

INTERRUPTED CONSUMPTION:
ADAPTATION AND THE DISRUPTION OF HEDONIC EXPERIENCE

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Seven studies confirm the hypothesis that consumers choose breaks in negative experiences and avoid breaks in positive experiences, despite the finding that these breaks worsen negative experiences and improve positive experiences. A variety of stimuli (e.g., noises, songs, massage chairs) demonstrate that breaks disrupt hedonic adaptation and intensify the subsequent experience.

Imagine that a patient preparing for 30 minutes of painful physical therapy is offered the opportunity to take a short break in the middle of the session. Will the patient accept the offer and break up the session or will she prefer to forego the break? And if she takes the break, will it make the session more or less painful? Now, imagine a customer who is about to receive a relaxing 30 minute massage and is offered the opportunity to take a short break in the middle of the massage. Will he prefer to break up the session or will he prefer to forego the break? And if he takes the break, will it make the massage more or less pleasurable?

In each scenario, a service provider offers a consumer the opportunity to disrupt an affective experience. These scenarios are part of a broader category of situations in which a consumer can commit to either an interrupted experience or a continuous experience. Should you choose the theater showing an uninterrupted version of the latest 3 hour Bollywood musical or should you choose the theater offering the same film with a brief intermission? Alternatively, if your sweetheart coerces you into attending a Goth-metal “performance”, should you pick the band that takes a break in the middle of their set or the band that performs without interruption? This paper investigates consumers’ expectations about the desirability of taking breaks in their affective experiences (i.e., when *do* consumers take a break?) as well as the actual effect those breaks have on enjoyment (i.e., when *should* consumers take a break?).

To address the second, and perhaps more essential question, we will rely on two critical assumptions: first, that consumers adapt to many experiences and, second, that breaks disrupt this adaptation process. Together, these assumptions imply that breaks may intensify affective experiences. We therefore propose that, within certain

boundaries, consumers should insert breaks in positive experiences, but not in negative experiences. With regard to the first question though, we argue that consumers will often fail to anticipate adaptation and the intensifying effects of breaks. We propose that consumers instead assume that breaks actually weaken the intensity of the experience. In other words, we argue that consumers' preferences for breaking up experiences are often in direct opposition to the strategies that would maximize their enjoyment or minimize their suffering.

THE PRESCRIPTIVE PERSPECTIVE: HOW DO BREAKS INFLUENCE EXPERIENCE?

To understand how breaks actually influence consumers' affective experiences, we first need to consider how subjective experiences change over time. Over the course of an experience, affective intensity can either increase (i.e., sensitization) or decrease (i.e., adaptation). Whereas sensitization often occurs for more complex stimuli (e.g., high-quality wines), in many domains adaptation seems to be the norm (for a review, see Frederick & Loewenstein 1999). People adapt surprisingly quickly and completely to a variety of positive and negative experiences, ranging from the buzz of a computer hard drive to extreme windfalls or calamities. Previous research has shown that people adapt to repeated consumption of their preferred ice cream (Kahneman and Snell 1990), increases in income (Easterlin 1995), failure to achieve tenure (Gilbert et al. 1998), solitary confinement (Suedfeld et al. 1982), and, to some extent, even to extreme, life-altering events such as winning the lottery or the paraplegia that follows a severe car accident (Brickman, Coates, and Janoff-Bulman 1978).

In each of these situations, the subjective intensity of the experience decreases over time, either as a result of basic sensory processes (e.g., sensory-specific satiety) or of complex psychological mechanisms (e.g., coping). We argue that inserting a break in the experience will disrupt these adaptive processes. Since adaptation results from prolonged exposure, disrupting exposure may undo adaptation. We derive less enjoyment when we consume three consecutive tasty snacks than when the consumption is sufficiently spread out and each snack is maximally tasty (Read and Loewenstein 1995, Simonson 1990). Furthermore, by disrupting the adaptation process, breaks will intensify the subsequent experience (relative to an uninterrupted experience). In short, consumption experiences that are characterized by adaptation will become more intense when breaks are inserted.

If breaks intensify experiences, how do they affect satisfaction with experiences? More intense experiences offer greater pleasure for positive experiences and greater displeasure for negative experiences. Accordingly, breaks should increase satisfaction with positive experiences and increase dissatisfaction with negative experiences. Furthermore, this prediction does not only hold when enjoyment is a function of the average intensity of the experience, but it also holds when enjoyment depends on the peak and end of the experience or on the changing intensity of the experience. Indeed, retrospective judgments of enjoyment tend to be based on a combination of the peak and the end intensity of the experience (Fredrickson and Kahneman 1993). Breaks are unlikely to affect the peak intensity typically found towards the beginning of the experience, but by disrupting adaptation, breaks may intensify the end of the experience. Finally, retrospective evaluations can also be influenced by the trend or pattern of the experience: controlling for average intensity, experiences that decrease in intensity over

time are perceived as less intense than those that maintain a constant intensity (Ariely 1998). Furthermore, as Ariely and Zauberman (2000, 2003) have demonstrated, breaking up an experience reduces the impact of the trend on the overall evaluation of the experience. Thus, when an experience is broken up, adaptation's pattern of decreasing intensity will matter less to consumers' retrospective evaluations and thus result in a smaller reduction in perceived intensity. In sum, whether considering the influence on overall intensity, the final intensity, or the final trend, inserting a break will improve a positive consumption experience and worsen a negative consumption experience.

THE DESCRIPTIVE PERSPECTIVE: CONSUMERS' FORECASTS AND PREFERENCES

Since breaks disrupt adaptation, consumers should break up positive experiences, but should not break up negative experiences. Is that what consumers do? Whether consumers choose to insert a break in an affective experience depends on their beliefs about how the break will affect their enjoyment. As prior research has shown, consumers tend to accurately predict the valence of experiences, but they are quite poor at forecasting how changes in the experience will change their enjoyment (Loewenstein and Schkade 1999, Wilson and Gilbert 2003). In particular, consumers have trouble predicting hedonic adaptation. Previous work in this area has revealed a rather disparate set of findings, but two major themes seem to emerge. First, studies of lay theories show substantial variation in people's intuitions about adaptation or sensitization to different stimuli (Kahneman and Snell 1990). Second, if there is a systematic tendency, it seems to be that people understate adaptation (Loewenstein and Frederick 1997).

Snell and her colleagues (Kahneman and Snell 1990; Snell, Gibbs, and Varey 1995) examined lay beliefs about adaptation and sensitization by asking people to evaluate a number of different scenarios. They found that most participants believe in adaptation for some stimuli and sensitization for others, but there was no consensus across stimuli. Interestingly, a closer inspection of their results suggests that people intuit adaptation for repeated, discrete experiences (e.g., sauna visits, mild electric shocks), but predict sensitization for ongoing, continuous experiences (e.g., loud noises, a lasting headache). These findings not only indicate an underestimation of adaptation, but even an overestimation of sensitization for exactly the types of experiences that we are studying.

Whereas the preceding studies measured intuitive theories about affect progression, other studies compared those intuitions to actual experience. One influential line of research shows that people often overestimate the lasting influence of an event on their overall happiness (i.e., the impact bias, Gilbert et al. 1998). For instance, assistant professors predicted that a positive tenure decision would improve happiness, and that a negative tenure decision would reduce happiness, but in fact both groups were about equally happy. Just as professors do not realize they adapt to tenure decisions, prisoners underestimate adaptation to solitary confinement (Suedfeld 1982), and people who are tested for HIV think that a positive result will bring more misery than it actually does (Sieff, Dawes, and Loewenstein 1994). However, although these results suggest a widespread underestimation of adaptation, they can also follow from an overestimation of the initial intensity, as Wilson and Gilbert (2003) point out.

