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This research investigates how the valuation of delayed consumption of hedonic products, such as concerts and chocolate, varies with the passage of time between choice and consumption. The authors find that when consumers make their own choices, they exhibit increases in evaluations of delayed consumption, but only if the interval between choice and consumption is relatively short. The effect attenuates over longer periods, resulting in an inverted U-shaped relationship between evaluations and time. In contrast, when somebody else chooses the same option for the consumer, evaluations decrease with the passage of time. These effects depend on the extent of intrinsic motivation toward the object of consumption and occur only for consummatory consumption that is of inherent interest. Moreover, anticipatory increases in evaluations before consumption have ironic negative effects on postconsumption evaluations. The authors discuss implications and directions for further research.

*Keywords:* time preference, choice, discounting, anticipation, hedonic products

## When Choosing Makes a Good Thing Better: Temporal Variations in the Valuation of Hedonic Consumption

Consumers often purchase products and services for future consumption. For example, a person may purchase a ticket today for a concert that will be held next week. This practice of advance selling is prevalent in many industries, locking in customers who expect to enjoy the future consumption and also screening those who are uncertain about future valuations (Dana 1998; Gale and Holmes 1993; Xie and Shugan 2001). In situations in which purchase precedes consumption, a large body of evidence suggests that people discount future consumption, (i.e., they value it less than immediate consumption) and, all else being equal, prefer objects sooner rather than later (Ainslie 1975; Kirby 1997;

Mischel, Grusec, and Masters 1969). However, other research suggests that people sometimes voluntarily impose a wait on themselves, preferring to defer their consumption (Frederick, Loewenstein, and O'Donoghue 2002; Loewenstein 1987; Loewenstein and Prelec 1993). This indicates that the value of consumption in such cases may instead increase with time. Loewenstein (1987) refers to this self-imposition of delay as "the savoring motive" and the positive utility derived from temporal separation between choice and consumption as "anticipation" (see also Caplin and Leahy 2001).

The question then arises: Under what conditions does temporal separation between choice and consumption (what we call "delay") lead to anticipation (i.e., increases in evaluations), and when does it not? This research investigates the processes that drive anticipation and explores its postconsumption effects. We find that when consumers make their own choices on hedonic items, preconsumption evaluations increase, but only over relatively short delays. Evaluations become less positive as the length of delay increases, resulting in an inverted U-shaped relationship between evaluation and delay. This effect is mediated by consumers' intrinsic

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motivation toward the consumption of the given hedonic item. In contrast, when somebody else makes the same choice for them, consumers' evaluations of the hedonic item decrease monotonically with delay. In essence, the provision of choice moderates whether evaluations increase or decrease in the short run; in the long run, evaluations tend to decrease. We begin this article with a review of the relevant literature, on the basis of which we develop the hypotheses. We then report three experiments that test these hypotheses and conclude with a general discussion of the results, limitations, and future research directions.

### THEORETICAL DEVELOPMENT

#### *Temporal Variations in the Valuation of Delayed Consumption*

The valuation of delayed consumption may either increase or decrease as time passes between choice and consumption. According to traditional discounted utility theory, people exhibit positive discount rates, preferring things sooner rather than later (Ainslie 1975). This discounting of delayed consumption may be due to the desire to avoid uncertainty in the future, to enjoy the consumption immediately, and to preclude the discomfort associated with deferring the consumption (for a comprehensive review, see Frederick, Loewenstein, and O'Donoghue 2002). In contrast, other research has found that positive discount rates do not apply in all intertemporal situations (Loewenstein and Prelec 1993). For example, Loewenstein (1987) notes that in the context of pleasurable consumption, the expectation of future experience can have an additional positive effect on the overall evaluation of the (already positively valenced) consumption. Indeed, several researchers have found increases in subjective value derived from the expectation of future consumption across several contexts in which the delayed consumption is vivid and pleasurable to contemplate (Loewenstein 1987; Nowlis, Mandel, and McCabe 2004). For example, Nisan (1973) asked participants to evaluate a good-tasting food that they expected to receive immediately or after a week and found that participants gave higher ratings for the food they expected to consume a week later (versus immediately). Similarly, Loewenstein's (1987) respondents were willing to pay a higher amount of money if they could receive a kiss from a movie star three days in the future instead of immediately. Most relevant to the current article, Nowlis, Mandel, and McCabe (2004) found anticipation in externally imposed and unknown delays, in which participants in a delay condition were asked to wait for a chocolate bar for an unknown period (but fixed at 30 minutes in all experiments). As predicted, they found that among participants who had chosen the chocolate themselves, those in the delay condition reported enjoying it more than those who consumed it immediately.

In summary, given a temporal separation between choice and consumption, different streams of research have demonstrated that there may be either a decrease (i.e., discounting) or an increase (i.e., anticipation) in the valuation of delayed consumption. However, it is not clear under what conditions either effect prevails. In this research, we propose that the extent of intrinsic motivation toward the chosen consumption activity plays an important role in this context. Intrinsic motivation, defined as the "doing of an activity for its inherent satisfactions rather than for some separable

consequence" (Ryan and Deci 2000, p. 56), is regarded as an important energizer of behavior toward an end. It has two important components, autonomy and perceived control (Deci and Ryan 1985). In this research, we study the effects of autonomy, as manifested by the provision of choice, and perceived control, as manifested by length of delay, on intrinsic motivation and, thus, on evaluations of delayed consumption.

#### *Autonomy: The Provision of Choice*

There is an empirical point of difference between streams of research that have documented discounting and those that have demonstrated anticipation. In general, research in the discounting literature has required participants to report valuations of items specified by an external agent, such as an experimenter (Ainslie 1975; Kirby 1997; Mischel, Grusec, and Masters 1969). For example, Mischel, Grusec, and Masters (1969) asked participants to rate several pre-specified rewards (e.g., a cozy lamp) that they might receive at some future time. In contrast, much of the prior research on anticipation has allowed participants to choose their own rewards. For example, Nowlis, Mandel, and McCabe (2004) asked participants to choose a chocolate bar for themselves. This implies that the provision or absence of the opportunity to choose the object of consumption may cause evaluations to increase or decrease, respectively, with time.

