



Journal of Consumer Research Inc.

Predicting Consumption Time: The Role of Event Valence and Unpacking

Author(s): Claire I. Tsai and Min Zhao

Source: *The Journal of Consumer Research*, (-Not available-), p. 000

Published by: [The University of Chicago Press](#)

Stable URL: <http://www.jstor.org/stable/10.1086/659379>

Accessed: 13/05/2011 15:20

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=ucpress>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



The University of Chicago Press and Journal of Consumer Research Inc. are collaborating with JSTOR to digitize, preserve and extend access to The Journal of Consumer Research.

Predicting Consumption Time: The Role of Event Valence and Unpacking

CLAIRE I. TSAI
MIN ZHAO

How much time do consumers predict they will spend on using a product or service when they have control over the usage time? We propose that their predicted consumption time is systematically influenced by the valence and the representation of the target event. In three studies, we show that consumers predict spending more time on a pleasant event when it is unpacked into several subactivities and spending less time on an unpleasant event when it is unpacked. We also investigate the underlying mechanism and demonstrate that (1) people have a lay belief that they spend more (less) time on more (less) pleasant events and (2) unpacking increases the intensity of predicted consumption experience. We further show that these changes in time predictions influence consumption decisions and address alternative explanations, including mood, mood regulation, and attention. In closing, we discuss theoretical and managerial implications.

Predicted consumption time plays a central role in consumers' evaluation and purchase decisions because time is an important measure for value. In most situations, when consumers have control over how much time to spend on a product or service (e.g., online social network, workout equipment, television shows, unlimited passes for parking, museums, concerts, and so forth), they are more likely to purchase the item if they foresee themselves spending a lot of time using it so that the purchase is worth the money. In fact, sales people commonly use this technique to induce consumers to buy their products, saying things like, "You only pay 50 cents for this sofa per day if you use it every day for 10 years." In scholarly research, studies have shown that when consumers predict spending more time exercising,

they are more likely to purchase gym memberships (Delavigna and Malmendier 2006). Similarly, when they predict spending more time watching paid television, they are more likely to buy a cable television package (Lemon, White, and Winer 2002). Usage time also influences consumers' willingness to pay for durable goods (Hamilton, Ratner, and Thompson 2011; Tanner and Carlson 2009). Further, consumers use service duration (e.g., duration of gym classes) or time to onset (e.g., the time required for a medication or caffeine to become effective) as a heuristic basis for evaluation (Faro 2010; Yeung and Soman 2007). For example, Yeung and Soman (2007) found that when the prices of competing services are held constant, consumers tend to prefer the service of longest duration, which offers them the best value for money.

Although prior research has demonstrated consequences of predicted consumption time, relatively little research has examined the antecedents of this important judgment. The present research augments this area of inquiry by exploring how the representation and valence of a future event influence predictions of consumption time irrespective of the content of, or information about, the event. In particular, this research examines how unpacking an event into its constituent activities interacts with event valence to influence predicted consumption time when consumers are able to decide how much time to spend on a product or service.

For example, consider a consumer who is planning a fun day with her best friend enjoying a series of activities in-

Claire I. Tsai (claire.tsai@rotman.utoronto.ca) and Min Zhao (min.zhao@rotman.utoronto.ca) are assistant professors of marketing at Rotman School of Management, University of Toronto, 105 St. George Street, Toronto, ON M5S 3E6, Canada. The authors are grateful for the constructive feedback of the editor, associate editor, three reviewers, Pankaj Aggarwal, Juliano Laran, Yuval Rottenstreich, and Dilip Soman. The authors also thank Carol Bai, Chris Guo, Bin Han, Jenna Li, Dan Tao, and Jing Wan for their help with data collection and the Social Sciences and Humanities Research Council of Canada for the generous research support.

Debbie MacInnis served as editor and Aimee Drolet served as associate editor for this article.

Electronically published March 9, 2011

cluding lunch, shopping, and sightseeing. Will her prediction for how much time she will spend on this fun day as a whole be any different from her prediction of the total time spent when she considers each individual activity separately and then adds them all up? Alternatively, if this consumer had to plan the same set of activities for an obligatory day out with her disliked mother-in-law, how would unpacking the day's events influence her time predictions? The literature suggests that (1) unpacking an affective event increases the intensity of the predicted enjoyment or displeasure from the event (Thaler 1985) and (2) people have a lay theory that they spend more time on more pleasant events and less time on less pleasant events (McGrath and Tschan 2003). We integrate those ideas and propose that unpacking a pleasurable event increases people's time estimates for the event, which is consistent with conclusions in prior research. More importantly, we extend the existing literature by demonstrating that unpacking decreases time estimates for unpleasant events, a reversal of prior findings. Our valence account complements extant research on the familiar amplifying effect of unpacking on numeric judgments (Kruger and Evans 2004; Tversky and Koehler 1994).

Our work also has important implications for policy makers. For example, for time management purposes, people are often advised to make a detailed plan for a task they want to complete by breaking down the steps one by one. This research, however, qualifies this recommendation by suggesting that people need to take the valence of the task into consideration. For unpleasant tasks, unpacking may lead to a systematic underestimation of time required.

UNPACKING AND SUPPORTING KNOWLEDGE

It has been widely documented that unpacking can systematically increase values of numeric judgments. Tversky and Koehler (1994) first demonstrated the effects of unpacking in a seminal article on support theory, which states that when people estimate the probability of an overarching event, they tend to consider only the most representative or available cases, rather than exhaustively considering all the possible subcomponents of the target event. The central finding of support theory is that the estimated probability of a multifaceted category increases when the category is unpacked into its components. For instance, when asked to estimate the probability of death due to natural causes, participants in the unpacked condition judged the probability of death from cancer, heart attack, and other natural causes in the United States to be 18%, 22%, and 33%, respectively, and the sum of these three probabilities (78%) was greater than the 58% in the packed condition in which participants made an overall probability judgment of death due to natural causes. Tversky and Koehler (1994) suggested a knowledge account and proposed that unpacking might cause someone to discover judgment-relevant information that the person had not considered. For instance, the av-

erage participant might not have thought of cancer or heart disease as a natural cause of death and thus could not have included it in his or her estimate of the packed category.

Defined as dividing up an overarching event into its constituent components, unpacking can be distinguished from other ostensibly similar concepts such as choice bracketing (Read, Loewenstein, and Rabin 1999) or mental accounting (Thaler 1985). Choice bracketing groups choices into sets, such that options outside the consideration set are neglected (Read et al. 1999, 172). For example, smoking can be bracketed narrowly as smoking a pack of cigarettes per day or broadly as smoking 7,300 cigarettes per year. In this example, narrow bracketing focuses on the local decision of cigarette consumption on any given day and does not consider the overarching choice of smoking 7,300 cigarettes per year. Similarly, mental accounts (of time or money) can be defined narrowly (e.g., a weekly budget for entertainment such as going to a movie) or broadly (e.g., an annual budget for leisure activities). When people base their decisions on a narrow mental account, broader accounts or overarching events are often neglected. Unlike choice bracketing or mental accounting, unpacking an event brings to mind all the components of the event when one considers the overarching event rather than replacing the event with a subset of its components. In other words, under the condition of narrow bracketing or narrow mental accounts, people only consider a component of an overarching event, whereas under the condition of unpacking, people consider all the components of an overarching event, which sums up to the event in its entirety.