In sum, people do not hold a strong and uniform belief in adaptation—and some evidence suggests that people may even intuit sensitization rather than adaptation. We

therefore predict that consumers will not anticipate their adaptation to consumption experiences and will thus not realize the adaptation-disrupting effects of inserting a break. Given that consumers do not anticipate adaptation, then what will determine their preferences for breaking up experiences? One possibility is that consumers will see this as a choice between preserving a single experience or creating two separate experiences. If so, then a prospect theory framework predicts that consumers may engage in *hedonic editing* and break up (i.e., separate) positive experiences, but preserve (i.e., integrate) negative experiences in order to maximize utility (or minimize disutility)¹. Alternatively, as Linville and Fischer (1991) have shown, people may instead engage in *pseudo-hedonic editing* and break up both negative and positive experiences. Based on their renewable resources model, Linville and Fischer (1991) argue that people will want to separate positive events to maximally savor their gains and separate negative events so they can replenish their resources to cope with the events. This model predicts that consumers will choose to break up all experiences, whether positive or negative. However, both hedonic and pseudo-hedonic editing apply mostly to long breaks that divide a single consumption experience in two separate, meaningful experiences, such as receiving feedback on an exam and an assignment on two separate days (Linville and Fischer 1991). In contrast, these strategies are ill-suited to predict the consumer decisions that are at the focus of this research: whether to take a small break in a homogeneous, continuous experience. For instance, briefly interrupting a physical therapy session does not create two meaningfully distinct sessions, but instead simply results in one interrupted session.

¹ Hedonic editing would lead to preferences that are identical to the choices we would recommend based on the disruption of adaptation caused by breaking up the experience. This makes sense given that adaptation is in fact a special instance of the law of diminishing marginal effects on which prospect theory's recommendation to segregate losses and integrate gains is based.

We propose that consumers will neither anticipate the disruption of adaptation caused by a short break, nor perceive brief breaks in an otherwise homogeneous experience as a way to create two distinct experiences. Instead, we propose that consumers faced with the possibility of breaking up a positive or a negative experience will rely on the simple semantic intuition that a broken up experience is a weakened experience. Stated more directly, consumers will rely on a simple decision rule: stopping a good experience is bad, while stopping a bad experience is good². As a result, they will prefer to break up (or weaken) negative experiences, but not positive experiences. In the next section of this paper, we present four scenario-based studies designed to test this basic prediction. We will then proceed with the main empirical portion of the paper in which we present 7 experiments examining the actual impact of breaks on people's enjoyment of different positive or negative experiences. We will conclude with a general discussion of the implications and boundaries of our findings.

STUDY 1: INTUITIVE THEORIES AND BREAK PREFERENCES

Before turning to our primary goal, which is to examine the effect of disruptions in hedonic adaptation, we present a first set of studies that examine people's intuitions, preferences, and predictions about hedonic adaptation. We used hypothetical choices and vignettes to measure predicted enjoyment of experiences over time, as well as the predicted effect of inserting breaks in those experiences. Our first investigation examined forecasts of a vaguely defined negative stimulus. Undergraduate students ($N = 28$) imagined that they would be forced to "listen to a sustained irritating noise for ten

² Note that this simple heuristic assumes some degree of myopia on the part of the decision maker. We assume that the decision maker will put greater emphasis on the start of the break (stopping the experience) than on what happens after the break (re-starting the experience).

minutes,” and then using axes labeled with “Time” and “Discomfort”, drew a line to describe their hypothesized changes in discomfort over time. A coder subsequently recoded each resulting pattern into one of three types: no change, increasing discomfort, or decreasing discomfort. Although there was no absolute consensus, people were more likely to report that the experience would get worse over time than they were to think that the experience would get better over time (57% vs. 7% %, $\chi^2 = 8.90, p = .003$), indicating that, for at least one hypothetical stimulus, they anticipated sensitization rather than adaptation.

In a second study, we investigated intuitions about a more familiar negative experience. We asked undergraduates ($N = 28$) to imagine that they were facing a seven week separation from a romantic partner with whom they enjoyed a committed relationship. Participants were told that they could spend any two consecutive weeks of that 7-week period together with their partner and asked to identify which two weeks they would choose. If people prefer to break up negative experiences, they should choose two weeks from the middle of the experiences (weeks 2-5), whereas if they would rather not break up the experience, they should choose either the first two weeks (weeks 1 and 2) or the last two weeks (weeks 6 and 7). A simple comparison of these two choice frequencies reveals a strong preference for breaking up the experience by selecting weeks in the middle of the period (86%, $\chi^2 = 14.29, p < .001$). Furthermore, when we asked people to forecast the progress of their experience over time (using a measure similar to that used in the previous investigation), less than a third of the participants showed the pattern of decreasing intensity consistent with adaptation. Together with the results from the first scenario, the responses in the romantic separation study suggest that people often do not

expect adapting to negative experiences. Consistent with this failure to anticipate adaptation, participants in the second study strongly preferred to break up the romantic separation experience, indicating that they did not expect that the break would intensify the negative experience by disrupting their adaptation to the separation.

The results presented so far indicate that people do not anticipate adaptation to negative experiences and prefer to break up these experiences. To examine how people feel about inserting breaks into positive experiences, we asked undergraduate participants ($N = 39$) to imagine that they were working in the South of France and could take four days of vacation in Saint-Tropez. We then asked them whether they would want to take an uninterrupted four day vacation or whether they would want to break up their vacation by inserting one work day in the middle of their vacation. A significant majority (90%, $\chi^2 = 24.64, p < .001$) preferred a continuous vacation rather than the interrupted alternative. Together with the previous study, these results are consistent with our prediction that people will have a preference for breaking up negative experiences, but not positive experiences. However, since these two scenarios differed in many aspects other than valence, we decided to run an additional study in which we presented participants with comparable positive or negative experiences.

Two groups of students ($N = 138$) considered the prospect of either 45 minutes of a pleasant massage or 45 minutes of painful physical therapy. We then asked them whether they would prefer to insert a 6-minute break in this experience. As predicted, the valence of the experience significantly affected the decision to insert a break ($\chi^2 = 16.60, p < .001$): whereas most participants preferred to take a break in the physical therapy session (63%, 42 of 67, $\chi^2 = 4.31, p = .038$), most preferred not to take a break in the

massage (28%, 20 of 71, $\chi^2 = 13.54, p < .001$). People obviously have every reason to treat these experiences differently and to therefore make substantially different judgments about how to maximize their hedonic benefits. More interesting though, is that these preferences are in direct opposition to the decisions we predict would maximize people's enjoyment of the experience.

We conducted one final investigation into consumer intuitions by asking a group of undergraduates ($N = 119$) to consider a series of positive experiences (e.g., listening to pleasant music) and negative experiences (e.g., smelling a nasty odor), and report whether they would like to insert a break in the experience. As shown in table 1, for all but two of the experiences, participants preferred a continuous positive experience and a disrupted negative experience. In addition, participants were also asked to predict the expected timecourse of positive and negative experiences on separate 7-point scales anchored by “tend to become less enjoyable [painful]” and “tend to become more enjoyable [painful].” As predicted, when we constructed an index of the seven positive events, participants who reported a belief in adaptation for positive experiences were more likely to want a break, $F(1, 116) = 5.15, p = .025$. With a similar index for the negative events, participants who believed in adaptation to negative experiences were less likely to want a break, $F(1, 116) = 22.21, p < .001$. Consistent with our previous investigations, people want to break up negative experiences, but do not want to break up positive experiences. Moreover, these preferences are more pronounced for those people who do not anticipate adapting to the experience. The latter result suggests that the pattern of preferences we have documented – which is at odds with our normative

predictions— may result from a general underestimation of adaptation, a finding that is consistent with previous research (e.g., Wilson and Gilbert 2003).

Insert table 1 about here

Thus far, we have only considered what consumers expect from breaking up experiences, but not what actually happens to the experience itself. In the remainder of this paper, we will test our hypotheses about the effect of breaks on the experience of pleasant and unpleasant events. We propose that people adapt to a wide variety of experiences and that breaks disrupt this adaptation process and thus keep the overall experience at a high level of intensity. We will first directly test our assumption that inserting a break intensifies the surrounding experience. This should increase both the irritation with a negative stimulus and the enjoyment of a positive stimulus. We then attempt to rule out hedonic contrast effects as an alternative to the adaptation-disruption hypothesis. In the final studies, we will then track the actual ongoing experience to better understand the observed effects on the retrospective summary evaluations.

STUDY 2: DISRUPTION OF ADAPTATION TO A NEGATIVE EXPERIENCE

The scenario studies described above indicate that people often prefer to break up negative, but not positive experiences. We have argued that because people adapt to many experiences, breaks will disrupt the adaptation process and make positive experiences more positive and negative experiences more negative. In the second study, we will directly test this prediction for the case of a negative experience. In three

between-subjects conditions, we measured participants' irritation with a five second fragment of a noise that was either presented in isolation, at the end of a longer experience, or immediately following a break.