Why might the provision of choice lead to variations in evaluations over time? Research has shown that regardless of whether people choose among trivial, incidental, or even illusory options, the provision of the opportunity to choose provides autonomy and increases motivation in a variety of ways, while the denial of such opportunity has the opposite effects (Burger 1989; Deci and Ryan 1985; Langer 1975). For example, Cordova and Lepper (1996) allowed participants to make a trivial choice (i.e., choose their own icons and names) in a board game and found that this provision increased motivation, leading to more positive evaluations and greater persistence with the chosen option. Autonomy, or the internal perceived locus of causality, is a key factor facilitating intrinsic motivation (Deci and Ryan 1985; Kivetz 2003). Therefore, we hypothesize that when people are allowed to choose their own pleasurable consumption activity, they feel greater autonomy and are more likely to be intrinsically motivated toward it, thus activating a goal of consumption. If this goal is not satiated on activation, it may increase in intensity (Bargh et al. 2001; Chartrand et al. 2008) and lead to anticipation. (Importantly, the goal of consumption should be activated only when people are intrinsically motivated, and thus anticipation should be observed only for consummatory [versus instrumental] products; we return to this issue in the "General Discussion" section.) However, if someone else chooses the consumption activity, the lower autonomy elicited will lead to lower levels of intrinsic motivation. The corresponding goal of consumption will then not be activated, leading not to anticipation but rather to the discounting of the delayed consumption. Thus, we hypothesize that anticipation will be observed only when people are allowed to make their own choices on hedonic products/services.

H<sub>1</sub>: When consumers choose a particular hedonic consumption activity for themselves, the evaluation of the consumption experience increases, given a time interval between choice

and consumption. When someone else chooses the same item for the consumer, the passage of time causes evaluations to become less favorable.

#### *Perceived Control: Length of Delay*

Prior research has demonstrated the basic anticipation for relatively short periods, ranging from 30 minutes (Nowlis, Mandel, and McCabe 2004) to one week (Nisan 1973), but it is less clear about the possible impact of different lengths of delay. A possible effect of increasing delay is that people could perceive decreasing amounts of control ("perceived control" is the contingency between a person's behavior and the outcome; Deci and Ryan 1985) over the factors influencing consumption because more external and uncontrollable factors come into play (Frederick, Loewenstein, and O'Donoghue 2002; Soman et al. 2005). External factors can decrease perceived control because they cause a shift from an internal to an external perceived locus of causality (Deci and Ryan 1985). For example, Glass and Singer (1972) find that participants who thought that a loud background noise was uncontrollable were more likely to give up at a problem-solving task than those who thought that they could control the noise themselves. Indeed, the discounting literature itself reports that the extent of discounting increases as outcome uncertainty increases (Frederick, Loewenstein, and O'Donoghue 2002), suggesting an inverse relationship between perceived control and intertemporal evaluations. This suggests that increasing delay should lead to a decrease in perceived control and, thus, a negative effect on the intrinsic motivation toward consumption.

To summarize, two factors may be at play here. As we argued previously, intrinsic motivation increases with the autonomy provided by choice. However, as the delay increases, the positive effect of autonomy may get swamped by the increasingly negative effect of decrease in perceived control. As a result, beyond a certain point, there should be a net negative effect on intrinsic motivation. This implies that anticipation should be greater for short delays than for immediate (nondelayed) consumption but less for long delays than for short delays, leading to an inverted U-shaped relationship between the length of delay and the evaluation of delayed consumption.

H<sub>2</sub>: When consumers make their own choices, the valuation of delayed consumption first increases and then decreases as the length of time between choice and consumption increases.

#### *Summary*

In summary, we propose that when making their own choices, participants in a short-delay condition will report more positive evaluations than those in no-delay or long-delay conditions. In contrast, when someone else makes the choice, participants in the no-delay condition will have more positive evaluations than those in delay conditions. We now describe three experiments that test these predictions. Experiment 1 uses a scenario study to test H<sub>1</sub>, showing that the provision of choice leads to anticipation while the absence of choice leads to discounting. Experiment 2 uses real time delays and, consistent with H<sub>2</sub>, shows that the provision of choice leads to an inverted U-shaped relationship between evaluation and delay, but only for consumption that

is of high inherent interest. In contrast, when the choice is made by someone else, delayed consumption is discounted regardless of inherent interest. These results are mediated by intrinsic motivation toward the consumption. Experiment 3 then uses real decisions and delays, replicates the inverted U-shaped relationship, and further demonstrates an ironic negative effect on postconsumption evaluations.

#### *EXPERIMENT 1*

The aim of Experiment 1 was to test H<sub>1</sub>. The experimental scenario involved choosing a theatrical drama to watch. The experiment consisted of a pretest followed by two phases. In the first phase, we manipulated the choosing agent (self versus other), and in the second phase of the experiment, we manipulated delay in consumption (no delay versus delay).

#### *Procedure*

*Pretest.* We first conducted a pretest to identify three dramas to be used as stimuli in the experiment. For reasons discussed subsequently, we wanted to identify one highly attractive option and two less attractive options. We asked 148 undergraduate students to read descriptions of 11 dramas and rate each one on eight items (attractive, happy, fun to watch, excited, looking forward to, disappointed if unavailable, waste of time [reverse scored], and likely to watch; 1 = "not at all," and 7 = "extremely"). We averaged responses to the items to form a composite measure of attractiveness ( $\alpha = .96$ ) and subjected them to a one-way within-subjects analysis of variance (ANOVA). The overall analysis revealed significant differences among the 11 dramas ( $F(10, 1470) = 28.37, p < .001$ ). Follow-up contrasts showed that Drama 8 ( $M = 4.73$ ) was rated as significantly more attractive than Drama 2 ( $M = 3.04$ ) or Drama 4 ( $M = 3.02$ ), which were the least attractive. Therefore, we chose Drama 8 as the highly attractive option and Dramas 2 and 4 as the unattractive options to be used in the experiment.

*Phase 1: choosing agent.* In the main experiment, 119 undergraduate students were randomly assigned across conditions in a 2 (choosing agent)  $\times$  2 (delay) between-subjects design. The first phase of the experiment manipulated the choosing agent. Participants were told that they had just received the brochure for an upcoming drama festival. This brochure contained descriptions of the three dramas identified in the pretest (for details, see the Web Appendix at <http://www.marketingpower.com/jmrjune10>). Participants were asked to read the description of each drama carefully and to rate the attractiveness of each one. In the self-choice condition, after participants had read about and rated each drama, they were asked to choose the one they would like to watch. Immediately after they indicated their choice, they were told that their closest friend had just called to say that he or she wanted to come along to the festival and was willing to watch the chosen drama. Participants in the other-choice condition were told that their closest friend had just chosen and bought tickets to watch a particular drama (which happened to be the most attractive one in the brochure). In both conditions, participants were told that they had no urgent things to do on the night of the drama and that their friend would pay for their ticket, which was therefore completely free for them. Because the choice set included one highly attractive option, we expected that par-

ticipants in the self-choice condition would all choose that particular one (we tested for this and report the results subsequently). At the same time, participants in the other-choice condition would always be assigned to watch the same drama. Consequently, we held the drama that participants expected to watch constant across all conditions, and thus any observed differences between conditions should be due to the difference in choosing agent as manipulated, rather than the chosen drama.

