t(163)=4.33$, $p<.001$). This pattern occurred in all of the three conditions (though the effect was non-significant in the SE-without-specs condition, probably because the number of participants choosing model N in this condition was small or because the few participants who chose N in this condition particularly cared about resolution or liked the appearance of (N) ($t(55)=2.31$, $p<.05$; $t(52)=3.10$, $p<.01$ and $t(52)<1$, *ns.*, respectively, for the three conditions).The results of those who chose the sharper model (N) were particularly noteworthy: They must have realized during the choice phase that the model they chose was superior on display quality, yet they still reported less overall happiness afterwards.

A comparison of the choice and the post-choice experience results revealed the highest choice-experience inconsistency in the JE-with-specs condition and the lowest choice-experience inconsistency in the SE-without-specs condition. Specifically, in all the conditions, those who chose model M were happier, yet the percentage of people choosing model M was the lowest in the JE-with-specs condition and the highest in the SE-without-specs condition.

We wish to address several potential questions here. First, the reader may ask why we did not include an SE-with-specs condition in our study so as to form a complete 2 (with versus without specs) × 2 (JE versus SE) factorial design. There were two reasons, one practical and one theoretical. Practically, it was impossible to create a real SE-with-specs condition in our experimental setting. Unlike the visual experience of sharpness, the semantic knowledge of resolution was easy to remember and could still be compared if the numbers were presented a few minutes apart. Theoretically, we were not interested in (and were agnostic about) whether there would be an interaction between specifications and JE/SE, and so we did not find a 2 × 2 design necessary.

The reader may also ask why we did not let participants actually own the frame they had chosen and measure their consumption experience at home. We did not do so because it would be too costly to give each participant a digital frame, which cost over $100. Moreover, the present study was a conservative test of our theory. Whereas consumption in reality often takes place long after choice, consumption in the present study took place immediately after choice, and the participants in consumption might still remember the additional information they had seen during choice. These memory effects could have prevented us from finding the predicted choice-experience inconsistency, but we still found the inconsistency.

Finally, the reader may ask why consumers do not learn from a lifetime of choice-making that objective specifications and direct comparisons are counterproductive and still prefer these features during choice. That, we surmise, is because consumers do not always have the right environment to learn. Since consumption often takes place in SE, those who have chosen a suboptimal option do not know how else they would feel during consumption had they chosen a different option.

In summary, Study 1 supports our predictions that people prefer objective information and prefer direct comparison, yet they are most likely to choose what makes them happy afterwards when objective information is removed and direct comparison is inhibited.

Study 2

Study 2 was a replication of Study 1 using different stimuli. Unlike Study 1, Study 2 allowed the participants to take home their chosen product (towel) and measured their real consumption experience.

Method

Stimuli

The stimuli for the study were two towels. They were similar in all aspects, including size (12 inches × 26 inches) and material (100% cotton), except for color and thickness. One towel (call it "M") was in bluish white and the other (call it "N") consisted of red and dark brown stripes; Towel M was pre-tested as better looking than Towel N (see below). On the other hand, towel M was only 4 mm in thickness whereas towel N was 11 mm in thickness. We assumed that thick towels were more desirable than thin towels and this assumption was confirmed in a pretest, in which 23 of 25 respondents preferred thick towels. ($\chi^2(1, N=25)=17.6$, $p<.001$, when compared with 50%).

To ensure that towel M indeed looked better and towel N indeed felt thicker, we asked a group of pretest participants ($n=24$) to evaluate the two towels in JE and rate their appearance and thickness on scales ranging from 1 (very bad-looking/thin) to 4 (very good-looking/thick). As expected, M was rated as better-looking than N ($Ms=2.46$ and 1.71; $t(46)=-2.98$, $p<.01$), and B as thicker than A ($Ms=1.88$ and 2.67, $t(46)=3.10$; $p<.01$).

We assumed that appearance was independently easier to evaluate and thickness was independently more difficult to evaluate. To confirm that, we recruited another group of participants ($n=50$) and asked them to evaluate the two towels in SE. As expected, M was still rated as significantly better-looking than N ($Ms=2.44$ and 2.00; $t(48)=2.29$, $p<.05$), but M was no longer rated as thicker ($Ms=2.36$ and 2.32; $t(48)<1$, *n.s.*).