Method

One hundred forty undergraduate students participated in a study examining the evaluation of auditory stimuli. Participants were seated at a computer work station, asked to put on the headphones, and told they would be listening to a brief sound clip of a vacuum cleaner. There were three groups of participants. The first group listened to only 5 seconds of the vacuum cleaner, the second group listened to 40 seconds, and the final group listened to 40 seconds, followed by a 5-second break, and another 5 seconds of the vacuum cleaner. Immediately after this experience, participants answered a question about the last 5 seconds of the stimulus. To avoid potential scaling effects, we asked participants to compare the vacuum cleaner noise to another irritating noise. We therefore presented participants with a 5-second sample of a drilling noise, after which they reported their preference between the two sounds on a 201-point sliding scale from -100 ("definitely prefer the vacuum") to +100 ("definitely prefer the drill"). Higher numbers therefore reflect a more aversive vacuum noise experience.

Because it was important that participants understood and complied with all elements of the procedure, we took a priori measures to eliminate those who did not, by using a previously validated procedure, modified for this task (Oppenheimer, Meyvis, and Davidenko 2006, also see Simmons and Nelson 2006, Study 12). At the end of the session, we presented participants with a brief description about the importance of following instructions and asked them to ignore a scale on the screen and instead click on

a red square at the top of the screen. While most participants clicked on the red square, 14 people instead clicked on the unlabeled scale and were removed from subsequent analyses.

Results and Discussion

Forecast. In addition to the aforementioned procedure, we also asked a separate group of participants ($N = 40$) to make predictions about the effects of the manipulation. All of these participants listened to a 5-second sample of the vacuum cleaner, rated it on a 76-point scale of irritation (from “a little irritating” to “incredibly irritating”), and then estimated how irritating they would find the same sample in each of the other two conditions. Consistent with our initial studies, participants expected sensitization rather than adaptation: the 40-second experience was expected to increase the irritation relative to the 5-second sample ($M_s = 42.07$ vs. 26.07 , $t(39) = 4.86$, $p < .001$). Furthermore, participants had some belief that the 5-second break would reduce their irritation with the stimulus relative to the continuous experience ($M_s = 42.07$ vs. 35.92 , $t(39) = 1.68$, $p = .10$). In sum, participants forecasted that the stimulus would become more irritating with prolonged exposure and that this increase would be partially mitigated by adding a break. These forecasts are the direct opposite of our hypotheses, which we test next.

Insert figure 1 about here

Experience. We expected that people would adapt to the noise and therefore find it less aversive after 40 seconds than after only 5 seconds. Furthermore, we hypothesized that breaking up the experience would disrupt this adaptation process and re-establish the

aversiveness of the stimulus. We tested this prediction with a planned contrast comparing evaluations by participants in the 40 second experience to evaluations in the two remaining conditions. This proved to be a reliable contrast, as people experiencing the noise continuously for 40 seconds judged the last 5 seconds to be less aversive ($M = -39.49$) than did people experiencing just the first 5 seconds ($M = -14.98$) or people experiencing the 5 seconds after a break ($M = -16.44$, $t(123) = 2.10$, $p = .039$). These results indicate that, although people want to break up negative experiences, this is not always a wise decision. Whereas listening to the noise for an extended period of time made the noise less aversive, inserting a break disrupted this adaptation process and made the noise just as aversive as it had been initially.

STUDY 3: DISRUPTION OF ADAPTATION TO A POSITIVE EXPERIENCE

In the third study, we shift our focus to the disruption of a positive experience: enjoying a massage chair. Participants either experienced an uninterrupted massage or had the middle part of the massage replaced with a 20-second break. In addition, while participants in the previous study were only asked to rate the last 5 seconds of the experience, participants in this study provided evaluations of the entire experience, thus allowing us to draw more general inferences about the normative implications of inserting the break. We predicted that, although people would prefer not to interrupt the massage, inserting a break in the middle of the experience would actually enhance their enjoyment of the massage chair.

Method

Forty-nine undergraduates participated for partial fulfillment of a course requirement. Participants were told that they would be testing a massage cushion and

were seated at a computer monitor on a chair outfitted with the cushion. The participants first rated a five second sample of the massage, a rating we subsequently used as a covariate in our final analyses. We then asked participants five questions about their general preferences for experiencing a massage chair. Most of the questions were filler questions irrelevant to our hypothesis (“Do you prefer heating in a massage cushion?”), but embedded within the questions was a critical question asking participants if they would rather experience a continuous massage or instead take a brief break in the middle of the experience. Participants were then randomly assigned to either the Break or Continuous condition. Participants in the Continuous condition were told that they would be experiencing the massage continuously for 3 minutes, whereas those in the Break condition were told that they would be experiencing 80 seconds of massage, 20 seconds of nothing, and then 80 more seconds of massage. The experimenter then started the massage chair and turned the chair off and on accordingly to the condition.

After the experience, participants first reported how much they had enjoyed the experience using a 9-point scale (1 = not pleasant, 9 = extremely pleasant). The second question, which was designed to avoid scaling effects, asked participants to use a 201-point scale to compare their experience to that of listening to 3 minutes of their favorite song (-100 = definitely prefer the massage, +100 = definitely prefer the song). Finally, participants reported how much they would be willing to pay to repeat the experience and how much they would be willing to pay to buy the massage cushion. Finally, participants completed the screening measure used in Study 2.

Results and Discussion

Forecast. Before conducting any analyses, we removed eight participants who incorrectly responded to the screening measure, leaving us with a sample of 41. We then examined participants' choices between continuous and interrupted massage experiences, which were measured after the 5-second sample but before the 3-minute experience. As expected, most participants preferred the continuous experience (73%, $\chi^2 = 8.80$, $p = .003$). However, although people predicted that a break would lessen enjoyment, post-experience evaluations showed exactly the opposite result³.

Experience. Compared to participants who experienced the continuous massage, those who had a break in their experience rated their experience as more pleasant ($M_s = 7.05$ vs. 6.05 , $F(1,37) = 4.59$, $p = .039$), were less likely to prefer listening to their favorite song instead ($M_s = 4.65$ vs. 32.33 , $F(1,38) = 4.20$, $p = .047$), were willing to pay more than twice as much to repeat the experience ($M_s = \$3.71$ vs. $\$1.27$, $F(1,33) = 6.69$, $p = .014$), and were willing to pay almost twice as much to purchase the massage cushion ($M_s = \$26.59$ vs. $\$14.41$, $F(1,36) = 5.76$, $p = .022$). Although participants largely expected that inserting a break would detract from the massage, the results confirmed our hypothesis that the break would in fact enhance the experience.

Why do breaks improve positive experiences but worsen negative experiences? We have argued that breaks intensify experiences by disrupting adaptation. However, it is also plausible to account for this data pattern by invoking hedonic contrast effects. Whereas the vacuum cleaner is unquestionably irritating, it may seem even more so when it is experienced in contrast to the welcome silence of the break. Indeed, past research has

³ We detected unusually high variance on these measures. We therefore removed outliers on each measure that were more than 2.5 standard deviations from the mean. As a result, there are slight variations in the degrees of freedom in each analysis. In addition, to control for pre-experience differences in the enjoyment of the massage cushion, we included the 5-second sample rating as a covariate in our analysis.

suggested that contrast effects may play a large role in the reporting of subjective well-being (Tversky & Griffin 1991), a domain of clear relevance to the current investigation. On the other hand, despite strong lay intuitions, recent research has failed to find contrast effects in hedonic consumption (Novemsky and Ratner 2003). Yet, hedonic contrast effects remain at the very least a significant possible alternative. In the next two studies we therefore attempt to clarify any role such a process might play by systematically varying the valence of the break inserted in either a negative (Study 4) or a positive (Study 5) experience.