*Phase 2: delay in consumption.* In the second phase, participants were assigned to conditions in which the drama was to be performed on the same day (no delay) or one week later (delay). In the same-day condition, participants were told that the drama was scheduled to begin in a few hours. Participants in the delay condition were administered a brief filler task and then were told to imagine that one week had passed and the drama was due to begin in a few hours. After the manipulation of delay, participants in all conditions were told, similar to Gourville and Soman (1998), that their chosen drama was due to begin in a few hours but it was raining heavily and a severe weather advisory was in effect. Given this scenario, all participants responded to the dependent measures, which we describe next. Finally, they were paid, debriefed, and thanked.

*Measures.* The main dependent variable was participants' reported intention of going to watch the drama. This was based on five items: the likelihood of watching the drama, giving up the ticket (reverse scored), giving the ticket to the friend (reverse scored), forcing the friend to go, and reselling the ticket (reverse scored; 1 = "extremely unlikely," and 9 = "extremely likely";  $\alpha = .75$ ). As a manipulation check for autonomy, participants reported on a nine-point scale the extent to which they thought that they had chosen the drama. They then responded to measures of various specific emotions (e.g., happy, nervous, frustrated). Finally, we assessed demographic information, participants' attitudes toward theater, and their frequency of watching dramas. These variables had no significant effects, and we do not discuss them further.

### Results and Discussion

Although participants in the other-choice condition were always assigned the more attractive option in Phase 2, it is possible that if given the choice, some would have opted for the less attractive one. This would cause the self- and other-choice conditions to differ because all participants in the self-choice condition chose their most preferred option. To ensure an equivalent comparison between the two conditions, we examined participants' ratings in the other-choice condition in Phase 1. Nine participants (7.6%) rated the two less attractive dramas more positively than the highly attractive one and thus might have chosen one of these less attractive options. We excluded these participants from the analyses, which resulted in a data set of 110 participants. Including these participants (i.e., using the full data set) did not change the observed patterns of results or the significance values.<sup>1</sup>

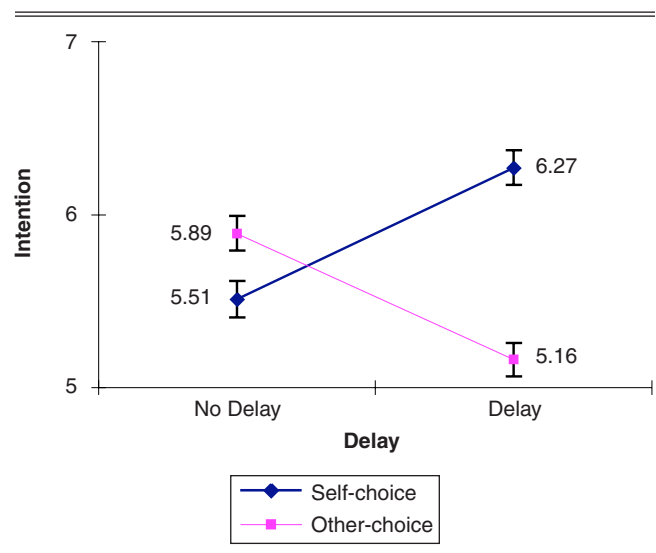
<sup>1</sup>We also expected that all participants in the self-choice condition would choose the highly attractive drama, but 11 participants (9.2%) chose one of the two less attractive options. Excluding these outliers also does not change the observed patterns.

*Manipulation check.* A 2 (choosing agent)  $\times$  2 (delay) ANOVA on the extent to which participants thought that they had made the decision about which drama to watch revealed only a main effect of choosing agent. Participants in the self-choice (versus other-choice) condition were more likely to believe that they had made the decision ( $M_s = 5.69$  versus 4.31;  $F(1, 106) = 13.76, p < .001$ ). No other effect was significant, implying that participants perceived more autonomy in the self-choice condition than in the other-choice condition.

*Intention.* A 2 (choosing agent)  $\times$  2 (delay) ANOVA on the reported intention of going to watch the drama revealed no main effects, but there was a significant interaction ( $F(1, 106) = 8.23, p < .01$ ). Recall that in the self-choice condition, we hypothesized that intentions would be more positive in the delay condition than in the no-delay condition. Consistent with  $H_1$ , a planned contrast revealed that participants in the delay condition ( $M = 6.27$ ) reported greater intentions to watch the drama than participants in the no-delay condition ( $M = 5.51$ ;  $F(1, 106) = 4.62, p < .05$ ). In contrast, in the other-choice condition,  $H_1$  predicts that delay will lead to less positive intentions. As we expected, participants in the delay condition ( $M = 5.16$ ) were less likely to watch the drama than those in the no-delay condition ( $M = 5.89$ ;  $F(1, 106) = 4.21, p < .05$ ). There were no main or interactive effects on any of the affect measures, thus ruling out affect as an alternative explanation for these results (see Figure 1).

This experiment showed that when participants chose for themselves, they reported more positive intentions toward the consumption given a delay. In contrast, in the other-choice condition, participants reported lower intentions toward the activity in the delay condition than in the no-delay condition. The decrease in intention over time indicates that participants in the other-choice condition did not anticipate the future activity, thus providing further support for  $H_1$ .