Most importantly, we expected, given the characteristics of the stimuli, that the better-looking towel (M) would generate better overall experience during SE consumption than the thicker towel (N). To confirm that, we recruited yet another group of pretest participants ($n=50$), and randomly gave them either towel M or towel N. Participants were asked to try the towel as if it belonged to them, and then to rate their overall feeling with the towel on a 4-point scale from 1 (very unhappy) to 4 (very happy). As expected, respondents exposed to model M (the better-looking towel) reported significantly better experience than respondents exposed to model N (the thicker towel) ($Ms=2.43$ and 1.79, t (48)$=2.52$, $p<.05$).

Participants and procedure

Participants in the main study were 179 college students from a large public university; they participated in the study for a nominal payment. They were asked to assume that they were shopping for a towel and had narrowed their choices to two equally expensive options. They were then shown the colors of the two towels, and told that towel N (with colored stripes) was thicker.

Like resolution in Study 1, thickness was the attribute on which we manipulated specification and JE/SE, and appearance was merely a tradeoff attribute included to prevent a ceiling effect. Also like Study 1, this study consisted of three between-participant conditions: JE-with-specs, JE-without-specs and SE-without-specs. In the JE-with-specs condition, the participants were presented with the two towels side by side so that they could directly touch the towels and compare their thickness. In addition, each towel was accompanied by a label describing its thickness: "0.4 cm in thickness" on towel M and "1.1 cm in thickness" on towel N. The JE-without-specs condition was identical to the JE-with-specs condition except that there were no thickness labels. The SE-without-specs condition was identical to the JE-without-specs condition, except that participants were asked to touch and experience the thickness of one towel first, then wait 2 min, and then touch and experience the thickness of the other towel. The order of the two towels was counterbalanced and had no effect on the results. In all the conditions participants were asked to indicate which one they would buy, assuming that they would only buy one.

As in Study 1, we also measured participants' post-choice experience. We asked the participants to take home the towel they had chosen and use it at home (or in their dorm) as much as they could. A week later, we contacted then participants and asked them to fill out an online survey for a chance to win one of five cash prizes. The survey included multiple questions, most of which were designed for other purposes. Among the questions the participants were asked to think about the towel they had chosen the previous week and to indicate how they felt it now on a 9-point scale ranging from 1 (very unhappy) to 9 (very happy).

Results and discussion

Choice

Fig. 2A summarizes the percentage of participants in each condition choosing the towel that generated better overall experience (M). Supporting H1, more participants chose towel M in the JE-without-specs condition than in the JE-with-specs condition (84.1% and 65.9%, χ^2 (1, $N=88$)$=3.88$, $p<.05$), suggesting that removing the thickness specifications was beneficial. Confirming H2, even more participants chose towel M in the SE-without-specs condition than in the SE-without-specs condition, though the result was only marginally significant (65.9% and 46.5%, χ^2 (1, $N=87$)$=3.33$, p$=.068$), suggesting that preventing direct comparison was also helpful.

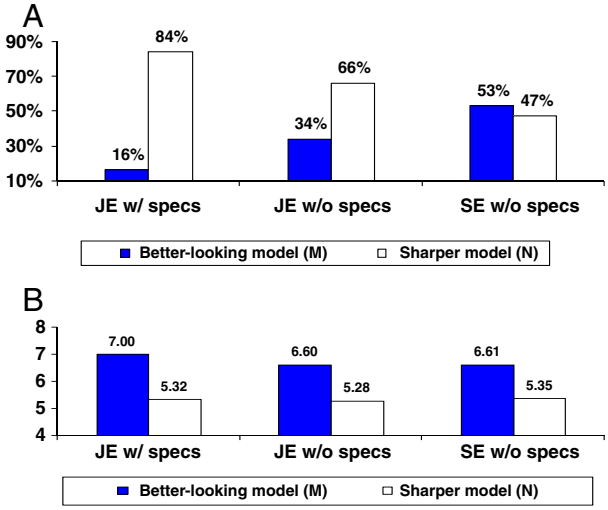

Fig. 2. A. Study 2 choice results. B. Study 2 post-choice experience results.