STUDY 4: DIFFERENT BREAKS IN A NEGATIVE EXPERIENCE

Method

Undergraduates (N = 178), participating in partial fulfillment of a course requirement, were randomly assigned to one of four conditions. Participants in the Continuous condition listened to 20 seconds of silence, followed by 180 seconds of vacuum noise. In the remaining three conditions, participants also listened to 180 seconds of vacuum noise, but they were also told that, after 160 seconds, this experience would be interrupted for 20 seconds. This interruption consisted of 20 seconds of silence in the Neutral Break condition, classical piano music (Glenn Gould performing Bach's Goldberg Variations) in the Positive Break condition, and 20 seconds of a child practicing scales on a violin in the Negative Break condition.

After the experience, all participants answered two questions that measured their evaluation of the overall experience: they rated their enjoyment of the overall experience (on a 9-point scale anchored by "not unpleasant" and "extremely unpleasant") as well as

their relative preference between listening to the vacuum cleaner noise and listening to a drilling noise for the same duration (on the 201-point scale used in the previous studies). At the end of the session, as in previous studies, participants responded to the unrelated screening question to identify participants who were not attending to the experiment. Sixteen participants were eliminated with this procedure.

Results and Discussion

Forecast. To better interpret our findings, we first asked a separate group of undergraduates ($N = 42$) to make forecasts about the critical conditions of this experiment. Participants first listened to a 5-second sample of the vacuum noise and then read descriptions of the Continuous, Positive Break, and Neutral Break conditions⁴. Participants thought that adding a neutral break ($M = 50.0$) would not be any worse than the continuous experience ($M = 50.9$), but that the positive break would actually make the experience slightly better ($M = 45.1$), $t(41) = 1.98$, $p = .054$. With these forecasts in mind, we considered the actual impact of the different breaks on the experience.

Experience. The two evaluation measures were reliably correlated and were therefore standardized and combined in a single index (with higher numbers indicating more irritation). Since all three breaks (silence, piano music, and violin practice) should disrupt adaptation to the vacuum noise, the adaptation-disruption account predicts that the three break conditions will produce more negative judgments than the continuous experience. Consistent with our hypothesis, a planned contrast confirmed that participants who had a continuous exposure to the vacuum cleaner rated the overall experience as less

⁴ We did not ask about the Negative Break condition because this condition would add complexity to the task for participants without offering insights into beliefs about disruption of adaptation (which both break conditions test) or hedonic contrast (which the Positive Break condition tests). The same logic applies to the forecasting study reported in Study 5.

irritating than participants in the Positive, Neutral, or Negative Break conditions ($t(157) = 2.27, p = .025$, see figure 2).

A break, regardless of its valence, worsened the overall experience. Despite intuitions that breaks improve negative experiences, the breaks in this study did the exact opposite. Furthermore, this study provides strong evidence that hedonic contrast cannot account for our findings, as breaks of completely different valence produced very similar effects. In the next study we sought to use a similar design to investigate the influence of breaks in the positive domain.

STUDY 5: DIFFERENT BREAKS IN A POSITIVE EXPERIENCE

Method

Study 5 aimed to investigate the disruption of hedonic adaptation in the positive domain by inserting breaks in an enjoyable song. As in Study 4, we compared four different conditions: Positive Break, Negative Break, Neutral Break, and a Continuous control condition. One hundred seventy-eight undergraduates received either \$10 or partial course credit as compensation for their participation. All participants first listened to a 5-second sample of the song, “Shin-Sekai (featuring Rino)” by *DJ Krush*, and rated their liking of the song on a 51-point scale from -25 (“strongly dislike”) to 25 (“strongly like”). We chose this song, an underground Japanese rap song, because we assumed that it would be both unfamiliar and well-liked by our participants. We were partly correct. Though students were not familiar with the song, many of them disliked it. Since our central objective was to study the disruption of a positive experience, we removed anyone

who indicated that they disliked the song sample, leaving us with a final sample of 109 people.

After rating the song sample, participants were randomly assigned to one of the four conditions and told what experience to expect. They then started listening to the song. In the Continuous condition, participants first experienced 20 seconds of silence, followed by the 180 seconds of the complete song. In the remaining three conditions, participants also listened to the complete song, but after 160 seconds, the song was interrupted for 20 seconds. This interruption consisted of 20 seconds of silence in the Neutral Break condition, 20 seconds from “Egyptian Reggae” (a 1978 Top-40 hit by *Jonathan Richman and the Modern Lovers*) in the Positive Break condition, and 20 seconds of particularly irritating guitar feedback (sampled from the intro to “The Friend Catcher” by the Australian punk band *The Birthday Party*) in the Negative Break condition.

After the experience, participants evaluated their overall experience on a 9-point scale (anchored by “not at all pleasant” and “very pleasant”) and stated their relative preference between repeating the song versus reading a magazine on a 201-point scale (with higher numbers indicating greater preference for the magazine). Finally, as in the previous studies, 13 participants were eliminated with the screening question.

Results and Discussion

Forecast. As in the previous study, we first investigated people’s forecasts of our findings. After listening to the same 5-second sample as participants in the main study, undergraduates ($N = 67$; after eliminating anyone who disliked the sample) predicted how much they would like the song in the Continuous condition, the Neutral Break condition,

and the Negative Break condition. All ratings were collected using a 51-point scale from -25 (really dislike it) to 25 (really like it). Forecasters could not have been clearer in their predictions, as they thought that they would like the song much more in the Continuous condition ($M = 7.94$) than in either the Neutral Break condition ($M = -2.48$, $t(66) = 6.32$, $p < .001$) or the Negative Break condition ($M = -8.76$, $t(66) = 8.49$, $p < .001$). Although forecasters clearly predicted that a break would have a negative influence on their experience, these predictions turned out to be the exact opposite of our findings.

Experience. Since both measures were highly correlated, we standardized each, and combined them into a composite measure. We expected that any disruption in the song would enhance the enjoyment of the song, regardless of the valence of the disruption. The corresponding planned contrast comparing the Continuous condition to the other conditions confirmed our predictions. Compared to participants in the break conditions, participants who continuously listened to the song found the experience less enjoyable than in any of the other conditions ($t(89) = 2.33$, $p = .024$, see figure 2).

Insert figure 2 about here

Studies 4 and 5 show that breaks increase the intensity of both positive and negative experiences, regardless of the valence of the break. Taken together, these studies provide a compelling argument against a hedonic contrast account for our findings. In our final two studies we wanted to gather more detailed evidence of the adaptation process involved in these experiences by including online measures of the experience. For Study 6, we used the same negative stimulus as was used in Studies 2 and 4, and for Study 7,

we developed a new positive stimulus designed to be particularly sensitive to fluctuations in enjoyment.

STUDY 6: ONLINE MEASURES OF A NEGATIVE EXPERIENCE

Research on hedonics has occasionally employed online experience measures to better identify the properties of adaptation and sensitization. For example, at a broad temporal level, Riis et al. (2005) employ an experience sampling methodology to compare the overall well-being of hemodialysis patients to healthy controls, whereas at a more narrow temporal perspective, Kahneman et al. (1993) used online measures to identify the effect of peak and end experiences on summary evaluations. Similarly, consumer researchers have used online measures such as dial-turning instruments to continuously monitor consumers' affective responses to magazine pictures and television commercials (Pham et al. 2001). In the next two studies, we used online measures to obtain direct evidence of how breaks influenced the overall experience through their impact on the adaptation process. In Study 6, we again asked participants to listen to a vacuum noise, either continuously or interrupted by a break, and, in addition, to occasionally rate their irritation during the experience.

Method

Sixty-six undergraduates who participated for partial course credit, first rated a 5-second sample of the stimulus. In the context of a few unrelated questions, participants then indicated whether they would prefer to listen to the vacuum cleaner continuously or instead take a break in the middle of the experience. They then completed the were then randomly assigned to either the Break or Continuous condition, after which the

experience started. Participants in the Continuous condition listened to the vacuum noise without interruption for 180 seconds, whereas participants in the Break condition listened to the vacuum noise for 80 seconds, followed by 20 seconds of silence, and 80 more seconds of the vacuum noise. During the experience, participants were occasionally asked to report their current level of irritation. These questions were asked 5, 30, 55, 80, 105, 130, and 155 seconds into the experience, with the samples taken at 55 seconds and 105 seconds representing the critical samples immediately before and immediately after the break. Participants reported their irritation on a 101-point slider scale anchored by “not irritated at all” (0) and “extremely irritated” (100). Finally, all participants completed the screening question described in the previous studies (Oppenheimer et al. 2006).