Figure 1  
EXPERIMENT 1: THE PROVISION OF CHOICE INCREASES INTENTION TO CONSUME WHEN THERE IS A SEPARATION BETWEEN CHOICE AND CONSUMPTION



### EXPERIMENT 2

Experiment 2 had several aims. The first was to increase confidence in the results by using a different product category and real delays between choice and consumption. Second, we aimed to test  $H_2$  by adding an additional long-delay condition. Third, we tested the proposed process by directly manipulating inherent interest in the consumption activity. According to our proposed explanation, anticipation is driven by intrinsic motivation toward the delayed consumption. This implies that the effect should occur only when the consumption is of high inherent interest; choosing a consumption activity of low inherent interest should eliminate the effect. Therefore, we predict that when participants choose their own options, there will be an inverted U-shaped relationship between evaluation and time (i.e., as we stated in  $H_2$ , a higher evaluation of the consumption under short delay than under no delay and long delay), but this relationship will occur only for consumption that is of high (versus low) inherent interest. Conversely, evaluations will decline with time when someone else chooses the option, regardless of whether the consumption is of high or low inherent interest.

The fourth aim of this experiment was to test the proposed mediating effect of intrinsic motivation. As argued previously, we proposed that choosing agent and length of delay both affect intrinsic motivation, which in turn leads to the observed differences in valuation. Experiment 2 tested this mechanism by measuring the intrinsic motivation toward the consumption.

#### Procedure

Two hundred eighty-five students were randomly assigned across conditions in a 2 (interest: high versus low)  $\times$  2 (choosing agent: self versus other)  $\times$  3 (length of delay: none versus short versus long) between-subjects design. This experiment again consisted of two phases. In the first phase, in which participants chose (or not) between two music concerts, we manipulated interest and choosing agent. In the second phase, participants returned to the laboratory after real time delays and responded to the dependent variables.

*Phase 1: interest and choosing agent.* Similar to Experiment 1, participants were told that a music festival was coming up and that they had been given a free coupon to watch one of two concerts. The concerts would be held the same day, one week later, or two weeks later (between subjects), but they needed to choose a concert right then. They read the descriptions of both concerts and rated their attractiveness. We manipulated inherent interest using genre: Participants in the high-interest condition read about two pop music concerts, and those in the low-interest condition read about two classical music concerts. The procedure and manipulation of choosing agent were the same as previously: Participants either chose the concert for themselves or were told which concert their closest friend had chosen. Both choice sets included one highly attractive option, which we expected participants in the self-choice condition to choose. Likewise, those in the other-choice condition were always assigned to watch the same concert. Finally, participants in the delay conditions were reminded to return for the second part of the study.

*Phase 2: delay in consumption.* Participants in the no-delay condition proceeded to this phase immediately. Those in the delay conditions returned to the lab after either one week or two weeks. All participants were asked to indicate the concert that they or their “closest friend” had chosen a few minutes (one week, two weeks) ago. In all conditions, they were told that the concert was scheduled to begin soon. All participants then responded to the dependent measures (which we describe next), after which they were debriefed and thanked.

*Measures.* The main dependent variable in this experiment was participants’ prospective evaluations of the concert (instead of intentions to go see it, which is what we measured in Experiment 1). This measure was based on four items (1 = “dislike very much/not at all enjoy/extremely bad/extremely unattractive,” and 9 = “like very much/extremely enjoy/extremely good/extremely attractive”;  $\alpha = .79$ ). Following this, as a manipulation check for autonomy, participants indicated the extent to which they thought that they made the choice of which concert to watch and the extent to which the concert was a freely chosen option ( $\alpha = .76$ ), on nine-point scales. Next, as a manipulation check for perceived control, participants indicated the extent to which they thought that the enjoyment of the concert was subject to external influence (reverse scored) and their confidence that the music concert would turn out as expected ( $\alpha = .79$ ), again on nine-point scales. Afterward, they were asked to report their intrinsic motivation toward the concert. We adapted this measure from the task evaluation questionnaire in the intrinsic motivation inventory (e.g., “While I thought about the music concert, I was thinking how much I would enjoy it”; Ryan, Koestner, and Deci 1991;  $\alpha = .75$ ). Finally, as a manipulation check for inherent interest, participants indicated their interest in pop or classical music.

#### Results and Discussion

Twenty-four participants (8.4%) did not return for the second session. Dropouts were evenly distributed across the delay conditions. Across the interest conditions, there were 15 participants (5.2%) in the other-choice condition who rated the less attractive concert more positively than the highly attractive one in Phase 1 and thus would probably have chosen the less attractive concert if given the choice. Similar to Experiment 1, we excluded these participants, which resulted in a data set of 246 participants. Including these participants did not affect the pattern of results or the significance values.<sup>2</sup>

*Manipulation checks.* As in Experiment 1, a 2 (choosing agent)  $\times$  2 (interest)  $\times$  3 (length of delay) ANOVA on the autonomy measure revealed that participants in the self-choice condition perceived more autonomy in choosing their own concert than participants in the other-choice condition ( $M_s = 6.40$  versus  $5.42$ ;  $F(1, 234) = 9.98, p < .01$ ). No other effect was significant. We also measured the perceived control over the consumption in this experiment. Importantly, there was a significant main effect of delay ( $F(2, 234) = 3.42, p < .05$ ). As we expected, and in strong support of our theorizing, there was a significant linear trend such that per-

<sup>2</sup>Sixteen participants (6.1%) across the interest conditions chose the less attractive concert. Excluding these participants also did not affect the observed patterns.

ceived control decreased as the delay in consumption increased ( $M_{\text{no\_delay}} = 6.09$ ,  $M_{\text{short\_delay}} = 5.93$ ,  $M_{\text{long\_delay}} = 5.47$ ;  $F(1, 234) = 5.97$ ,  $p < .05$ ). No other effect was significant. Finally, consistent with our manipulation of inherent interest, there was a significant main effect of interest ( $F(1, 234) = 75.13$ ,  $p < .001$ ), such that participants were more interested in pop music (high inherent interest;  $M = 7.00$ ) than classical music (low inherent interest;  $M = 4.98$ ).

**Discriminant validity.** We conducted exploratory and confirmatory factor analyses to verify that the items measuring evaluation and intrinsic motivation indeed tapped into separate constructs. Exploratory factor analysis revealed two factors explaining 73% of the total variance, with items loading onto the factors as expected. In particular, the four items assessing evaluation loaded onto one factor explaining 41% of the total variance, and the seven items measuring intrinsic motivation loaded onto a second factor explaining 32% of the total variance. All items loaded at least .50 on the respective factors. The confirmatory factor analysis then demonstrated a lack of fit for a one-factor model ( $\chi^2(44, 246) = 650.72$ ,  $p < .0001$ ; comparative fit index [CFI] = .71; and root mean square error of approximation [RMSEA] = .26) compared with a two-factor model ( $\chi^2(43, 246) = 135.22$ ,  $p < .0001$ ; CFI = .95; and RMSEA = .09). This indicates that evaluation and intrinsic motivation as measured are indeed different constructs and thus were analyzed as reported next.