Post-choice consumption experience

Of the original participants, most (72.6%) responded to the post-choice experience question administered a week later and there was no significant difference in response rate between those who chose towel M and those who chose towel N (χ^2 (1, $N=179$)$=.419$, *n.s.*). The post-choice experience results are summarized in Fig. 2B. Consistent with the pretest results, owners of towel M (the better-looking one) were significantly happier than owners of towel N (the thicker towel one) ($Ms=6.67$ and 5.31, t (129)$=4.11$, $p<.001$), and this was true in each of the three conditions (t (42)$=3.17$ $p<.01$; t (42)$=2.06$, $p<.05$; t (41)$=2.27$, $p<.05$, respectively).

Study 2 replicated the results of Study 1. We realize, however, that the post-choice experience measurement in Study 2 was not as clean as that in Study 1, because we could not control where the participants used the towel, how often they used it, whether they compared it with other towels, and so on. Nevertheless, the consumption in Study 2 was real rather than simulated and was measured a week later rather than immediately after choice; hence it was more realistic. The fact that Study 2 yielded virtually the same results as Study 1 reinforced our belief in the hypotheses (H1 and H2) the two studies were designed to test.

Study 3

In Study 1 and Study 2, consumption always took place in a non-comparative (SE) environment. Yet consumption may

sometimes take place in JE; for example, a person, while using his BlackBerry, may look at his friend's iPhone. According to our thesis that choosers are more likely to choose what brings them the best consumption experience when in a consumption-congruent environment than in a consumption-incongruent environment, we expect that when consumption will take place in JE, then choosers are more likely to choose what brings them the best consumption experience when they are in JE than in SE. Study 3 was designed to test this proposition.

Method

Study 3 used the same two digital frames as in Study 1. Participants were 92 business students from a large public university; they participated in the study for a nominal payment. They were assigned to one of three conditions: JE-with-specs, JE-without-specs, and SE-without specs.

The procedure for these conditions was identical to the corresponding conditions in Study 1 with the following exceptions: In the choice phase participants were asked to assume that they were shopping for a digital frame to use in their office, and they would see other frames while they used their own. During the post-choice experience (consumption) phase, both frames were present and powered on, with the same Great Wall picture in them. The participants were asked to rate their overall feeling with the frame they had chosen.

Results and discussion

Choice

The results are summarized in Fig. 3A. Replicating the findings of Study 1, the choice share for model M (the better-looking model) was lower in the JE-with-specs condition than in the JE-without-specs condition (35% and 57%, χ^2 (1, N=61)= 2.75, p=0.097), and lower in the JE-without-specs condition than in the SE-without-specs condition (35% and 81%, χ^2 (1, N=61)= 4.01, p<0.05).

Post-choice consumption experience

Unlike what we found in Study 1, the post-choice consumption experience was now better for the higher-resolution model, N, than for the better-looking model, M (Ms=7.47 and 6.10, t (90)=4.13, p<.001), and this difference arose in all of the three conditions (t (29)=2.32, p<.05; t (28)=2.68, p<.05; t (29)=1.86, p=.073, respectively), respectively, for the three conditions (see Fig. 3B). These results supported our proposition that if consumption experience is comparative, choices made in a comparative environment are more likely to bring the best consumption experience than choices made in a non-comparative environment.

Note that in this study, the post-choice consumption phase took place in a JE-without-specs environment, namely, the experience was comparative but without the pixel counts. We did not include a condition in which the post-choice consumption phase took place in a JE-with-specs environment for two reasons. First, it is unrealistic that consumers have no specs information during choice but have specs information during consumption.