Although the original research concerning support theory dealt exclusively with probability judgments, recent studies have shown that unpacking can increase the values of other numeric judgments, including discount rates in intertemporal choice (Read 2001; Scholten and Read 2006), weights assigned to attributes considered in evaluative judgments (Weber, Eisenfuhr, and von Winterfeldt 1988), or number of high school dropouts in the United States (MacGregor, Lichtenstein, and Slovic 1988). In the domain of time predictions, Kruger and Evans (2004) showed that unpacking a task (e.g., holiday shopping) into smaller subtasks (e.g., buying a tie for Bill, baking a cake for Candice, and so on) increases estimated task completion time.

Whereas these studies have focused largely on the effect of unpacking on cognitive judgments or neutral events, little is known about how unpacking systematically influences time estimates about future affective experiences. Because many consumption experiences often vary in their valence rather than being valence free, we investigate how unpacking influences predicted consumption time differently for positive and negative affective experiences. We propose and find that event valence plays an important role such that unpacking increases time estimates for pleasurable events but decreases time estimates for unpleasant events.

UNPACKING AND EVENT VALENCE: PREDICTED CONSUMPTION TIME AND CONSEQUENCES

As noted previously, unpacking can increase values of numerical judgments because of increased knowledge. However, drawing on the prior work on hedonic editing (Thaler 1985), we propose that unpacking an affective event can also increase the intensity of predicted consumption experience (i.e., pleasure or pain) during the event. Consequently, we argue that unpacking can influence predicted consumption time for affective experiences through increased predicted enjoyment or displeasure: greater time estimates for more pleasant events but lower time estimates for more unpleasant events. A key premise underlying our claim is that people generally hold a lay belief that they would spend more time on more pleasurable events and less time on less pleasurable events. Because unpacking increases the intensity of predicted enjoyment for pleasant events and predicted displeasure for unpleasant events, the lay belief will lead people to predict spending more time on an unpacked pleasant event and less time on an unpacked unpleasant event.

Prospect theory implies that unpacking an event essentially leads to segregation of gains or losses (Kahneman and Tversky 1979). Although prospect theory was originally proposed to describe choice under risk, it nevertheless has important implications for consumption experience with riskless stimuli in the sense that a pleasant experience can be coded as a gain and an aversive experience can be coded as a loss (Bilgin and LeBoeuf 2010; Hsee and Tsai 2008). Thaler (1985) proposed hedonic editing and suggested that the experience of an affective event is perceived as more intense when it is divided into several smaller activities (i.e., more enjoyable for a pleasant event and more painful for an unpleasant event after segregation) because of slower decreases in marginal utility. For example, Thaler (1985) found that participants predicted that it would be better to win two smaller lotteries with \$50 and \$25 payoffs than to win a single, larger lottery with a \$75 payoff. In a similar vein, Hsee and Tsai (2008) suggested that people would find it more enjoyable to experience two pleasurable events on separate occasions (e.g., watching a favorite video and spending time with a charming friend) than to experience these two events as one aggregated gain. For negative stimuli, Thaler (1985) found that participants predicted that it would be more upsetting to receive two letters from the Internal Revenue Service (IRS) asking for additional tax payments of \$100 and \$50 than to receive a single letter from the IRS asking for an additional \$150 payment. Similarly, Prelec and Loewenstein (1998) demonstrated that consumers find it more painful to segregate a larger payment into multiple smaller payments. As a result, consumers prefer to pay via flat-rate pricing schemes (e.g., unlimited access to health clubs or long-distance phone call plans) at a fixed monthly price rather than pay per use, even if it is cheaper to pay by usage than to pay the monthly fee.

These empirical studies provide strong support for the

prediction that unpacking can increase the intensity of the predicted enjoyment or displeasure from future consumption. This stream of research also suggests several explanations for the effect of segregated gains or losses, including the difference between reference points and external stimuli (Kahneman and Tversky 1979), diminishing marginal utility (Thaler 1985; Thaler and Johnson 1990), or pain of payment (Prelec and Loewenstein 1998). Because the main goal of the present research is to better understand how increased intensity of predicted enjoyment or displeasure from consumption (as a result of unpacking) influences predicted consumption time when an affective event is unpacked, we focus on demonstrating the mediating effect of predicted enjoyment rather than distinguishing between these different explanations underlying segregated gains and losses.

How do increases in predicted pleasure or displeasure influence predicted consumption time? McGrath and Tschan (2003) suggested in their review chapter that people tend to associate greater enjoyment with spending more time on pleasant events and less displeasure with spending less time on aversive events. Building on this notion, we propose that when making time estimates for events of different valence, people may rely on a simple lay theory that, within reason, the more pleasant (unpleasant) an event is, the more (less) time they will spend on it.

Combining this lay belief with the effect of unpacking on predicted enjoyment, we argue that when a pleasant (unpleasant) event is unpacked, because consumers may consider the event more enjoyable (irritating), they would expect to spend more (less) time on it. More formally,

- H1:** The representation of an affective event (unpacked vs. packed) interacts with the valence of the event to influence predicted consumption time. Specifically:
- a) Unpacking a pleasant, multifaceted event into several pleasant subactivities increases the total time estimated to be spent on the event.
 - b) Unpacking an unpleasant, multifaceted event into several unpleasant subactivities decreases the total time estimated to be spent on the event.
- H2:** People hold a lay belief that they spend more time on more pleasurable events and less time on less pleasurable events.
- H3:** Predicted enjoyment/displeasure mediates the interaction between unpacking and event valence on predicted consumption time.

Another aim of this article is to examine whether fluctuations in predicted consumption time caused by unpacking/packing and event valence have consequences for behavior. As noted previously, decisions about what consumers will purchase, plan, or consume during an interval (any given weekend, month, or year) are likely affected by how much time consumers expect to spend on using a product

or service and are thus potentially influenced by unpacking. In particular, our hypotheses imply that people will plan less consumption (e.g., less interested in upgrading online social network programs) when an unpleasant event is unpacked and higher when a pleasant event is unpacked.

To tease apart the knowledge account and our proposed valence account, we took great care to minimize differences in judgment-relevant information across conditions. Specifically, in the earlier studies, the manipulation of unpacking either provided additional external information about target events (Tversky and Koehler 1994) or prompted participants to retrieve additional information from memory (Kruger and Evans 2004). Therefore, in all these unpacked conditions in prior research, judgments were based on more information about an unpacked target event and perhaps more attention to it than in the packed conditions. To control for task-relevant knowledge, we provided identical descriptions of the target event, word for word, for all the participants. We varied only the representation of the event by presenting its constituent activities in one paragraph (i.e., packed) or presenting them in separate paragraphs (i.e., unpacked). Accordingly, we asked people in the packed condition to make an overall time estimate and asked people in the unpacked condition to make separate estimates for each individual subactivity. Such an approach of making one estimate for the packed condition and several estimates for the unpacked condition follows the standard paradigm for testing the effect of unpacking in prior literature (Tversky and Koehler 1994).

We tested our hypotheses in three experiments and found that unpacking systematically increases time estimates for pleasant events but decreases time estimates for unpleasant events. We also found that the fluctuations in predicted consumption time influence consumption decisions. We distinguish our valence account from the knowledge account and address alternative explanations, including attention to judgment task and mood. In closing, we discuss the limitations and implications of our findings.