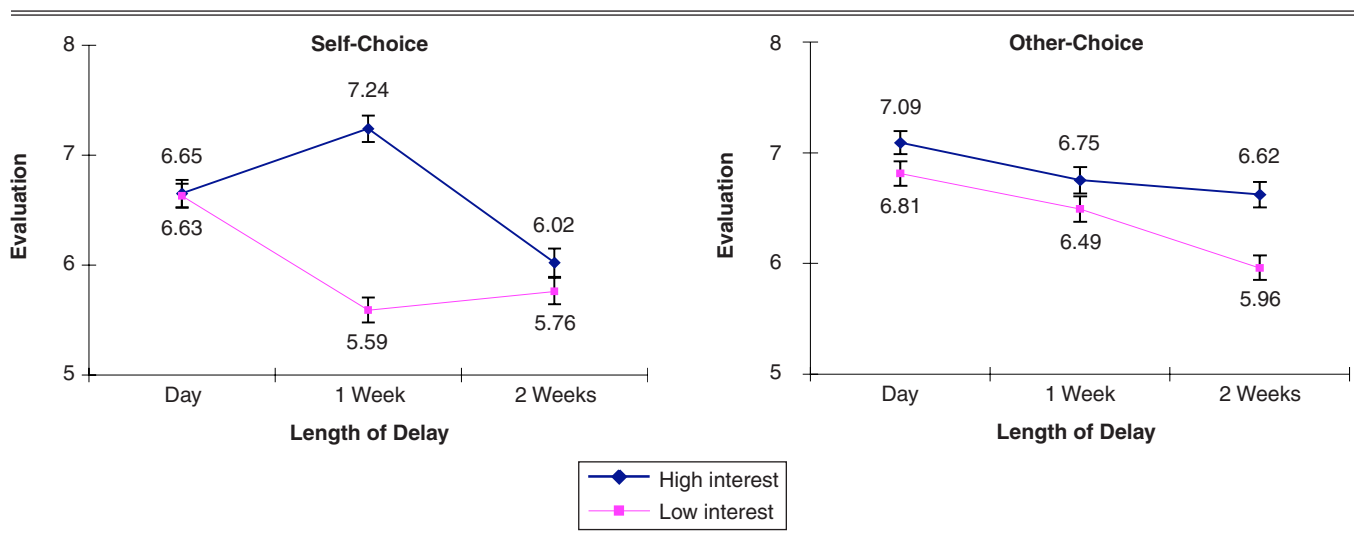
**Evaluation.** A 2 (interest)  $\times$  2 (choosing agent)  $\times$  3 (length of delay) ANOVA on the prospective evaluation of the concert revealed main effects of interest ( $F(1, 234) = 12.14$ ,  $p < .01$ ), agent ( $F(1, 234) = 4.14$ ,  $p < .05$ ), and delay ( $F(2, 234) = 6.21$ ,  $p < .01$ ). More important, there was a significant three-way interaction contrast of interest and agent with the quadratic trend of delay ( $F(1, 234) = 6.72$ ,  $p < .01$ ), while reassuringly, the same three-way interaction contrast with the linear trend of delay was not significant ( $F < 1$ , n.s.). Planned contrasts then revealed that in the self-choice condition, there was a significant two-way interaction of interest with the quadratic trend of delay ( $F(1, 234) = 7.79$ ,

$p < .01$ ), and as we expected, the same two-way interaction with the linear trend of delay was not significant ( $F < 1$ , n.s.). We predicted that in the self-choice condition, the inverted U-shaped relationship between evaluation and delay would occur only in the high-interest condition. Consistent with our theorizing and with  $H_2$ , there was a significant quadratic trend ( $F(1, 234) = 5.88$ ,  $p < .01$ ) in the high-interest condition only, such that participants in the short-delay condition reported more positive evaluations ( $M = 7.24$ ) than those in the no-delay condition ( $M = 6.65$ ) and long-delay condition ( $M = 6.02$ ). We observed no such trend in the low-interest condition ( $F < 1$ , n.s.). In the other-choice condition, evaluations should decline with delay. The results show that, consistent with  $H_1$ , there was only a main effect of delay ( $F(2, 234) = 3.05$ ,  $p < .05$ ). Planned contrasts showed a significant linear trend ( $F(1, 234) = 6.42$ ,  $p < .01$ ), such that across interest levels, participants in the no-delay condition reported more positive evaluations ( $M = 6.95$ ) than those in the short-delay condition ( $M = 6.62$ ) and the long-delay condition ( $M = 6.29$ ) (see Figure 2).

**Mediation analysis.** We proposed that the observed effects are driven by intrinsic motivation. We tested this using a four-step mediation analysis (Baron and Kenny 1986). First, when we regressed evaluation on interest, choosing agent, quadratic trend of delay, and all interaction terms, the three-way interaction term was significant ( $F(1, 234) = 6.72$ ,  $p < .01$ ). Second, we regressed intrinsic motivation (the proposed mediator) on the same predictors, and the three-way interaction term was significant ( $F(1, 234) = 5.11$ ,  $p < .05$ ). Third, intrinsic motivation had a significant and positive effect on evaluation ( $\beta = .98$ ,  $t(245) = 20.45$ ,  $p < .001$ ). Finally, when evaluation was simultaneously regressed on interest, choosing agent, quadratic trend of delay, all interactions, and intrinsic motivation, the effect of intrinsic motivation remained significant ( $F(1, 233) = 64.82$ ,  $p < .001$ ), and the three-way interaction dropped below significance ( $F(1, 233) = .61$ ,  $p = .44$ , n.s.). This shows that the effect was fully mediated by intrinsic motivation.

Figure 2

EXPERIMENT 2: THE PROVISION OF CHOICE INCREASES EVALUATIONS UNDER SHORT DELAYS FOR CONSUMPTION ACTIVITY OF HIGH INTRINSIC INTEREST



*Additional analysis.* Our conceptualization suggests that we will observe anticipation in the self-choice condition only when the consumption is high in inherent interest. In this experiment, we tested this hypothesis using two types of concerts (pop and classical) that differed in their inherent interest. It is also possible to test this hypothesis by pooling across the two categories, using instead the interest ratings from the manipulation check as predictors. In support of this, we found a significant three-way interaction among interest (a continuous variable), choice, and quadratic trend of delay ( $F(1, 234) = 4.12, p < .05$ ). Furthermore, in replication of the previous findings, there was a significant two-way interaction between interest and quadratic trend of delay in the self-choice condition ( $F(1, 234) = 5.16, p < .05$ ), but only a significant linear effect of delay in the other-choice condition ( $F(1, 234) = 4.34, p < .05$ ). Moreover, analysis using a median split on the interest variable recovered the previous pattern of results. This replication using interest ratings further attests to the robustness of the results.