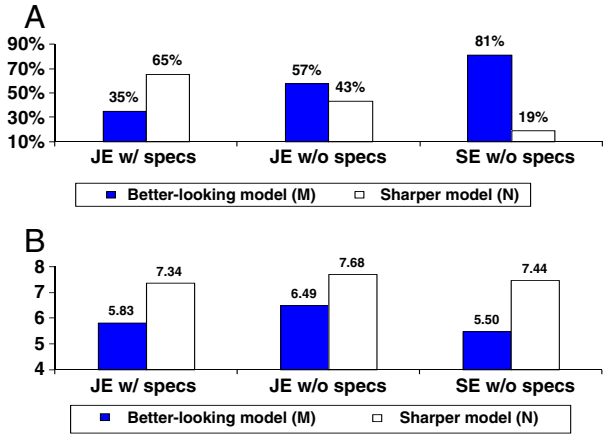

Fig. 3. A. Study 3 choice results B. Study 3 post-choice experience results.

Furthermore, a JE-with-specs consumption experience condition would not be informative. If we had run this condition, our theory would expect the consumption experience to be better for model N than for model M, but even in the current study, in which the post-choice consumption phase took place in a JE-without-specs environment, the consumption experience was already better for model N than for model M. The result could not have been different even had the objective specifications, which also favored N over M, been added.

When choosers cannot experience the products

So far, we have focused on situations in which consumers can directly experience the choice items in the choice phase. Sometimes consumers do not have the luxury of experiencing the items during choice. In the opening example, the protagonist who wants to buy an apartment in Chicago may not be able to make a trip to see the lofts. In online shopping, consumers can experience only some attributes, such as the appearance of a digital photo frame, but not other attributes, such as the display quality of the photo frame. In such situations consumers need to infer experience from the specifications or from the options of others, such as other consumers or professional reviewers.

Obviously, making a decision on the basis of others' opinions is far from perfect, as others may have different preferences and different tastes. Yet making a decision on the basis of objective specifications can be even worse. Objective specifications, as discussed earlier, do not always reflect the underlying experiences. Recent research by Gilbert et al. (2009) shows that for a woman to predict her feelings toward a man, it is more useful for the women to find out how much the man's ex-date liked him than to find out objective information about the man, such as his age, his height, and his hobbies.

Nevertheless, people often don't trust others' evaluations and believe in their own judgment of objective information, assuming that even if they cannot experience the choice alternatives themselves, they know how to interpret the objective numbers and use them to simulate their own experience. Thus, when they can, people will seek and use such objective information.

In this research, we go beyond what Gilbert et al. demonstrated, which was that others' subjective evaluations are better predictors of one's own experience than are objective specifications *alone*. What we propose is that others' subjective evaluations can be better predictors of one's own experience than are others' subjective evaluations *plus* objective specifications. In other words, holding everything else constant, adding objective specifications can hurt.

Moreover, our previous discussion on JE/SE suggests that others' subjective evaluations are not equally good predictors: those elicited in SE can be better than those elicited in JE.

The preceding analysis leads to H3 and H4. H3 and H4 parallel H1 and H2 except that they concern situations in which consumers cannot experience the choice items themselves.

H3. When consumers cannot experience the choice items themselves but know others' subjective opinions, they are more likely to choose what brings the best experience if objective specifications information is removed than if it is presented during choice.

H4. When consumers cannot experience the choice items themselves but know others' subjective opinions, they are more likely to choose what brings the best experience if the others' opinions are elicited when comparison is inhibited than when comparison is facilitated.

These hypotheses were tested in the following study.

Study 4

Method

Study 4 used the same two digital frames as in Study 1. Participants were 153 college students from a large public university; they participated in the study for course credit or a nominal payment. They were assigned to one of three conditions: other-JE-with-specs, other-JE-without-specs, and other-SE-without specs.

The procedure for these conditions was identical to the corresponding conditions in Study 1 except for the following: Instead of viewing the pictures inside the two frames during the choice phase, participants received mean ratings by others on the sharpness of the two frames. In the other-JE-with-specs and other-JE-without-specs conditions, the ratings were elicited from another group of participants ($n=28$) who were asked to view the pictures inside the two frames in JE (i.e., view the pictures side by side), and rate their sharpness on a 9-point scale, ranging from 1 (very blurry) to 9 (very sharp). In the other-SE-without-specs condition, the ratings were elicited from a group of participants ($n=31$) who were asked to view the pictures inside the two frames in SE (i.e., view the picture inside one frame first, wait 10 min, and view the picture inside the other frame, with counterbalanced order), and rate their sharpness on the same scales. As expected, the sharpness of the two frames was rated significantly more differently in JE than in SE (F (1, 110)=19.2, $P<.001$). Mean JE ratings were 7.0 for model M (the better-looking one) and 8.1 for model N (the sharper one). Mean SE ratings were 6.0 for model M (the better-looking one) and 6.5 for model N (the sharper one).