EXPERIMENT 1: BLIND DATE, BIRTHDAY PARTY, AND PHONE CALL

Experiment 1 was conducted to test our hypotheses that unpacking increases predicted consumption time for pleasant events but decreases predicted consumption time for unpleasant events, as well as to explore the underlying mechanism. To minimize the difference in event knowledge across conditions, we presented identical information about the target event and varied only the ways in which the event was presented. We included measures of the predicted enjoyment from the target event to explicitly test its role in the effect of valence and unpacking.

Method

Participants. Participants were 104 students from the University of Toronto. Some participants were paid \$5 to complete a 25-minute experiment in which they completed a long questionnaire that included the present study, and

some participants completed the same questionnaire and received one course credit. The results did not differ by compensation, so we collapsed the data from these two sets of participants in all the analyses.

Design and Stimuli. Experiment 1 used a 2 (event valence: pleasant vs. unpleasant) \times 2 (event representation: packed vs. unpacked) between-subjects design. Participants read a description of an overarching event labeled “attending social activities,” which included three future social activities on different days: a blind date, a birthday party, and a phone conversation. There were two versions of the target event. In the pleasant condition, participants read that the date would be friendly and attractive, that they would attend a fun birthday party, and that they would have a pleasant phone conversation. In the unpleasant condition, participants read that the date was unfriendly and unattractive, that they would attend an unpleasant birthday party, and that they would receive a phone call from a disliked acquaintance (see app. A). To avoid potential nuances, we controlled for the nature of the overarching event by using the same type of activities as its components; we varied only the pleasantness of those activities. It would be less meaningful to compare the time estimates for cleaning one’s bedroom and meeting an attractive date.

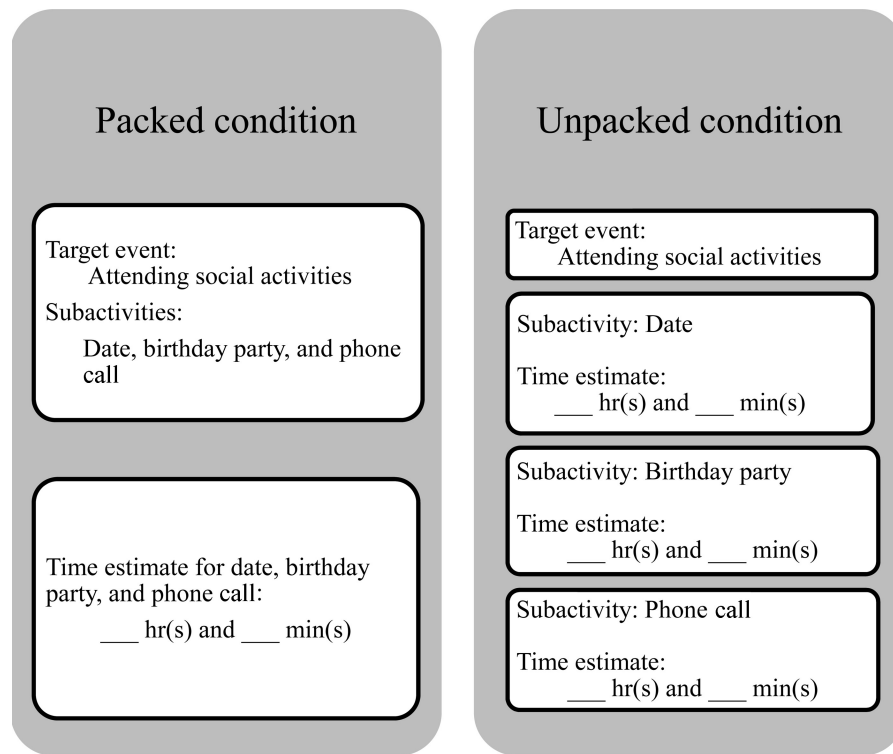
Procedure. Participants first read instructions stating that we were interested in how students estimate time for activities in their life and were thus asking them to provide time estimates for an event that university students often encounter, “attending social activities.” We manipulated the representation of the target event by either presenting its subactivities as one overarching event or unpacking the event into three subactivities. The order of the subactivities was counterbalanced. In the packed condition, participants read the description of the target event that consisted of date, party, and phone call (described in one paragraph) and estimated the total combined amount of time they expected to spend on this target event, resulting in one overall time estimate for each participant. In the unpacked condition, participants read about a subactivity and then estimated the time they would spend on it. They then repeated the process for two more subactivities, which resulted in three time estimates for each participant (see fig. 1 for illustration). As shown in appendix A, the subactivities were described in separate paragraphs in the unpacked condition. Finally, using a 7-point scale (1 = very unpleasant, 7 = very pleasant), participants predicted the pleasantness of each subactivity.

Results

Manipulation Checks for Valence and Unpacking. Ratings of the predicted pleasantness of individual subactivities were highly correlated ($\alpha = .88$) and were thus averaged to create a composite measure of predicted consumption experience for the target event. A two-way ANOVA revealed a main effect of valence on the composite ($F(1, 100)$

FIGURE 1

A SCHEMATIC DEPICTION OF THE DIFFERENT REPRESENTATIONS OF THE PROCEDURE FOR EXPERIMENT 1



NOTE.—The left panel shows the packed condition, in which participants read the description of a target event, which consisted of three subactivities, and then gave the time estimate for the target event. The right panel shows the unpacked condition, in which participants read the description of the same target event but provided the time estimate for individual subactivities. The setup of experiments 2–3 is similar to that of figure 1, except that we added a total time estimate to the unpacked condition. The actual questionnaire was more detailed and is available from the authors.

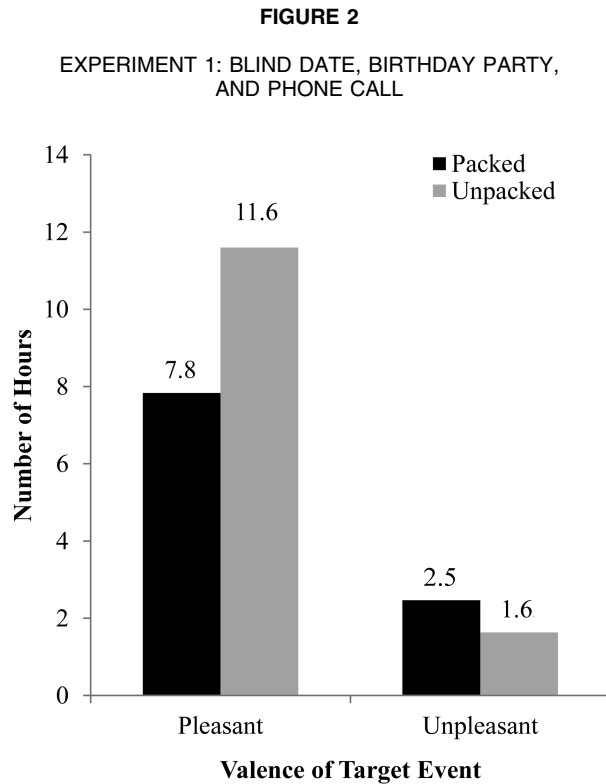
= 439.95, $p < .05$), confirming our valence manipulation such that participants rated attending the pleasant social activities as more enjoyable than attending the unpleasant ones (M 's = 5.89 vs. 2.70). The unpacking by valence interaction was also significant (for pleasant event: $M_{\text{unpack}} = 6.11$ vs. $M_{\text{pack}} = 5.65$; for unpleasant event: $M_{\text{unpack}} = 2.59$ vs. $M_{\text{pack}} = 2.80$; $F(1, 100) = 4.44$, $p < .05$).