After the experience, participants reported their overall evaluation of the experience on a 9-point scale (anchored by “not unpleasant” and “extremely unpleasant”) as well as their relative preference between listening to the vacuum noise and listening to a drilling noise, of which they were given a short sound fragment (rated on a 201-point scale with higher numbers indicating preference to switch to the drilling noise).

Results and Discussion

For all analyses, we excluded five participants who either failed the screening measure or failed to answer some (or all) of the online measures. This left us with a final sample of 61. As in our previous studies with negative experiences, most of our participants forecasted that a break would improve their experience, as 79 percent of participants said that they would choose the break condition over the continuous

condition (binomial $Z = 4.48, p < .001$). Once again, their subsequent experiences indicated that this preference was far from optimal.

Compared to participants in the Continuous condition, those in the Break condition reported that the experience was more irritating ($M_s = 7.88$ vs. $6.42; t(59) = 2.27, p = .027$) and they also indicated a greater preference to switch to a different aversive noise ($M_s = 13.08$ vs. $-16.83; t(59) = 2.03, p = .046$). As in our previous studies, the break intensified the experience relative to the continuous experience.

In addition, we wanted to examine whether people in the Continuous condition were indeed adapting to the stimulus. To test this hypothesis we compared ratings from the first online sample (at 5 seconds) to the seventh and final sample (155 seconds). As predicted, participants who had continuously experienced the vacuum cleaner noise reported more irritation at the first sample than they did at the last sample ($M_s = 76.3$ vs. $64.3; F(1,31) = 5.85, p = .022$). There was no similar difference for participants whose experience had been disrupted by the break ($M_s = 72.2$ vs. $70.2; F(23) = .24, p = .63$).

Furthermore, we also wanted to use the online measures to assess the direct influence of the break. To do so, we considered the ratings provided immediately prior to and immediately after the break. As predicted, inserting a break reliably affected the difference between these two ratings ($F(1,55) = 5.73, p = .020$). Subsequent analyses revealed that, while the experience had stabilized in the Continuous condition ($M_s = 70.3$ vs. $69.8; t(31) < 1$), the experience got reliably worse in the Break condition ($M_s = 71.1$ vs. $80.7; t(24) = 2.42, p = .023$), consistent with disruption of adaptation.

Finally, we conducted a mediation analysis to test whether this disruption of adaptation caused the observed differences in the post-experience measures. First, as

mentioned earlier, the break had a significant influence on final evaluations ($t = 2.27, p = .032$). Furthermore, the break also affected the mediator (ratings taken at 105 seconds, immediately after the break), with marginally higher ratings in the Break condition than in the No Break condition ($t = 1.68, p = .097$). Finally, when simultaneously entering the break condition and the mediator, the former ceases to be a reliable predictor of evaluations ($t = 1.53, ns$), whereas the mediator still is a significant predictor ($t = 4.89, p < .001$). Furthermore, a subsequent Sobel test reveals a marginally significant drop in the effect of the independent variable ($Z = 1.59, p = .11$).

Considered together, these findings offer a fairly coherent picture. When continuously listening to a vacuum cleaner, participants adapt to the noise, but when the noise was disrupted by a period of silence, participants did not adapt. That inference is grounded in the relatively clear summary evaluations, and partially supported by the online measures. Nevertheless, the latter findings are somewhat ambiguous. To some extent this may be attributed to our measurement procedure. Perhaps the occasional reminder to evaluate the experience served as a disruption for both conditions which could serve to both reduce the overall adaptation as well as the relationship between the online measures and the post-experience summary evaluation. In the final study, we hoped to overcome some of these measurement concerns by continuously collecting experience evaluations from participants. In addition, we switched to a pleasant experience to test for disruption of adaptation with online measures in the positive domain.

STUDY 7: ONLINE MEASURES OF A POSITIVE EXPERIENCE

The objective of our final study was to directly examine the disruption of adaptation to a positive stimulus using online measures. To achieve this, we generated a novel stimulus that was assumed to have the optimal properties to allow us to observe evidence of adaptation across conditions, as well as seeing the direct effects of disrupting adaptation between conditions.

Method

We sought a stimulus that would show adaptation effects over a relatively short time course yet would be experienced as positive across the duration. For this purpose, we constructed short songs composed of looped fragments from other well liked songs. To create our stimuli we first chose five songs that we judged to be generally enjoyable and from a diverse set of styles in popular music (“Lose Yourself” by Eminem, “I’m Your Villain” by Franz Ferdinand, “My Sharona” by The Knack, “Can’t Get You out of My Head” by Kylie Minogue, and “Sometimes” by Michael I. Norton). We then looped 5-10 second segments of the songs to create a new 60-second song. The new songs featured seamless transitions, creating a song stimulus that was enjoyable, but sufficiently repetitive to allow for rapid adaptation.

Fifty-two undergraduates who participated in partial fulfillment of a course requirement, first rated each of the five brief segments on a 51-point scale anchored by -25 (“really dislike it”) and 25 (“really like it”). They were then told that they would be listening to a 60-second song constructed by looping one of the fragments they had previously rated. Participants then chose which song they would like to listen to by clicking on a photo depicting the cover art from the single or album the song was sampled from. After making their selection, participants were informed of what they

would experience, and were also asked to provide continuous online evaluations of their enjoyment using a sliding scale anchored by 0 (“not enjoying it at all”) and 100 (“enjoying it tremendously”). Participants in the Continuous condition then listened to the 60-second song without interruption. Participants in the Break condition listened to the first 50 seconds of the song, followed by 10 seconds of irritating guitar feedback (taken from the same source as in Study 5), followed by the last 10 seconds of the song. After the song ended, participants reported their liking of the looped song on a 9-point scale (anchored at “hated it” and “loved it”) and then indicated how much they would be willing to spend to see the artist in concert. Finally, participants were presented with the same screening question we administered in the previous studies, which led to the elimination of three participants from subsequent analyses.

Results and Discussion

Forecast. Do people intuit that a break in the looped song will improve their experience? We asked a separate group of participants ($N = 82$) to listen to the five song samples and identify the one they liked the most. We then asked them to indicate whether they would prefer listening to a 60-second loop of that fragment without interruption or interrupted by 10 seconds of guitar feedback. The results made it obvious that people thought that the break would worsen the experience as 99% (81 of 82) of the participants thought that the continuous song would be preferable to the one interrupted by the guitar feedback (binomial $Z = 8.83$, $p < .001$). However, despite the nearly universal intuition that the break would worsen the experience, the actual experience data indicates that the irritating guitar feedback actually improved participants’ enjoyment of the song.

Experience. We first considered the retrospective evaluations. As predicted, people enjoyed the song more when it was disrupted by the irritating guitar feedback ($M_s = 3.74$ vs. 4.96 ; $t(47) = 2.66$, $p = .011$). Furthermore, participants were willing to spend more than twice as much to attend a concert by the artist when the song had been disrupted than when it had not been dsirupted ($M_s = \$48.23$ vs. $\$22.52$; $t(47) = 2.32$, $p = .025$). Replicating the findings of the previous studies, an added break improved a positive experience despite a nearly universal desire to avoid a break. Online measures mirrored these findings. We first tested for adaptation. For every participant, we calculated the correlation between enjoyment ratings and the elapsed time of the song for the first 50 seconds of the song (the portion of the song that was identical for participants in both conditions). Adaptation would manifest as a negative correlation, as people would be deriving less pleasure with every additional second that they listen to the song. After we computed correlations for each participant, we transformed these measures into a Fisher's Z-score, and compared those means to zero. Consistent with our hypothesis, the averaged correlations showed strong evidence of adaptation for participants in both the Continuous condition (average $Z = -.72$; $t(22) = -4.41$, $p < .001$) and the Break condition (average $Z = -.54$; $t(25) = 4.39$, $p < .001$). See figure 3, segment A, for a visual representation of these slopes.