After the participants received the mean rating information, and in the case of the other-JE-with-specs condition, also received the pixel count information, they made their choice, and then went onto the experience phase, as in Study 1.

Results and discussion

Lay preference

As in Study 1, we recruited another group of participants ($n=16$), described the procedures of the three conditions to them and asked them for their preference. Most respondents (81.3%) preferred the other-JE-with-specs condition the most. Only a minority (18.7%) preferred the other-JE-without-specs condition and nobody preferred the other-SE-without-specs condition. Again, the results revealed a lay preference for objective information and direct comparison.

We now report the main results — choice and post-choice experience.

Choice

The results are summarized in Fig. 4A. Confirming H3 regarding the effect of specifications, the choice share for model M was higher in the other-JE-without-specs condition than in the other-JE-with-specs condition (χ^2 (1, $N=103$)=4.36, $p<.05$). Confirming H4 regarding the effect of JE/SE, the choice share for model M was higher in the other-SE-without-specs condition than in the other-JE-without-specs condition (χ^2 (1, $N=101$)=3.82, $p<.05$).

Post-choice consumption experience

As Fig. 4B illustrates, choosers of model M reported significantly better experience afterwards than choosers of model N (t (145)=4.93, $p<.001$), and this difference was observed in all of the three conditions (t (50)=2.76, $p<.01$; t (49)=2.21, $p<.05$ and t (48)=2.82, $p<.01$, respectively, for the three conditions).

In our opinion, the results of Study 4, especially the result about specifications, were more counterintuitive than the corresponding

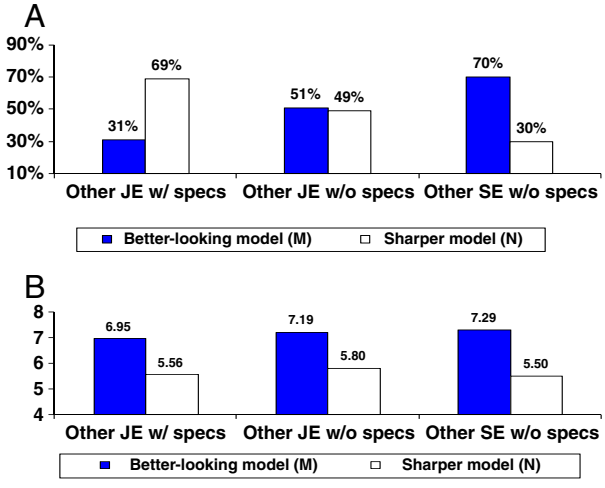

Fig. 4. A. Study 4 choice results. B. Study 4 post-choice experience results.

results of Study 1. In Study 1, the choosers could experience the target products themselves during choice, but in Study 4, they could not. Intuitively, objective specifications should be particularly useful when choosers cannot experience the target products themselves during choice. Yet Study 4 found that even in this situation, objective specifications were still unhelpful; in fact, they were even harmful. In this sense, Study 4 was not merely a replication of Study 1; it was a major extension.