Time Estimates. To compare predicted consumption time between the packed and unpacked conditions, we adopted the paradigm in support theory (Tversky and Koehler 1994) and computed the total time in the unpacked conditions by summing the time estimates for the three subactivities for each participant. The results did not differ by the order of the subactivities, so we collapsed the data for the analyses.

As predicted, a two-way ANOVA showed a significant main effect of valence, indicating greater time estimates for the pleasant event than for the unpleasant one (M 's = 9.77 hours vs. 2.05 hours; $F(1, 100) = 134.88$, $p < .05$) and providing preliminary evidence for the lay belief (hypothesis

2). We also observed a significant main effect of event representation ($M_{\text{pack}} = 5.15$ hours vs. $M_{\text{unpack}} = 6.62$ hours, $F(1, 100) = 4.96$, $p = .03$). More importantly, these main effects were qualified by a significant interaction between valence and event representation ($F(1, 100) = 12.03$, $p < .05$; see fig. 2), consistent with hypothesis 1. Planned contrasts showed that unpacking increased the time estimates for the pleasant event ($M_{\text{pack}} = 7.83$ hours vs. $M_{\text{unpack}} = 11.6$ hours, $F(1, 45) = 7.21$, $p = .01$) and decreased time estimates for the unpleasant event ($M_{\text{pack}} = 2.47$ hours vs. $M_{\text{unpack}} = 1.63$ hours, $F(1, 55) = 6.08$, $p = .01$).

Mediation Analyses. To assess the mediating role of predicted enjoyment, we conducted a series of regression analyses. The results showed a significant interaction of valence and unpacking on predicted consumption time ($\beta = 2.28$, $SE = .66$, $t(100) = 3.47$, $p = .001$) and predicted enjoyment composite ($\beta = .32$, $SE = .15$, $t(100) = 2.11$, $p = .04$) as well as a significant effect of predicted enjoyment on predicted consumption time ($\beta = 2.19$, $SE = .20$, $t(102)$



= 11.12, $p < .001$). However, when we included predicted enjoyment composite as a covariate in the regression measuring the valence by unpacking interaction on time estimates, the interaction of valence and unpacking was reduced in significance ($\beta = 2.00$, $SE = .66$, $t(99) = 3.02$, $p = .003$), and the effect of predicted enjoyment was significant ($\beta = .90$, $SE = .42$, $t(99) = 2.10$, $p = .03$). To directly test whether predicted enjoyment mediated the interactive effect of unpacking and valence on time estimates, we performed 1,000 bootstrap resamples using Preacher and Hayes's (2008) SPSS macro, as recommended by Zhao, Lynch, and Chen (2010). To test the significance of the indirect pathway (i.e., the path from valence \times unpacking to time estimates via predicted enjoyment), we considered the bias-corrected 95% confidence interval. Because this interval (.070 to .743) did not include zero and the interactive effect of valence and unpacking was reduced in significance, we conclude that predicted enjoyment partially mediated the effect of valence and unpacking on predicted consumption time, confirming hypothesis 3.

Discussion

Several important implications emerge from this experiment. The results of experiment 1 support hypothesis 1 and demonstrate the interactive effect of unpacking and valence, rather than a general enhancement, on time estimates for affective experiences. Consistent with hypothesis 3, partial

mediation showed that predicted enjoyment plays an important mediating role in the observed effect. Given that the data also suggest that people have a lay belief about spending more time on pleasant events than on unpleasant events (hypothesis 2), the intensification of predicted enjoyment can increase predicted consumption time for a pleasurable event when it is unpacked, and the effect is reversed when an unpleasant event is unpacked due to the intensification of predicted displeasure.

Although we attempted to control for attention to judgment by providing identical information about the overarching event across conditions in experiment 1, it is possible that the increased judgment frequency (as a result of our unpacking manipulation) enhances attention to judgment. One may argue that attention can serve as a competing force that offsets the effect of predicted enjoyment (pain) from future consumption on time estimates. For the small number of subactivities in study 1, the slightly increased attention was probably insufficient to counter the effect of predicted enjoyment (pain). We therefore doubled the number of subactivities from three to six in experiment 2. If the intensification of predicted consumption experience is indeed accompanied by increased attention as a target event is unpacked, then increasing the number of subactivities for a negative event would increase attention substantially and, consequently, attenuate or even reverse the effect of unpacking in the negative domain. But if our design does not alter attention to judgment, unpacking would influence predicted consumption time through increased predicted enjoyment or displeasure, and we expect to replicate experiment 1, even when the target event is more finely unpacked.

It is also possible that unpacking increases attention to the pleasantness of subactivities and thus intensifies the predicted enjoyment (displeasure) in the pleasant (unpleasant) condition. We address this issue by measuring attention to predicted enjoyment and controlling for it in the analyses in experiment 2.

Finally, one may argue that the observed effect of unpacking is contingent on the dissimilarity of the subactivities because the subactivities in experiment 1 might be considered different in nature and were not perceived as part of one unpacked event. We address this issue in experiment 2 by using similar subactivities and highlighting the overarching target event.

EXPERIMENT 2: CHATTING ON THE INTERNET

Experiment 2 addressed the attention issue by increasing the number of subactivities from three to six. Our valence account predicts that unpacking more finely would replicate the interaction of valence and unpacking. However, attention account implies that unpacking more finely would facilitate a main effect of unpacking and increase time estimates for both positive and negative events due to increased attention to the judgment. Thus, testing our valence account on a

more finely unpacked negative event allowed us to rule out attention to judgment as an alternative explanation.

To highlight the overarching event, we used similar subactivities so that judges would consider them to be part of the event. Moreover, we asked the unpacked participants to provide the total time for the event in addition to the time estimates for individual subactivities. All questions about time estimates appeared on the same page.

We further tested our valence account by including a neutral event. If judgment frequency (as a result of unpacking) increases attention to judgment, unpacking a neutral event should increase time estimates as well. However, a valence account implies a null effect for neutral events. Specifically, we predicted that unpacking a valence-free event would not change time estimates when knowledge about the event is held constant. This is because unpacking a neutral event would not change its valence. This prediction also suggests that at least in the contexts we studied, the observed effect of unpacking and valence could not be attributed to judgment frequency.

Finally, we examined an alternative explanation—mood regulation—for the present results. It is possible that people feel happy when they read about pleasant events and irritated when they read about unpleasant events. As a result, our manipulation of event valence might foster a mood regulation motive. Specifically, when people feel happy now, they might want to imagine spending more time on a pleasant event to maintain their mood. Similarly, when people feel irritated now, they might want to imagine spending less time on an unpleasant event to improve their mood. We believe the observed effect of unpacking can occur independent of mood-regulation motive, because predicted enjoyment or displeasure from a future event can be distinguished from current positive or negative mood (Loewenstein et al. 2001). That is, one may predict enjoyment or displeasure without a similar change in one's current emotional state. For example, Loewenstein et al. (2001) suggest that consumers may anticipate future negative feelings for not purchasing life insurance but they do not experience the negative feelings at the time the decision is made. Nonetheless, to test the possibility empirically that some form of mood regulation might be involved, we measured participants' motive to regulate mood in experiment 2.