*Discussion.* Experiment 2 provides a strong replication of the results in a setting in which participants waited up to two weeks in real time. Consistent with  $H_2$ , we find that when participants made their own choices, they had higher evaluations given a one-week delay than given no delay or a two-week delay. Importantly, the inverted U-shaped relationship between delay and evaluation occurred only when the consumption was of high inherent interest (versus low interest). This supports our theorizing that autonomy and perceived control influence intrinsic motivation and the subsequent evaluations only if people are inherently interested in the activity. When the choice is made by somebody else, people discount the delayed consumption regardless of how interesting the consumption is. These findings generalize and extend the previous results to a more naturalistic setting. Furthermore, as we predicted, the observed effects are mediated by participants' intrinsic motivation toward the activity—indeed, the positive relationship between intrinsic motivation and evaluation supports a key point in our theorizing.

### EXPERIMENT 3

Experiment 3 had two main aims. The first was to further increase confidence in the inverted U-shaped relationship in the self-choice condition by using yet another product category in a setting featuring real choices and delays. Second, we wanted to investigate how the observed variations in subjective evaluations before consumption transferred to postconsumption evaluations. In Experiments 1 and 2, we measured the dependent variables just before consumption (i.e., prospective evaluation). The next question is whether—and, if so, how—retrospective evaluations of the actual consumption experience are affected.

There are two competing hypotheses. The satisfaction literature proposes that levels of expectation serve as comparison points against which to judge the perceived quality of the consumption (Boulding et al. 1993; Oliver 1980). Anticipation would imply an increase in expectations and, thus, a higher standard of comparison. Therefore, participants who anticipate the most should also report the lowest postconsumption evaluations. Other research indicates that the perception of an ambiguous experience may be shaped

by prior expectation (Braun 1999; Hoch and Ha 1986). In the case of temporal separation between choice and consumption, the evaluation of the consumption may be ambiguous because people often cannot directly compare the performance of their chosen option with those of non-chosen ones. Given such ambiguity, expectations may serve as hypotheses that people actively search to confirm (Hoch and Ha 1986). Accordingly, participants who anticipate the most should also report the highest postconsumption evaluations. Experiment 3 tested these opposing predictions.

### Procedure

This experiment consisted of a single-factor four-level (delay: none versus one week versus two weeks versus one month) between-subjects design ( $N = 110$ ). Participants chose between two variants of chocolate and returned to the laboratory after delays of up to a month to taste the chocolate and report both pre- and postconsumption evaluations.

*Phase 1: choice of chocolate.* This study was introduced as a taste test conducted by a prestigious European chocolate company. Participants were told that the company provided two flavors of chocolate (dark and milk), of which they could choose one to taste. The actual taste test was to be conducted the same day, one week later, two weeks later, or one month later (between subjects), but participants in all conditions were required to choose a flavor right then. All participants were given samples of the two flavors in the original packaging and wrapped in transparent plastic wrap. They were asked to examine the chocolate bars and report their initial impressions toward each. (We counterbalanced the order of which flavor was evaluated first.) After answering these questions, participants were asked to choose which flavor they would like to taste right then, one week later, two weeks later, and one month later. The choice of flavor did not affect the results, and thus we do not discuss it further. All participants then returned the samples and were reminded to come back for the taste test.

*Phase 2: taste test.* On their return to the lab, participants were first asked to indicate the flavor of chocolate they had chosen. While the experimenter purportedly went to locate a bar of their chosen flavor, all participants reported their preconsumption evaluations on nine-point scales. This was based on four items: how much they would like tasting the chocolate, the likelihood of eating the chocolate immediately, the attractiveness of the chocolate, and how much they looked forward to tasting the chocolate ( $\alpha = .84$ ).

All participants then received chocolate bars of the chosen flavors. They were invited to take a bite of their chosen chocolate and were asked to report their evaluations. The postconsumption evaluation measure included three items: how good or bad the chocolate bar was, how delicious it was, and how likely they were to recommend it to their friends (1 = “bad/not at all delicious/extremely unlikely,” and 9 = “good/delicious/extremely likely”;  $\alpha = .82$ ). Participants then responded to several different measures, including the extent to which they thought that they were forced to eat the chocolate bar and how much effort they had put into making the choice. Afterward, they were asked to report their intrinsic motivation toward the taste test. The measure of intrinsic motivation was the same as in Experiment 2 ( $\alpha = .73$ ). Finally, we collected some demographic information, including whether participants had tasted this

brand before, their preferences toward chocolate in general, and their frequency of consumption of chocolate. Again, these variables had no significant effects, and we do not discuss them further.

### Results and Discussion

The following analyses were based on a data set comprising 104 participants because 4 participants (3.6%) did not return for the second session and 2 participants (1.8%) did not taste the chocolate because of an allergy. Dropouts were evenly distributed across the delay conditions.

**Discriminant validity.** We again conducted factor analyses to verify that the items measuring evaluation and intrinsic motivation indeed tapped into separate constructs. Exploratory factor analysis revealed two factors explaining 70% of the total variance, with items loading onto the factors as expected. In particular, the four items assessing evaluation loaded onto one factor with 40% of the total variance explained. The seven items measuring intrinsic motivation loaded onto a second factor explaining 30% of the total variance. All items loaded at least .50 on the respective factors. Confirmatory factor analysis again showed a relative lack of fit for a one-factor model ( $\chi^2(44, 104) = 266.18, p < .001$ ; CFI = .74; and RMSEA = .22) compared with a two-factor model ( $\chi^2(43, 104) = 98.45, p < .0001$ ; CFI = .94; and RMSEA = .11).