Because Study 1 and Study 4 used the same stimuli and similar procedures, we can analyze them together. In particular, let us compare the two extreme conditions: the JE-with-specs condition in Study 1 and the other-SE-without-specs in Study 4. The former condition seems to dominate the latter, as it possesses three "advantages": (a) it allows the choosers to see the picture images themselves (own experience), (b) it enables choosers to directly compare the picture images (JE), and (c) it provides objective pixel count information (specs). However, a comparison of the results between the two conditions reveals the opposite: In the JE-with-specs condition, only 47% of the respondents chose model M, in the other-SE-without-specs condition, 70% chose M, and in both conditions, it was the choosers of M rather than the choosers of N who were happier. Thus, the latter condition was a better decision environment for making experience-consistent decisions. Why? That is because, of the three apparent "advantages" of the former condition, only the first "advantage"—own experience—was an unequivocal advantage. The other two "advantages"—JE and specs—were in fact disadvantages and these disadvantages were so powerful that they overrode the first advantage (own experience). The moral of these findings is clear yet counterintuitive: To make an experience-consistent decision between alternative products, it is better to just look at other people's non-comparative subjective evaluations than to learn the objective specifications of the products and personally compare the products oneself.

General discussion

Contrary to common wisdom and lay preferences, the present research shows that consumers are more likely to choose what brings the best consumption experience if they are only provided with subjective and non-comparative information—even if the information is from a surrogate—than if they are given objective specifications information and allowed to compare.

Boundary conditions

The current research mainly demonstrates the existence of these rather counterintuitive effects. Here, we explore several possible boundary conditions.

In situations where choosers can directly try the choice alternatives at the time of purchase, whether it is beneficial to use objective specifications information depends on whether the specification information or the direct experience is more predictive of future consumption experience. For example, for people who shop for an audio system in an audio store and can audition the available models, the wattage specification information (e.g., 250 W) won't be very useful, because the direct experience (especially if it is elicited in SE) will be quite predictive of future consumption experience. If anything, the wattage information may mislead, because most consumers do not know how to map the information to their listening experience and a 200-watt system does not sound twice as powerful as a 100-watt system. On the other hand, if the direct experience at the time of choice is not representative of future consumption experience yet the consumers know how to use the specification information, then the specification information will be valuable. For example, the battery life information of a laptop computer (e.g., 5 h) is quite valuable, because most buyers cannot fully experience the battery life at the time of purchase yet they know how to map battery life information to their usage experience.

What about direct comparison? Whether it is beneficial to engage in direct comparison at the time of purchase depends on whether consumption arises in a comparative or non-comparative setting. As Study 1 and Study 2 showed, direct comparison will hurt if consumption occurs in a non-comparative environment, yet as Study 3 demonstrated, direct comparison will help if consumption takes place in a comparative setting.

In situations where the choosers cannot directly try the products themselves yet have others' subjective ratings of the products, whether it is beneficial to use objective specification information depends on whether the specification information or the others' opinions are more predictive of future consumption experience, which in turn, depends on factors such as whether the specification information is aligned with the underlying experience and how the others' opinions are elicited. Another relevant factor here is how similar the others (those who provide the opinions) are to the choosers (those who receive the opinions). Objective specification information will be more useful if there are large individual differences than if there are not.

We believe that in many situations, direct experience or surrogate opinions are more predictive of one's future consumption experience than objective specifications, and consumption takes place in a non-comparative setting. In such situations, it is better to base one's choice on one's own non-comparative experience or others' non-comparative opinions.

Contributions

The present work builds on three existing lines of research: specification-seeking (Hsee, Yang, Gu, & Chen, 2009; Hsee, Yang, Li, & Shen, 2009), distinction bias (Hsee & Zhang, 2004), and the surrogate effect (Gilbert et al., 2009). Yet it stands out in several noteworthy ways.

First, the existing literature on the specification effect only showed that the presence of specifications changes choice and makes it less aligned with liking. The present research directly measured post-choice consumption experience and showed that people choosing the item with the best specifications were actually less happy afterwards.

Second, the existing literature on JE/SE only showed that choosers in JE may mispredict consumption and fail to choose what is consistent with consumption experience in SE. The present research manipulated evaluation mode during choice

and demonstrated that adding just a brief waiting period between the evaluations of two alternatives can have a profound ameliorating effect — leading more consumers to choose what brings the best consumption experience.

Third, while the existing research on surrogate effect (Gilbert et al., 2009) showed that to predict one's own experience, it is better to rely on others' subjective opinions alone than on objective specifications alone, the present research shows that to make an experience-consistent decision, it is better to rely on others' subjective opinions alone than on objective specifications *plus* others' subjective opinions. Moreover, it demonstrates that others' SE-elicited opinions are more useful than others' JE-elicited opinions.