Insert figure 3 about here

We further hypothesized that the break would disrupt the process of adaptation and increase enjoyment of the portion of the song following the break. Consistent with

this prediction, people enjoyed the final 10 seconds of the song more when it followed a break than at the end of the continuous experience ($M_s = 37.9$ vs. 64.0 ; $t(47) = 4.33$, $p < .001$, see figure 3, segment C). Furthermore, we predicted that the differences in the post-experience summary evaluations resulted from changes in song enjoyment after the break. To test this possibility, we tested whether ratings of the final 10 seconds of the song mediated the effect of the manipulation on final evaluations. Following the procedure outlined by Kenny, Kashy, and Bolger (1998), we first replicated the analyses reported above in showing that Breaks improved the summary evaluations of the song ($\beta = .36$, $t = 2.66$, $p = .011$) and improved enjoyment of the final 10 seconds ($\beta = .53$, $t = 4.33$, $p < .001$). When these factors were simultaneously entered into a regression, the enjoyment of the final 10 seconds was a strong predictor of the summary evaluation ($\beta = .47$, $t = 3.19$, $p = .003$), but the Break condition no longer influenced the summary evaluation ($\beta = .11$, $t = .75$, $p = .45$). Furthermore, including the mediator resulted in a reliable drop in conditional effect size ($\beta = .36$ vs. $.11$; $Z = 2.62$, $p = .009$). These findings strongly suggest that people were adapting to the positive stimulus of the looped song and that the guitar feedback break disrupted this adaptation process, which improved the post-break experience and, in turn, enhanced the retrospective evaluations.

However, one possible concern is that the online measure of enjoyment also differed before the break. Perhaps, people simply enjoy the song more when they know it will be interrupted by an irritating noise? We addressed this alternative account in two ways. First, we compared the 10 seconds following the break (seconds 51-60) to the ten seconds preceding the break (seconds 41-50). If our hypothesis is correct then the effect of the manipulation (Break vs. Continuous) should be larger in the final ten seconds than

in the penultimate ten seconds. Consistent with this prediction, the difference between the two conditions was significantly more pronounced after the break than before the break ($F(1,47) = 4.79, p = .034$).

Our second, and more thorough test of this alternative account consisted of collecting additional data with a separate group of participants ($N = 86$) who were not told which condition they had been assigned to, and therefore had both identical experiences and identical expectations for the first 50 seconds of the experience (all participants were informed about the two possible conditions without being told which condition they had been assigned to). Approximately half of these participants then listened to the guitar feedback for 10 seconds, followed by the final 10 seconds of the song, whereas the remainder only listened to the final 10 seconds of the song. As predicted, participants who heard the guitar feedback again enjoyed the final 10 seconds more than did participants who heard the continuous song ($M_s = 55.0$ vs. $42.7; t(84) = 2.42, p = .018$, see figure 3). This additional experiment, in conjunction with the additional analysis reported above, confirms our thesis that breaks can enhance the intensity of a hedonic experience by increasing enjoyment following the break. Nevertheless, it remains possible that an anticipated break can also influence an affective experience by altering people's enjoyment prior to the break. We will return to this possibility in the general discussion.

GENERAL DISCUSSION

Consumers prefer to break up negative experiences, but would rather not insert breaks in positive experiences. The results of Study 1 and the forecast data collected for

each of the subsequent studies clearly illustrate this pattern of preferences across a variety of different situations. Yet, despite these strong intuitions, the last six studies demonstrate that people are completely mispredicting when breaking up an experience would benefit them. While listening to a vacuum noise became more irritating after inserting a short break (Study 2), sitting in a massage chair was actually more enjoyable when the chair had been briefly turned off (Study 3). This was not due to contrast effects. The vacuum noise was judged more negatively when it had been interrupted, regardless of whether it was broken up by a different aversive noise or by a pleasant selection of classical music (Study 4). Similarly, people enjoyed listening to a likeable song more when the song had been disrupted, regardless of whether this disruption consisted of a different pleasant song or of irritating guitar feedback (Study 5). We hypothesized that these effects emerged because participants were adapting to the experiences and the break disrupted this adaptation process, thereby creating a more intense overall experience. To obtain more direct evidence of this proposed mechanism, we used experience sampling techniques in the final two studies. Consistent with the disruption of adaptation account, continuous listening reduced irritation over time, but disrupted listening did not (Study 6). Similarly, although enjoyment of a popular song declined over time, interrupting the song with a brief burst of guitar feedback disrupted adaptation and increased enjoyment of the song (Study 7).

Theoretical Extensions

Why does a break make a massage feel better and a vacuum cleaner sound worse? We have hypothesized that the break exerts its influence by intensifying the part of the experience that immediately follows the break—and the final two studies provide some

empirical support for this assumption. Yet, we do not suggest that breaks can only affect that part of the experience. Indeed, it is worth considering what happens during the other parts of the experience: during the break itself and during the period preceding the break.

What happens while the experience is being disrupted? Do consumers reflect on the experience thus far, do they anticipate the re-starting of the experience, or do their minds drift to domains irrelevant to the experiment itself? People certainly look forward to future experiences and derive (dis)utility from savoring or dreading this anticipated experience Loewenstein (1987). Breaks could therefore also intensify an experience because of people's tendency to savor or dread the re-starting of the experience during the break (or, alternatively, elaborate on the experience so far). We examined this possibility in the negative domain by conducting an additional experiment with undergraduate students ($N = 107$) using the vacuum noise procedure. One group listened to the noise continuously for 3 minutes, a second group had 20 seconds of the noise replaced by silence, and a third group was given a brief entertaining article to read during the silent break. Our reasoning was that, if people are distracted during the break, they should have less opportunity to elaborate on the return of the noise (or to reflect on the previously experienced noise). If the effect of the break was caused by participants' thoughts during the break, then distracting them during the break should eliminate or reduce the effect. Alternatively, if the effect of the break was due to disruption of adaptation, then the effect should persist regardless of the activities engaged in during the break. Consistent with the adaptation prediction, but not the dread prediction, participants listening to the continuous vacuum noise judged it less negatively ($M = -.34$) than participants who either received just the silent break ($M = -.04$) or the silent break with

the engaging article ($M = .38$; $t(104) = 1.87$, $p = .064$). Whereas these results certainly do not imply that consumers' feelings during the break cannot substantially influence their enjoyment of the experience, they do indicate that those feelings are not the primary cause for the effects observed in our experiments.

Finally, the presence of a break cannot only exert an influence through feelings experienced during and following the break, but also by changing the experience prior to the break. One possibility is that consumers will anticipate savoring the silence in the vacuum noise experiment or dread the guitar feedback in the popular song experiment. However, this does not only run contrary to our basic effect (i.e., breaks enhance positive experiences and worsen negative experiences), but is also contradicted by the online affect measures of Study 7. In this study, people who knew that the song was going to be interrupted enjoyed the song significantly more before the break than did people who knew they would listen to it without interruption ($M_s = 70.9$ vs. 58.2 ; $t(47) = 2.83$, $p = .007$; see segment A of figure 3). Although the additional data reported in the discussion indicates that these pre-break differences did not account for the differences in the summary evaluations, these results do suggest that the expectation of a break can enhance the intensity of the experience preceding the break—and it logically follows that this can also contribute to a more intense overall experience. It should be noted that the direction of this observed effect is rather surprising since it runs counter to the effects of savoring or dread. One possible explanation, which we are currently examining in a follow-up project, is that people are contrasting the experience against the expected relief or frustration offered by the break.

In sum, although the evoked feelings during the break and the effect of the anticipated break on the pre-break experience do not account for the effects observed in our studies, both factors would produce a broken up experience that is more intense than the uninterrupted experience. In other words, to the extent that these processes occur and contribute to the overall experience, they will add to the disruption of adaptation effect and thus strengthen our assertion that breaks will tend to make pleasant experiences more enjoyable and unpleasant experiences less tolerable.

Boundary Conditions - Experiences

People do not adapt to all experiences. We know, for instance, that people have trouble adapting to life near a highway, despite their beliefs to the contrary (Weinstein 1982). What is it about the highway noise that differs from the vacuum cleaner noise? The most obvious difference is that of overall duration: our participants were exposed to a maximum of three minutes of noise, whereas life next to a highway is a lengthy ongoing exposure. Perhaps a mildly annoying stimulus, like a vacuum cleaner noise, can be readily adapted to in the near term, but over a longer time period, either because of fatigue or familiarity, people eventually lose this ability. The data presented in this paper indicate that people can adapt to noises, but this tendency, and by extension the disruptive effects of breaks, may be restricted to relatively brief stimuli.