**Preconsumption evaluation.** A one-way ANOVA on the preconsumption evaluations demonstrated a main effect of length of delay ( $F(3, 100) = 2.79, p < .05$ ). Again, consistent with  $H_2$ , a planned contrast showed a significant quadratic trend ( $F(1, 100) = 5.43, p < .05$ ), such that participants in the one-week condition evaluated the chocolate more positively ( $M = 6.58$ ) than participants in the same-day ( $M = 5.64$ ), two-week ( $M = 5.95$ ), and one-month ( $M = 5.49$ ) conditions. The evaluation of the chocolate bar did not differ across the latter three conditions ( $F < 1, n.s.$ ), and the mean of these three conditions pooled ( $M = 5.70$ ) was significantly lower than that of the one-week condition ( $F(1, 100) = 6.49, p < .01$ ).

**Mediation analysis.** Again, we conducted a four-step analysis to test whether intrinsic motivation mediated the effect of delay on preconsumption evaluation. First, we regressed evaluation on quadratic trend of delay and found a significant effect ( $F(1, 100) = 5.43, p < .05$ ). Second, we regressed intrinsic motivation on the same predictor, and the effect of delay was again significant ( $F(1, 100) = 4.79, p < .05$ ). Third, we regressed evaluation on intrinsic motivation and found a significant effect ( $\beta = .98, t(102) = 8.64, p < .01$ ). Finally, when we simultaneously regressed evaluation on quadratic trend of delay and intrinsic motivation, intrinsic motivation remained significant ( $F(1, 99) = 90.19, p < .001$ ), and length of delay dropped below significance ( $F(1, 99) = .59, p = .44, n.s.$ ). This evidence supports our proposed mediation mechanism.

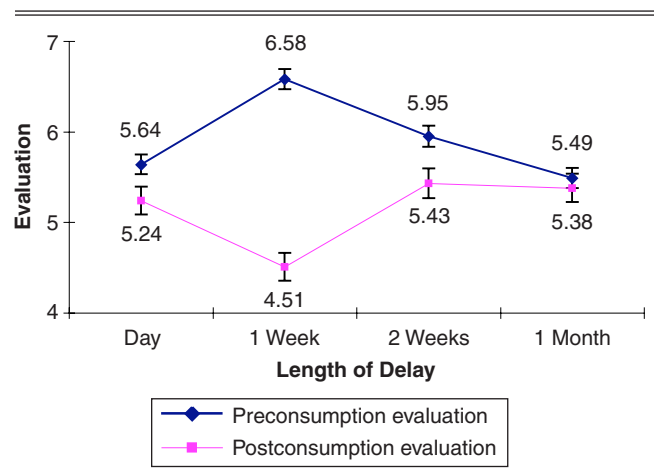
**Postconsumption evaluation.** A one-way ANOVA on the postconsumption evaluation of the chocolate demonstrated a marginally significant effect of delay ( $F(3, 100) = 2.56, p < .06$ ). Planned contrasts revealed that postconsumption evaluations were not significantly different across the no-delay ( $M = 5.24$ ), two-week ( $M = 5.43$ ), and one-month ( $M = 5.38$ ;  $F < 1, n.s.$ ) conditions. Notably, the evaluation in the one-week condition ( $M = 4.51$ ) was significantly lower

than the other three conditions pooled ( $F(1, 100) = 6.78, p < .01$ ). This supports the expectancy disconfirmation hypothesis. It appears that anticipation increased expectations, which participants compared with the evaluation of the consumption. Thus, given the same consumption experience, satisfaction was lower because expectations were higher (see Figure 3).

**Discussion.** Experiment 3 provided a strong replication of anticipation in a real setting in which participants made real decisions and were asked to wait up to a month in real time. Participants had higher preconsumption evaluations given a one-week delay than given no delay, a two-week delay, or a one-month delay. In other words, we again observed anticipation when the delay was short. Furthermore, the effect was again mediated by intrinsic motivation. These findings generalize the previous results and also point to the divergence between pre- and postconsumption evaluations, by demonstrating that participants who anticipated more before consumption also reported lower postconsumption evaluations.

Our demonstration of a short-lived anticipation effect is consistent with Nowlis, Mandel, and McCabe (2004), who also find a positive effect in a short-delay period. However, we observed an opposite pattern of results on postconsumption evaluations. This ironic negative effect on postconsumption evaluations might seem inconsistent with Nowlis, Mandel, and McCabe, who find a positive effect (i.e., participants reported higher postconsumption evaluations after delay). However, the two are not exactly comparable, because in our experiment, the postconsumption evaluations might have been affected by the elicitation of preconsumption evaluations from the same respondents. Along similar lines, Mandel and Nowlis (2008) show that making a prediction about an uncertain outcome led consumers to enjoy the event less than those who did not make a prediction because the act of predicting focused their attention on how they would feel if their prediction was wrong. Therefore, it is possible that the negative effect on postconsumption evaluations that we found was caused by the same respondents having previously made a prediction about their consumption experience. Further

Figure 3  
EXPERIMENT 3: DIFFERENT PATTERNS FOR PRE- AND POSTCONSUMPTION EVALUATIONS OVER TIME





research should examine the robustness of this negative effect.

### GENERAL DISCUSSION

The results of three experiments demonstrate that in the short run, the provision of choice moderates the effect of delay between choice and consumption. Experiment 1 shows that the provision of choice increases the evaluation of delayed consumption and rules out affect as a process explanation. Experiment 2 replicates and extends the effect in real time, showing an inverted U-shaped relationship between length of delay and evaluation of delayed consumption when people make their own choices on consumption that is of high inherent interest. This experiment also demonstrates the mediating role of intrinsic motivation. Finally, Experiment 3 replicates the effect in a setting featuring real choices and delays and investigates the postconsumption consequences of anticipation. We observe these effects across three hedonic product categories, using scenarios as well as real choices and delays. In Experiment 1, we measured the intention to consume when there was an aversive event before the consumption (as in Gourville and Soman 1998), whereas in Experiments 2 and 3, no aversive event was expected when participants reported their evaluations (as in Nowlis, Mandel, and McCabe 2004). Furthermore, the experiments assess evaluations before choice, after choice but just before consumption, and, finally, after consumption.