Method

Participants, Design, and Stimuli. Participants were 154 students from the University of Toronto. They received \$5 for completing a 30-minute questionnaire that included the present study. Experiment 2 used a 3 (valence: pleasant, neutral, vs. unpleasant) \times 3 (representation: packed, unpacked-three, vs. unpacked-six) between-subjects design. Participants were randomly assigned to these conditions. To highlight the overarching event (i.e., chatting on the Internet) and ensure that the subactivities (i.e., chatting with each individual contact) were considered part of the overarching event, we asked participants to imagine having pleasant, neutral, or unpleasant conversations rather than provide spe-

cific description for each individual subactivity as in experiment 1. Depending on the experimental condition, participants were asked to imagine having "pleasant instant messaging conversations that will make you feel good, happy, or cheered up," "unpleasant instant messaging conversations that will make you feel uncomfortable, irritated, or frustrated," or "neutral instant messaging conversations that will make you feel neither happy nor unhappy, because the conversation is purely informational."

To ensure that this simple instruction would change the perceived valence of the target event as intended, we had a separate group of participants ($n = 76$) read the same instructions: we asked them to imagine having pleasant, neutral, or unpleasant conversations on the Internet. Using two items, participants then rated how pleasant and how enjoyable it would be to chat online from 1 (very unpleasant/not at all enjoyable) to 7 (very pleasant/very enjoyable). Ratings of pleasantness and enjoyment of Internet conversations were highly correlated ($\alpha = .91$) and were thus averaged to create a composite measure of predicted enjoyment. One-way ANOVA showed that participants considered having pleasant conversations to be more enjoyable than neutral conversations, followed by unpleasant ones (M 's = 5.97, 4.91 vs. 2.92; $F(1, 73) = 43.78, p < .01$). This result validated our valence manipulation in the main study.

Procedure. In the main study, we first told participants that we were interested in students' online chatting behavior and the type of instant messaging program they used. Participants then encountered the valence manipulation and imagined having pleasant, neutral, or unpleasant chats online. Next, depending on the experimental condition, participants listed the initial of six contacts with whom they might have pleasant, unpleasant, or neutral conversations through instant messaging. They were asked to list those six contacts in one text box in the packed condition, in three separate text boxes (i.e., two contacts per box) in the unpacked-three condition, and in six text boxes (i.e., one contact per box) in the unpacked-six condition. After they finished generating the list of contacts, they provided time estimates for chatting with those contacts online in any given month. In the packed condition, participants indicated the total time spent on chatting with all six contacts. In the unpacked-three condition, participants estimated the time spent chatting with the first two, middle two, and last two contacts on the list. In the unpacked-six condition, participants estimated the time spent chatting with each individual contact. In both unpacked conditions, participants also indicated the total time they would spend chatting with the six contacts after indicating the time estimates for the subactivities.

Subsequently, participants reported their current mood by indicating how happy, pleased, sad, and irritable they felt at the moment of answering these mood questions (1 = not at all, 7 = very). As the measure for mood-regulation motive, participants were asked "to what extent would chatting with these contacts *for the amount of time you indicated* make you feel happy" (1 = not at all, 7 = very happy).

Finally, to measure participants' attention to various dimensions of the task, participants were asked to indicate whether they were (a) very focused on thinking about the enjoyment or displeasure of chatting with their contacts, (b) very concerned about the accuracy of their time estimates, and (c) very focused on thinking about the time estimates (1 = strongly disagree, 7 = strongly agree). Item *a* measured attention to predicted enjoyment, whereas items *b* and *c* measured attention to judgment. These measures allowed us to investigate the role of various dimensions of attention and show that the observed effects could not be attributed to attention.

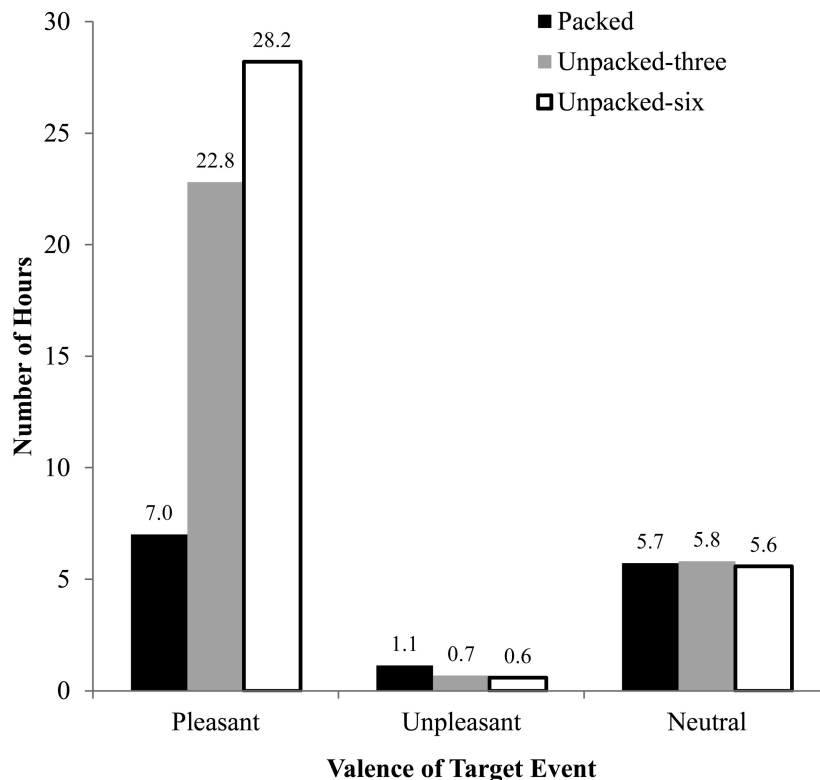
Results

Time Estimates. In the unpacked condition, the sum of the time estimates for individual components of the overarching event corresponded to the total time estimate for all the participants. To be consistent across the packed and unpacked conditions, we used the total time estimates in the analyses. As shown in figure 3, a 3×3 ANOVA on total time estimates revealed a significant main effect of valence: participants reported greater time estimates for pleasant conversations than for neutral ones, followed by unpleasant ones (M 's = 18.96 hours, 5.72 hours vs. .81 hour, $F(2, 145) =$

29.01, $p < .01$), providing evidence consistent with the posited lay theory about predicted enjoyment and consumption time (hypothesis 2). In addition, the main effect of unpacking was significant (M 's = 4.30 hours, 9.14 hours vs. 10.20 hours for the packed, unpacked-three, and unpacked-six conditions, respectively, $F(2, 145) = 3.99$, $p = .02$). More importantly, these main effects were qualified by a significant two-way interaction of unpacking and valence ($F(4, 145) = 4.25$, $p = .003$). A series of planned contrasts showed that the predicted consumption time for pleasant conversations increased when they were unpacked into either chatting with three sets of contacts ($M_{\text{pack}} = 7.01$ hours vs. $M_{\text{unpack-3}} = 22.81$ hours, $F(1, 30) = 4.43$, $p = .04$) or six individual contacts ($M_{\text{pack}} = 7.01$ hours vs. $M_{\text{unpack-6}} = 28.21$ hours, $F(1, 28) = 12.40$, $p = .001$). The predicted consumption time did not differ by the two unpacked conditions, $p > .50$. Conversely, unpacking unpleasant conversations decreased the predicted consumption time regardless whether they were unpacked into three sets ($M_{\text{pack}} = 1.14$ hours vs. $M_{\text{unpack-3}} = .68$ hour, $F(1, 37) = 4.40$, $p = .04$) or six sets ($M_{\text{packed}} = 1.14$ hours vs. $M_{\text{unpack-6}} = .59$ hour, $F(1, 39) = 7.67$, $p = .01$). Again, the time estimates did not differ by the two unpacked conditions, $p > .60$. Further, unpacking did not affect the time estimates for neutral con-

FIGURE 3

EXPERIMENT 2: CHATTING ONLINE



versations (M 's = 5.73 hours, 5.81 hours vs. 5.58 hours, for packed, unpacked-three, and unpacked-six conditions, respectively, F 's < 1).