Another important distinction is the amount of variation in the experience. Unlike the vacuum noise, the sound of highway traffic is probably rather variable: loud trucks alternate with quieter cars, the busy rush hour traffic alternates with the lull in the middle of the day. This description suggests that the person living next to the highway is in fact experiencing the “break” condition rather than the “continuous” condition. If that is the

case, then perhaps we can reconcile the differences within the same model. People have the ability to adapt to mild noises if they are presented continuously, but they cannot adapt, and perhaps even sensitize, to disrupted experiences.

In addition, the initial intensity of the experience should also matter: certain negative experiences are so intense that people simply cannot adapt to them. For example, it can take many years before people fully adapt to the negative affect associated with losing a spouse (Carr et al. 2001). The effects we document are therefore probably restricted to events of a modest intensity—similar to the experiences we studied. Whereas the mild irritation of waiting in line at a cash register would indeed be exacerbated by a disruption, the more extreme pain of medical intervention might require breaks in order for the coping process to be effective. Is the same true for positive experiences? Compared to a likeable random pop song, are we also less likely to adapt to more intensely positive experiences, such as the consumption of a glass of fine Californian wine or a savory Belgian truffle? It is possible that these comparatively intense experiences are enjoyed most fully when they are consumed as a whole. For example, when describing the hypothesis to massage therapists, we have been told that a well enjoyed massage would be *worse* with a break, because the continuity is an integral part of the massage experience. Yet, in studies 5 and 7, we chose popular music as a positive stimulus in part because songs are typically seen as an experience that should be enjoyed as a complete unit. Nevertheless, a disruption improved the consumption of songs and, perhaps despite masseurs' intuitions, it may improve a massage as well.

Another, more straightforward factor is the duration of the break. Across our studies, we use breaks that vary in length, but all could be considered very brief. To some

extent this bolsters the strength of our findings, as even a minimal disruption appears to change hedonic consumption. However, it also qualifies our findings, since as the break increases in length, the break itself will come to make an increasingly large contribution to the overall experience. When a pleasant trip to St. Tropez is disrupted by a brief professional meeting, the vacation might actually get better, but if the trip instead is disrupted by 10 years of incarceration, that break will likely be unappreciated.

On the other end of the spectrum, we can ask if any disruption is sufficient to alter adaptation. It may be the case, for example, that the experience does not have to be completely interrupted, but rather simply made to feel discontinuous. Instead of inserting a brief break in a stimulus, perhaps merely changing the stimulus slightly (e.g., switching a massage chair from a Shiatsu function to a Swedish function) will be sufficient to improve the experience without ever interrupting the stimulus itself.

Boundary Conditions - Choices

What about the choice to break up an experience? As we document throughout the paper, people generally prefer to disrupt negative experiences and not to disrupt positive experiences. Nevertheless, this belies an intuition that we would rather complete some negative experiences as quickly as possible (e.g., receiving a painful injection), while we are happy to prolong some positive experiences by separating them into multiple experiences (e.g., receiving positive feedback on a paper). In the negative domain, consumers may indeed prefer not to break up an aversive experience if it is sufficiently short so they can simply “get it over with.” Whereas consumers may feel the need to break up unpleasant experiences because they overestimate the amount of resources they will need to cope with the experience (e.g., because they anticipate

sensitization rather than adaptation), they should not feel this need for sufficiently short negative experiences.

In the positive domain, participants' reluctance to break up pleasant experiences contrasts with Linville and Fischer's (1991) finding that people like to segregate positive experiences so they can maximally enjoy their impact. As we mentioned earlier, these conflicting findings may be attributable to differences in the type of experiences studied. Whereas Linville and Fischer (1991) studied when people prefer to combine two separate, meaningful events (e.g., positive feedback for two different classes), we study when people prefer to break up a single, homogeneous experiences (see, for example, the list of positive experiences in table 1). This raises the possibility that when breaking up a pleasant experience would result in two separate, meaningful events, consumers may in fact prefer to break up that experience. For instance, consumers may not want to break up their 40-minute massage in two 20-minute massages separated by a 5-minute break, but they may choose to break it up into a separately administered back massage and foot massage.

Extension and Implication

In all of the studies presented here, we measured break preferences and fixed the break manipulation at the start of the experience. What if we instead offered participants the option of controlling the break during the experience? Consider the person sitting in the massage chair. If she is given the option to turn off the machine for 30 seconds any time she wished, would she ever exercise that choice? The possibility seems both remote in prospect (people do not think that breaks will improve positive experiences), and even less likely in the online experience in which, even with extreme adaptation, the break will

always be less enjoyable than the massage itself. The same largely goes for the negative experiences, where the consumer is unlikely to forego a chance to take a break, even if they were to observe that the experience was getting progressively less aversive. In other words, consumers' myopia would likely prevent them from improving their experience by disrupting the ongoing adaptation.

This adaptation blindspot suggests that external agents may have the ability to improve a consumer's experience better than she can herself. Perhaps the thoughtful masseuse would maximize customer evaluations by inserting breaks in her massage, even if that would go against the immediate wishes of the customer. On the other hand, if customers knew to anticipate the break, they may choose to go to another, more monotonous masseuse.

TABLE 1
STUDY 1 – PREFERENCE FOR BREAKING UP EACH OF 15 DIFFERENT
EXPERIENCES.

Type of Experience	Percentage Preferring a Break
<i>Positive Experiences</i>	
First Class Flight	5% (6 of 119)***
Great Music	8% (10 of 119)***
Vacation	14% (17 of 119)***
Foot Massage	15% (18 of 119)***
Watching a Movie	16% (19 of 119)***
Ice Cream	29% (35 of 119)***
Generally Pleasant Experience	14% (17 of 119)***
<i>Negative Experiences</i>	
Waiting in Line	36% (43 of 119)**
Trip to Dentist	40% (47 of 119)*
Irritating Noise	69% (82 of 119)***
Hand in Cold Water	74% (88 of 119)***
Introductory Marketing Class	75% (89 of 119)***
Nasty Scent	76% (90 of 119)***
Painful Headache	79% (94 of 119)***
Generally Unpleasant Experience	72% (86 of 119)***

For each experience, we compare the observed proportions to 50%.

*** $p < .001$, ** $p < .01$, * $p < .05$

FIGURE 1

Study 2: Irritation as predicted by forecasters and as reported by experiencers (with standard error). Both measures have been rescaled to a 50 point scale with higher numbers reflecting more irritation. Please note that, given the difference in the initial measures, absolute differences in ratings for forecasters versus experiencers cannot be interpreted.

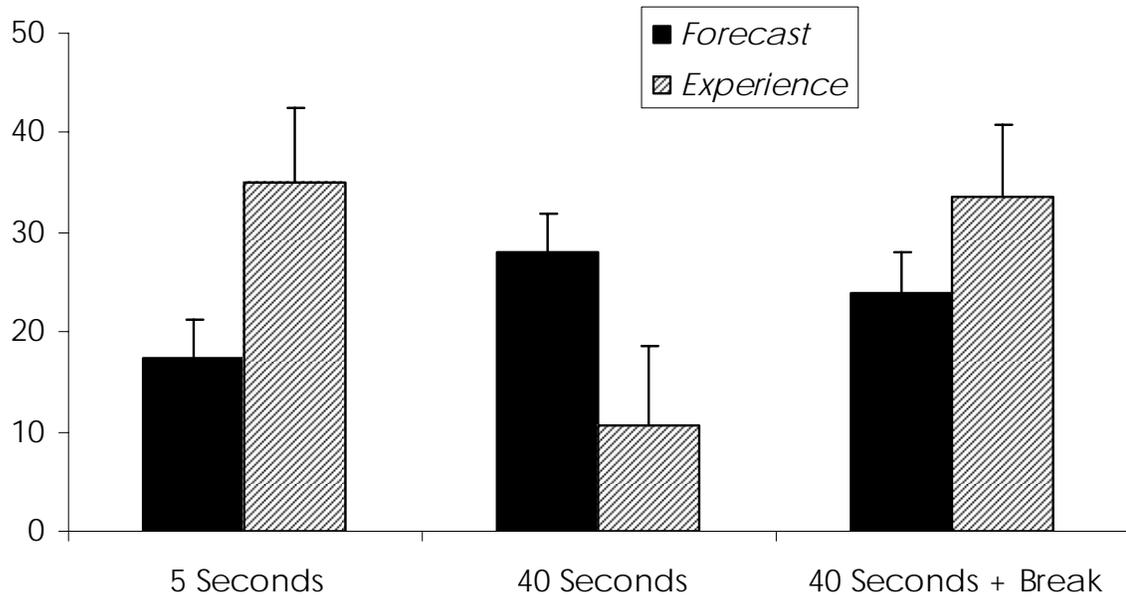


FIGURE 2

Studies 4 and 5: Retrospective evaluations of intensity. The top panel depicts standardized irritation ratings (from Study 4) and the bottom panel depicts standardized enjoyment ratings (from Study 5). Any disruption made both the positive and the negative stimuli more intense than the continuous experience.