Finally, the present research reveals a stark contrast between what lay consumers prefer and what actually maximizes consumption experience. Lay consumers prefer objective specification information and direct comparison. In reality, both objective specifications and direct comparison can hinder consumers from making experience-consistent decisions.

Besides its relationship to the literatures reviewed above, the current research also echoes existing studies showing that even meaningless and useless information can influence consumer choice (e.g., Bastardi & Shafir, 1998; 2000; Brown & Carpenter, 2000; Case, 2007; Hall, Ariss, & Todorov, 2007). In our research, both the pursuit of objective information and the pursuit of comparative information reflect consumers' need for information. However, these types of information are not meaningless or useless; instead, they are not congruent with the information consumers face during consumption, and therefore are misleading during choice if one's objective is to choose what optimizes consumption experience.[1]

Marketing implications

Consumers seek objective specifications and direct comparison. Marketers typically provide both. Virtually every product on the market is accompanied with a wealth of objective specifications, and alternative products are typically juxtaposed for easy comparison. According to our results, such practices are not invariably beneficial to consumers.

The present research suggests a need to emphasize subjectivity rather than objectivity, and non-comparison rather than comparison. In particular, we offer two sets of recommendations for marketers, one for in-store shopping and one for online shopping.

Recommendations for in-store shopping

Within this section, we offer two suggestions. First, marketers should de-emphasize specifications information for attributes that the consumers can experience and whose influence on experience consumers can predict at the time of purchase. For example, most television stores now print the screen size information prominently on the televisions displayed on the floor. We recommend that the stores remove the labels and instead print the information on a small label and stick it to the back of a television unit where the country-of-information (e.g., "Made in India") is printed. Doing so de-emphasizes the importance of the specifications in the eyes of the consumers; it also makes access to the information difficult, thus nudging consumers to *experience* the screen size first and form the first impression on the basis of the experience rather than on the label. Even if the consumers find out the size specification later, it will likely have a lesser effect on the final choice than if it is presented prominently in the front. By the same token, realtors should not volunteer square footage information to a prospective home buyer before the home buyer sees the potential homes; instead, tell him/her, "Walk around the house(s) yourself first and see how spacious it feels to you. I'll tell you the square footage information later."

Second, for products that consumers will consume in SE, marketers should make it less convenient for consumers to engage in direct comparison in the purchase phase. Suppose that a home appliance dealer carries five models of televisions, five models of stereo systems, five models of massage chairs, five models of electronic keyboards, and five models of electronic heaters. Naturally he would place products of the same category in the same section of the store — all televisions in one section, all electronic keyboards in another section, and would volunteer all sorts of specification information for the products. But we suggest that he re-arrange the store space and place different types of products in the same region — creating five showrooms, each housing one type of television, one type of stereo, one type of massage chair, and so on. While this is not ideal and still allows for cross-category comparison, it is better than within-category comparison and is closer to the typical consumption environment. Likewise, realtors should show prospective home buyers different home options on different days, if it is feasible to do so.

Recommendations for online shopping

A key component of an online store is its web design. Currently, the web pages of most online stores are filled with specifications and designed for ease of comparison. For example, Fig. 5 is a typical hypothetical current web page featuring three models of TV monitors.

We recommend a rather different web design, as exemplified in Fig. 6. Our web design has a number of noteworthy features. First, the specifications in the original web page are now replaced with subjective "feel-like" ratings. The ratings are made on a common 1–5 point scale (larger numbers are better). The descriptions for the originally easy-to-evaluate attributes, such as whether the display has built-in speakers, and whether the unit is wall-mountable, are kept unchanged. Second, these subjective ratings are elicited from real consumers who used the products in SE rather than in JE. Third, for credibility, an impartial third party must provide these ratings. Fourth, for full disclosure and for the interest of the experienced consumers, we also provide the objective specifications information, but we furnish the information in a footnote, to deemphasize its importance and to make access difficult. Finally, we also relegate other consumers' overall

[1] One can quantify the amount of happiness gained by the absence of objective specifications or the inhibition of direct comparison by calculating the difference in overall happiness rating between conditions for the proportion of participants who switched their choices. Whereas this is a potentially useful method, it requires several assumptions, for example, that the manipulations across the conditions did not influence the ratings of "loyal choosers" for the same model. We await future research to further address this issue.