Current Mood and Mood-Regulation Motive. For the overall current mood measures, the positive items were combined to form a measure of positive affect ($\alpha = .89$) and the negative items were combined to form a measure of negative affect ($\alpha = .81$). As predicted, two-way ANOVAs revealed that our manipulations of unpacking and valence had no effect on these mood measures (all F 's < 1). Given that unpacking did not affect participants' mood, the need to regulate mood should be similar across conditions and thus cannot explain the observed effect. As expected, mood-regulation motive did not differ across conditions ($p > .30$). We included the same measures for current mood and mood regulation in experiment 3 and observed a similar pattern of null effects (all F 's < 1), so we did not report them again.

Post-test on Mood. We were particularly attuned to the potential role of mood in our studies, and thus we conducted a post-test to verify the sensitivity in the mood measures used in the main test. A separate group of participants ($n = 40$) were induced to feel happy or sad by writing a vivid description of a happy or unhappy event that they could recall from their lives, a technique that has been used successfully to alter mood in several previous studies (Schwarz and Clore 1983). Using the same mood items from the main study, happy participants reported being in a better mood than the sad participants (both $p < .05$ for positive and negative measures, respectively), confirming that the null effects on mood obtained in the main study were not due to the inadequacy of the mood measures and that our manipulation of valence and unpacking did not affect mood.

Attention. Two-way ANOVAs showed that our manipulations of valence and unpacking did not affect attention to predicted enjoyment or displeasure from the events, time judgment, or judgment accuracy, all p 's > .15. These results suggest that the observed effect occurred independent of attention concerning various dimensions of the task. To further address the attention issue, we included each of the three attention measures as a covariate in the two-way ANOVAs for time estimates and still observed a significant interaction of valence and unpacking ($p < .05$). None of the attention measures had a significant effect on time estimates, all F 's < 1.

Discussion

The results of experiment 2 provide further evidence to support our hypotheses that unpacking interacts with event valence to influence predicted consumption time. First, consistent with hypothesis 1, unpacking can increase (decrease) time estimates for pleasant (unpleasant) events. Second, these results clearly show that when knowledge about the target events is held constant, unpacking systematically influences predicted consumption time for affective experiences but not for valence-free events. These results provide

additional support that event valence plays an important role in the effect of unpacking and that the observed effect cannot be simply attributed to judgment frequency. Furthermore, we have more evidence to show that the observed interaction of unpacking and valence cannot be attributed to attention to judgment, attention to predicted enjoyment, mood, or motive to regulate mood.

EXPERIMENT 3: LAY THEORY FOR TIME ESTIMATES

Thus far, we have demonstrated the differential effect of unpacking on predicted consumption time for positive and negative events, and the results of experiments 1 and 2 are consistent with our hypotheses. The data suggest that observed effect can be attributed to (1) increased intensity of predicted enjoyment or displeasure because of unpacking and (2) people's lay belief that they would spend more time on more pleasant events and less time on less pleasant events. The partial mediation in experiment 1 provided initial support for the first link, and the main effect of valence on time prediction in experiments 1–2 confirmed the second link. Experiment 3 is designed to obtain more evidence for both links. Specifically, we manipulated participants' belief in the lay theory. If the lay belief is truly an important part of the underlying mechanism, then the interactive effect of unpacking and valence should depend on the strength of the belief. We predicted that the less strongly people endorsed this lay theory, the less likely their time estimates would be influenced by our manipulation of unpacking.

Another important goal is to examine whether the effect of unpacking and valence has consequences for consumption decisions. Naturally, such consequences would have clear managerial relevance: insight into the factors that influence predicted consumption time should allow managers to more effectively predict and influence whether consumers will purchase goods and services in greater quantity or with more frequency. The present study aims to investigate whether consumers make consumption decisions based on their time predictions.

Method

Participants, Design, and Stimuli. Participants were 222 students from the University of Toronto. They received \$5 for completing a 30-minute questionnaire that included the present study. Experiment 3 used a 2 (lay theory: intuitive vs. counter) \times 2 (valence: pleasant vs. unpleasant) \times 2 (representation: packed vs. unpacked) between-subjects design. Participants were randomly assigned to these conditions. Experiment 3 was similar to experiment 2 except for three modifications: (1) we directly manipulated the strength of the lay theory for people's time estimates, (2) to increase the generality of the results, we asked participants to predict consumption time in a shorter time period (chatting with three contacts in any given week), and (3) we added a consumption decision as another dependent variable.

Experiment 3 consisted of two ostensibly unrelated tasks.

The first task was used to manipulate the strength of participants' lay belief about time and enjoyment. The second task was the main test that measured time estimates. To avoid potential demand effect and ensure that these two studies were perceived as unrelated, we named the two tasks as separate studies—life experience study and online chatting study—and asked participants to complete a 5–10-minute filler task between these two tasks.

Procedure. To manipulate the strength of participants' lay belief about consumption time and predicted consumption experience, we presented them with fabricated scientific evidence that either supported the lay belief (intuitive condition) or refuted it (counter condition). In the intuitive condition, the fabricated evidence supported the lay belief, suggesting that spending more time on positive events (intuitive-pleasant condition) or less time on negative events (intuitive-unpleasant condition) could, respectively, increase happiness or reduce unhappiness. In the counter condition, the fabricated evidence refuted the lay belief, and participants learned that spending more time on positive events can lead to potential satiation (counter-pleasant condition), while spending more time on negative events can help them adapt to negative experiences (counter-unpleasant condition; see app. B for more details).

To reinforce our manipulation of the strength of lay belief, we asked all participants to recall and describe a past event that supported the scientific findings they had just heard about. Participants then spent 5–10 minutes reading and answering questions about an additional article unrelated to our hypothesis as a filler task. (The article is available from the authors.) Next, participants proceeded to the time prediction task as in experiment 2. The manipulation of valence and unpacking, and time prediction procedures, were similar to those in experiment 2, except that participants in the present study listed only three contacts (instead of six) and estimated the time they would spend on chatting in any given week (instead of month).

To investigate the impact of time predictions on consumption decisions, we then told participants that a new update for their Internet messaging program was available and could help them manage their contacts and time spent on chatting. The consumer response to this offer is important to marketers: although consumers can update their program for free, marketers can benefit from consumers' decision to download additional features. In our study, we asked participants whether they would download the update (1 = definitely not, 7 = definitely will) and how soon they would download it (1 = very soon, 7 = much later). We predicted that the more time people expect to chat online, the more likely and the sooner they would want to update their program.