#### *Theoretical Contributions*

The results provide an important point of reconciliation between two streams of research. Traditional discounted utility theory (e.g., Ainslie 1975) avers that evaluations decrease with delay, while other research (Loewenstein 1987; Nowlis, Mandel, and McCabe 2004) shows that evaluations may become more favorable over time. Note that our choice of nomenclature (discounting and anticipation) is based on the accepted conventions in these literature streams. Our proposition that the provision of choice moderates these effects by leading to differences in intrinsic motivation is a key contribution of this article. Furthermore, our demonstration that anticipation is short lived, with evaluations following an inverted U-shaped curve, explains the patterns that Loewenstein (1987) obtains. These two contributions together show that choosing leads to anticipation only when the delay is short; when the delay is long, the positive effect of provision of choice does not last. Therefore, the findings not only are consistent with Loewenstein's anticipation model but also extend it by demonstrating both the important role of perceived control in driving down the evaluation of long-delayed consumption and the moderating effect of autonomy. Finally, the finding that the observed effects are mediated by the extent of intrinsic motivation in the consumption activity is an important contribution to the anticipation literature. The synthesis of literature on anticipation, discounting, and motivation is a third major theoretical contribution of this article.

An alternative explanation of the results is that choosing in and of itself activates a goal of consumption, which leads to anticipation because the goal remains unfulfilled over delay. In other words, choice is necessary for anticipation, but intrinsic motivation is not. To test this alternative

explanation, we ran a separate experiment that manipulated the type of consumption—namely, consummatory versus instrumental (Pham 1998). Instrumental products are consumed for separable consequences (e.g., students go to a job seminar to increase the chances of getting a job in the future, not because of the seminar per se), and thus people should be less intrinsically motivated for instrumental than for consummatory products, which are consumed for their own sake. Accordingly, we predict that anticipation occurs only for consummatory (but not for instrumental) products, though the aforementioned alternative explanation would predict that anticipation should be observed for both types of products, as long as people make their own choices. In this study, 94 undergraduate students were randomly assigned across a 2 (consumption: consummatory versus instrumental)  $\times$  2 (delay: none versus short) between-subjects design. The procedure was similar to that in Experiment 1, except that all participants were allowed to make their own choice. Consumption was manipulated using genre: Participants in the consummatory (instrumental) consumption condition read about and chose between two equally attractive dramas (job seminars). As our theory predicts, the results show a significant interaction ( $F(1, 90) = 3.96, p < .05$ ), such that in the consummatory consumption condition, participants in the delay condition ( $M = 5.85$ ) reported being more likely to watch the drama than participants in the no-delay condition ( $M = 4.71$ ;  $F(1, 90) = 4.12, p < .05$ ). In contrast, in the instrumental consumption condition, the intention to go to the job seminar did not differ across delay conditions ( $M_{\text{no-delay}} = 4.93, M_{\text{delay}} = 4.72$ ;  $F < 1, \text{n.s.}$ ). This experiment shows that even when all participants choose the consumption for themselves, we observe anticipation only when the consumption was consummatory in nature. This rebuts the alternative explanation that choice itself is sufficient to elicit the goal without the necessary role of intrinsic motivation.

#### *Further Research*

Several questions remain to be answered. Although the provision of choice has been known to increase intrinsic motivation (Deci and Ryan 1985), our results suggest that the combination of choice and a one-week delay period causes intrinsic motivation to increase the most. Because intrinsic motivation has two key components—autonomy and perceived control—we infer that beyond this inflexion point, the autonomy-enabling positive effect of choice is swamped by the increasingly negative effect of decreasing perceived control over the consumption. This finding, consistent across Experiments 2 and 3, which featured real time delays, is an empirical fallout of the relative strengths of these two opposing forces. Whether this inflexion point generalizes across contexts is a question we leave for further research.

In this research, we confined ourselves to hedonic products. However, the valence of the consumption may also play a significant role. It is possible that people prefer to delay bad but necessary things that others chose for them but advance the consumption of these same things when they choose for themselves. This is similar to Loewenstein and Prelec's (1993) findings that unattractive dinners and meetings with unpleasant aunts were scheduled ahead of fancy dinners and enjoyable afternoons. It is also possible

that greater anticipation springs from more desirable products and that the act of choosing for oneself increases desirability. This would be consistent with the findings regarding the role of intrinsic motivation.

This research focuses on the evaluations of delayed consumption in externally imposed delays. A different but related question pertains to consumers' own choice of delay period. For example, Loewenstein and Prelec (1993) asked participants to choose the temporal frame for some specified consumption. This suggests that further research could examine whether consumers choose to delay or not and whether similar patterns are observed when temporal frames are free to be chosen. According to the proposed process, consumers should opt to delay hedonic consumption. However, some research suggests that consumers vary in their preferences over planning time frames (Mukhopadhyay and Agrawal 2006), and this factor may also play an important part. Similarly, further research could examine how the waiting period between choice and consumption itself influences evaluations. In this research, we do not specify what happens during the waiting period. However, there are instances (e.g., vacations) in which consumers occasionally need to plan or attend to the delayed consumption before it finally commences. The additional planning might then increase consumers' perceived control over the delayed consumption. Moreover, attending to the consumption activity at a point in time between choice and consumption would also serve to refresh consumers' memories. Both ways, the net result would manifest as a positive effect on evaluation.

#### *Practical Implications*

From an applied perspective, this research has three specific implications for marketers of hedonic products, across the wide variety of cases in which advance sales and agent choice are common practice (e.g., entertainment, sporting events). First, agents are often used to simplify complex decisions and provide evaluations or recommendations that help minimize the aversive aspects of choosing (Gershoff, Broniarczyk, and West 2001). The results show that agents may not always be beneficial, specifically when hedonic consumption is scheduled in the future. Second, in Experiments 1 and 2, participants reported lower evaluations of delayed consumption and corresponding lower intentions to engage in the same, if the choice was made by someone else. As Shugan and Xie (2000) demonstrate, advance selling can be used as a general marketing tool in many different industries (e.g., travel, entertainment, personal services) because the separation between purchase and consumption creates buyer uncertainty about the utility from consumption. The results show that this uncertainty increases as the delay increases. Marketers can benefit from both these insights by determining the shape of the anticipation curve before implementing an informed service cancellation schedule, thus collecting cancellation fees and reselling the freed slots (Xie and Gerstner 2007). Third, the actual responses to consumption in Experiment 3 indicate that maximizing preconsumption evaluations may ironically not be the wisest strategy for marketers to follow, especially when consumers are aware of their own expectations before the consumption. This research indicates that there is an optimal temporal distance at which consumers most look

forward to their consumption. Although the one-week period we observed may naturally not be uniformly applicable in all contexts, we believe that managers would be well advised to be cognizant of the relevant period in their specific domain. Advance sales should be scheduled with knowledge of this anticipation curve.

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