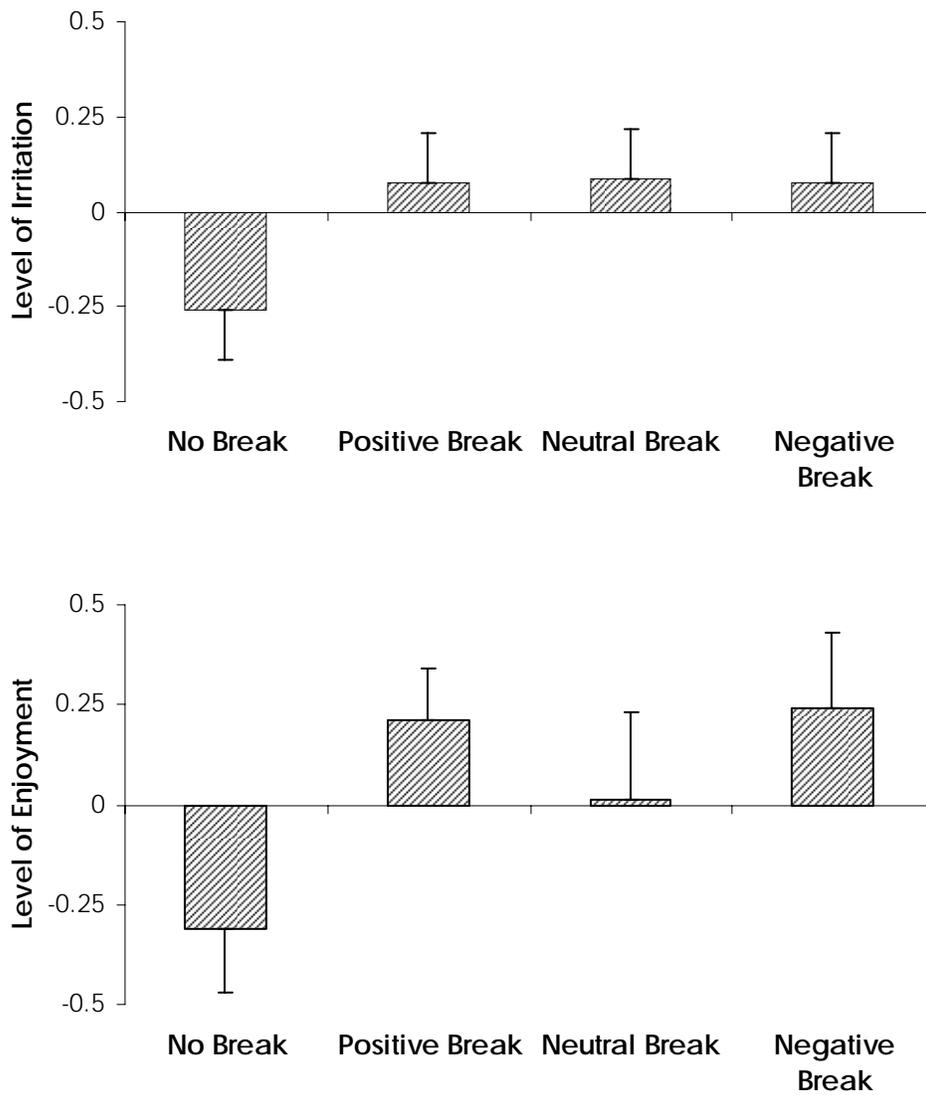
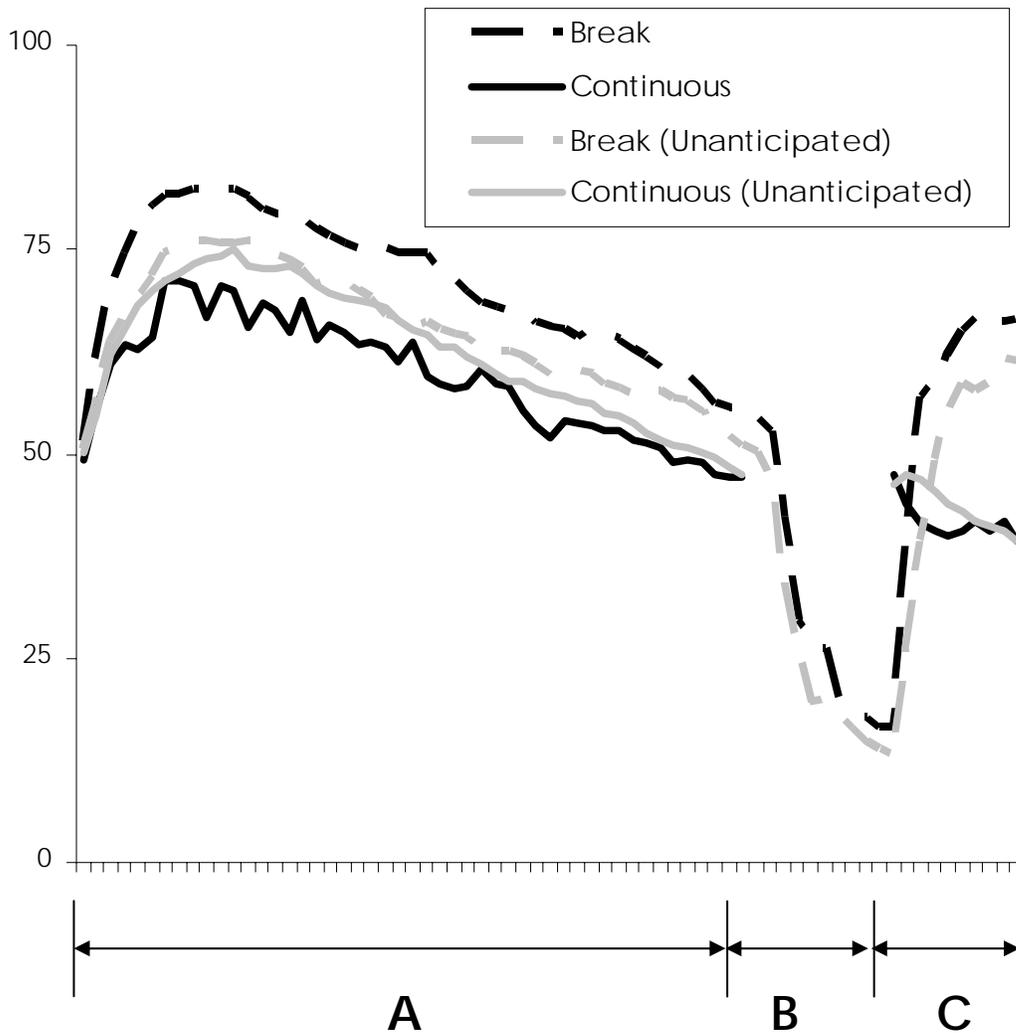


FIGURE 3

Study 7: Online measures of enjoyment of the looped song as a function of time and condition. Segment A depicts the first 50 seconds of the experience, which was identical for both groups. Segment B depicts seconds 51-60 for participants in the Break condition (experiencing aversive guitar feedback). Segment C depicts the final ten seconds of the looped song; seconds 51-60 for participants in the Continuous condition, and seconds 61-70 for participants in the Break condition. The two “Unanticipated” conditions depict data from a subsequent study mentioned in the discussion section of Study 7.



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