Finally, using two items, participants indicated how enjoyable and how pleasant it would be to chat with those three contacts from 1 (very unpleasant/not at all enjoyable) to 7 (very pleasant/very enjoyable). They also indicated how they made their prediction about consumption time by answering the question, "My time estimate was based on the

principle that:" (1 = spending less time is good, 7 = spending more time is good). This manipulation check allowed us to measure the strength of participants' lay belief about consumption time and predicted enjoyment. We expected that the stronger (weaker) their lay belief was, the more polarized (neutral) their ratings would be.

Result and Discussion

Manipulation Checks for Valence and Unpacking. We submitted the predicted enjoyment composite ($\alpha = .86$) to a 2 (lay theory) \times 2 (valence) \times 2 (representation) ANOVA. Eleven participants failed to report their predicted enjoyment, so we had 211 valid data points. As in experiment 1, the analysis revealed both a significant main effect of valence ($F(1, 203) = 275.20, p < .05$) and a significant interaction of valence and unpacking on the composite ($F(1, 203) = 3.93, p < .05$). Chatting online was rated as more enjoyable in the pleasant condition than in the unpleasant condition (M 's = 5.72 vs. 2.92). Further, unpacking increased predicted enjoyment for the pleasant event and decreased predicted enjoyment for the unpleasant event. Other main effects and interactions did not reach significance (all $p > .05$). Table 1 presents the means for the eight cells.

Manipulation Check for Strength of Lay Belief. Two participants failed to complete this manipulation check, so we had 220 valid data points. The ratings of the strength of lay belief were submitted to a three-way ANOVA, which revealed a main effect of valence ($F(1, 212) = 90.85, p < .05$) and a significant two-way interaction of valence and lay theory ($F(1, 212) = 11.37, p < .05$). The main effect showed that, for pleasant events, participants relied more on the principle that spending more time is good than on the principle that spending less time is good, and the situation was reversed for unpleasant events ($M_{pl} = 4.70$ vs. $M_{unpl} = 2.72$). More importantly, the interaction confirmed that our manipulation of strength of lay belief was effective. Specifically, in the intuitive condition, participants reported that they relied on the principle that spending more time is good for pleasant events and on the principle that spending less time is good for unpleasant events ($M_{pl-intuit} = 5.02$ vs. $M_{unpl-intuit} = 2.39$). However, the strength of belief became weaker in the counter condition ($M_{pl-counter} = 4.37$ vs. $M_{unpl-counter} = 3.11$). To directly compare the strength of lay belief across conditions, we took the differences of the ratings for the lay

TABLE 1
RESULTS FROM EXPERIMENT 3

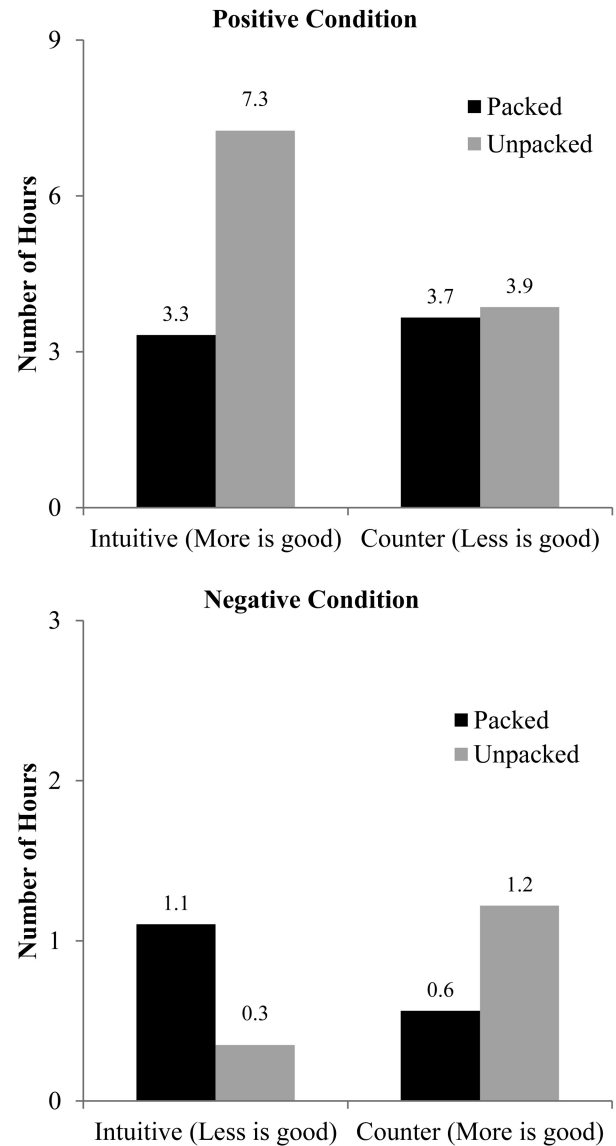
Lay theory	Valence			
	Pleasant		Unpleasant	
	Packed	Unpacked	Packed	Unpacked
Counter	5.52	5.81	3.37	3.05
SD	(1.13)	(1.15)	(1.30)	(1.10)
Intuitive	5.67	5.94	2.93	2.49
SD	(1.50)	(.73)	(1.37)	(.93)

belief between each valence for the intuitive and counter conditions, respectively. We found that the differences between the positive and negative events in the intuitive conditions (i.e., 2.63 as the difference between 5.02 and 2.39) were significantly greater than that in the counterintuitive conditions (i.e., 1.26 as the difference between 4.37 and 3.11; $F(1, 105) = 24.28, p < .05$). This result suggests that the strength of participants' lay belief about time and predicted enjoyment was weakened by the countering scientific evidence.

Time Estimates. A three-way ANOVA revealed a significant main effect of valence on predicted consumption time (M 's = 4.43 hours vs. .80 hour, $F(1, 214) = 122.37, p < .05$). The three-way interaction was also significant ($F(1, 214) = 14.67, p < .05$), suggesting that the two-way interaction of unpacking and valence was affected by the strength of the lay belief (see fig. 4). We replicated the unpacking by valence interaction when the scientific findings confirmed the lay belief ($F(1, 114) = 17.24, p < .05$). The simple effects within each valence in the intuitive condition were significant: unpacking increased the time estimates for pleasant conversations ($M_{\text{pack-pl-intuit}} = 3.32$ hours vs. $M_{\text{unpack-pl-intuit}} = 7.25$ hours, $F(1, 43) = 8.07, p < .05$) and decreased time estimates for unpleasant conversations ($M_{\text{pack-unpl-intuit}} = 1.10$ hours vs. $M_{\text{unpack-unpl-intuit}} = .35$ hour, $F(1, 71) = 8.46, p < .05$), further supporting hypothesis 1 and hypothesis 2. By contrast, the effect of unpacking dissipated in the counter condition. In that case, unpacking did not change time estimates for pleasant conversations ($M_{\text{pack-pl-counter}} = 3.66$ hours vs. $M_{\text{unpack-pl-counter}} = 3.86$ hours, $p > .70$) and directionally increased time estimates for unpleasant conversations ($M_{\text{pack-unpl-counter}} = .56$ hour vs. $M_{\text{unpack-unpl-counter}} = 1.22$ hours, $F(1, 59) = 3.33, p = .07$).