	 Model L3288X	 Model P426DP	 Model P5074X
Screen size	19”	32”	52”
Built-in speakers	Yes	No	Yes
Resolution	1366 x 768	1920 x 1080	1920 x 1080
Vertical resolution	720p	1080p	1080p
Contrast ratio	6000:1	2500:1	3500:1
Refresh rate	60Hz	240Hz	240Hz
Wall mountable	Yes	Yes	No
…	…	…	…
Overall consumer Rating	4.5/5 (18 reviews)	4.2/5 (50 reviews)	5.0/5 (3 reviews)

Fig. 5. Current web design.

ratings to a footnote. Such overall ratings are desirable to the extent that they reflect users' subjective experiences, but they are not elicited systematically and they are not very helpful if one weighs the importance of the different attributes differently than others and wants to know the desirability of the choice alternatives on certain particular attributes. Thus, systematic attribute-by-attribute evaluations are indispensible.

Although there are already publications, such as the *Consumer Reports,* that provide third-party attribute-by-attribute ratings, they are not what we have recommended. First, many of the ratings there are based on objective specifications rather than on subjective consumption experience. Second, most subjective experience ratings are offered by experts on the basis of direct comparisons (JE). Third, the subjective ratings are typically accompanied by objective specifications information. Thus, the *Consumer Reports* is more akin to the other-JE-with-specs condition in our research than to the other-SE-without-specs condition. What we recommend is the latter.

Our recommendations are directed to marketers rather than to consumers, because when specifications are available and comparisons are easy, consumers may not be able to resist the temptation to use the specifications and do direct comparison. For consumers to choose what maximizes their consumption experience, a benign paternalist is needed to create a good

	 Model L3288X	 Model P426DP	 Model P5074X
Feel-like screen size	3.8	4.5	4.8
Built-in speakers	Yes	No	Yes
Feel-like sharpness when viewing regular video	4.8	4.8	4.8
Feel-like sharpness when viewing high-definition video	4.8	4.9	4.9
Feel-like contrast	4.9	2.5	4.5
Feel-like smoothness when playing video game	2.0	4.3	4.3
Wall mountable	Yes	Yes	No
…	…	…	…

Footnotes:
1. The ratings above are provided by SSS consumer research company; the ratings were elicited by regular consumers who tried the products without direct comparison.
2. Numerical specifications on screen size, resolution, vertical resolution, contrast ratio, refresh rate, … are 19”, 1366 x 768 , 720p, 6000:1, 60Hz, for Model L3288X; 32”, 1920 x 1080, 1080p, 2500:1, 240Hz for Model P426DP, and 52”, 1920 x 1080, 1080p, 3500:1, 240Hz for Model P5074X.
3. Overall consumer ratings (voluntarily posted online by non-solicited consumers) are 4.5/5 (18 reviews) for Model L3288X, 4.2/5 (50 reviews) for Model P426DP, 5.0/5 (3 reviews) for Model P5074X.

Fig. 6. Proposed web design.

choice environment (e.g. Thaler & Sunstein, 2003, 2008), and the marketer is a natural candidate for the paternalist.

There are two potential benefits for marketers to adopt our recommendations. First, consumers who shop in our proposed shopping environments would potentially be more satisfied with the products they purchase and hence more loyal to the marketers. Second, by adopting our proposed methods, marketers (as well as manufacturers) can learn what features of a product make a difference in consumption experience and what features do not, and therefore understand how to improve their products. For example, by eliciting non-comparative subjective ratings of different digital frames (as we did in our studies), marketers will realize that the difference in appearance matters more to consumption experience than the difference in resolution, and therefore that in designing new digital frames, resources should be directed toward improving appearance rather than improving resolution.

In sum, consumption is often a singular subjective experience. Accordingly, decisions should be based on singular subjective information.

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