Update Downloads. Participants' decision on how soon to download the update to their instant messaging program was submitted to a three-way ANOVA, which yielded a significant three-way interaction only ($F(1, 213) = 6.82, p = .01$). As predicted, under the condition of intuitive lay belief, participants indicated that they would download the update sooner when a pleasant chatting experience was unpacked ($M_{\text{pack-pl-intuit}} = 4.38$ vs. $M_{\text{unpack-pl-intuit}} = 3.75$; smaller number indicates downloading sooner). However, participants indicated that they would download the update much later when an unpleasant chatting experience was unpacked ($M_{\text{pack-unpl-intuit}} = 2.83$ vs. $M_{\text{unpack-unpl-intuit}} = 4.05$). By contrast, the effect of unpacking was reversed in the counter condition ($M_{\text{pack-pl-counter}} = 3.14$ vs. $M_{\text{unpack-pl-counter}} = 3.90$; $M_{\text{pack-unpl-counter}} = 3.77$ vs. $M_{\text{unpack-unpl-counter}} = 3.39$). A similar pattern of the results was observed in the analyses of the intention of downloading, and the three-way interaction was marginally significant ($F(1, 213) = 3.38, p = .06$). Our interpretation of this result is that when people predict spending more time on leisure activities (such as chatting on the Internet in our study), they are more likely to use tools that enhance the experience of the activities (e.g., ease of managing contacts and chats on the Internet). As a result, the greater the time

FIGURE 4
EXPERIMENT 3: LAY THEORY (MORE TIME IS GOOD
VERSUS LESS TIME IS GOOD)



estimates, the more likely they would download the new program as observed in our study.

Mediation Analyses. To test the process underlying the moderating effect of lay belief on the interaction of valence and unpacking on time estimates, we performed a series of regressions and 1,000 bootstrap resamples using Preacher and Hayes's (2008) SPSS macro, as recommended by Zhao et al. (2010). To test the significance of the indirect pathway (i.e., the path from the three-way interaction to time estimates via the two-way interaction of predicted enjoyment

and lay theory), we considered the bias-corrected 95% confidence interval. Because this interval (.023 to .122) did not include zero and the effect of the three-way interaction was reduced in significance, we conclude that the mediating role of predicted enjoyment on predicted consumption time was qualified by the strength of lay belief about consumption time and enjoyment.

Experiment 3 provided further support to our hypothesized interaction between event representation and valence. The direct manipulation of lay belief supported the link between predicted enjoyment and how consumers choose to spend their time on future events. As it became questionable whether consumers should spend more time on pleasant events and less time on unpleasant events, the effect of unpacking and valence on predicted consumption time was attenuated or even reversed.

GENERAL DISCUSSION

Our central finding is that unpacking an affective event can influence the time estimates for the event but that the direction of the change depends on the event valence. Controlling for knowledge and varying only event representation, we demonstrated across three experiments that unpacking a pleasant multifaceted event into multiple subactivities can increase the predicted consumption time for the event, whereas unpacking an unpleasant event can decrease the time estimates, a novel finding in this area of research. We also showed that judgment of consumption time systematically influences consumption decisions. The findings provide evidence that the phenomenon is substantial and reliable: the effect was observed across various domains, with varying lengths of time, similar and dissimilar subactivities, different numbers of subactivities, and different procedures to manipulate event valence.

Further, we presented evidence for the underlying mechanism. In experiments 1 and 3, we used mediation analyses to demonstrate the mediating effect of predicted enjoyment. In experiment 3, we directly manipulated the strength of lay belief about time and predicted consumption experience. We also addressed alternative explanations, including attention, mood, and mood regulation, by manipulating the number of subactivities and taking measures of attention and mood in experiments 2 and 3.

Contributions and Implications

The general logic of our valence account is consistent with many other observations in prior work that have suggested that unpacking increases knowledge of, or attention to, a neutral target event (Kruger and Evans 2004; Tversky and Koehler 1994). In the same spirit, we have demonstrated that unpacking increases the perceived intensity of an affective event. However, because of people's lay belief that they will spend less time on negative events, unpacking a negative event reduces predicted consumption time for the event.

The extension of the effect of unpacking to affective ex-

periences is important because it advances the understanding of the effect of unpacking and produces counterintuitive results when applied to negative experiences. Departing from the knowledge or attention account offered in prior research and differing from their unpacking operationalization, which allows for knowledge or attention to vary simultaneously, we suggest our valence account by controlling for these factors, and we showed that event valence moderates the effect of unpacking on predictions of consumption time. However, we did follow the classic approach in manipulating unpacking (one vs. multiple judgments; Tversky and Koehler 1994) to demonstrate our valence-based effect. One may question whether the observed effect can be (partially) attributed to judgment frequency, a by-product of unpacking. We believe judgment frequency is unlikely to play a central role given that judgment frequency alone could not explain the null effect of unpacking on neutral events in study 2. Further, recent studies have also robustly replicated the unpacking effect by varying attention to an overarching event while holding judgment frequency constant (Kruger and Evans 2004). Nevertheless, future research is required to investigate the effect of judgment frequency independent of the attention account or valence account.

As reviewed earlier, changes in time estimates for future consumption can affect purchase decisions and consumers' willingness to pay for products or services. Our work adds to research on time estimates by demonstrating the antecedents of time predictions of future consumption. One might argue that the events in our studies (e.g., attending social activities, chatting online on a weekly or monthly basis) do not represent other types of overarching event that last for only a few hours (e.g., making roast beef). However, a glimpse at the consumer market suggests that many products and services resemble our experimental settings in that consumers have access to products or services for an extended period of time. Take monthly subscription packages for cable television or gym membership, for example. Consumers typically base their purchase decision on predicted consumption on a monthly basis. Thus, our findings offer marketing managers insights into how to better present their programs to potential consumers. Further, our findings have important public policy implications. Policy makers often advise people to make detailed, step-by-step plans for tasks that they need to achieve in order to avoid underestimating time, but our work suggests that people should be careful when adopting this strategy. For unpleasant tasks, unpacking may actually lead to a systematic underestimation of time required.

Alternative Explanations and Future Directions

Our findings lead to a number of further questions about causes and generality. Experiment 2 identifies an interesting boundary condition: we observed that unpacking had no effect on time predictions for neutral events. At first sight, this might seem contradictory to Kruger and Evans's (2004) findings, which showed that unpacking a neutral or mildly

negative task still increased estimates for task completion time. However, one study in that article identified a boundary condition similar to ours: unpacking did not affect time estimates for simple tasks. The authors reasoned that this was because, unlike complex, multifaceted events, unpacking could not increase knowledge of or attention to a simple task. Just as unpacking a simple task is unlikely to increase knowledge about the task (because there is no additional information to be retrieved), unpacking a neutral event is unlikely to change its valence, because the sum of several neutral subactivities is still a neutral event. How might unpacking affect consumers' predictions of consumption time if unpacking increases not only the intensity of the predicted consumption experience but also knowledge about consumption? It is possible that the knowledge effect and valence effect would cancel out for negative events and add up for positive events. However, our studies do not permit a clear picture, because we purposely controlled for knowledge to tease apart the knowledge-based and valence-based accounts. Nonetheless, this issue deserves further investigation.

Further, in our framework, we focus on situations in which consumers have control over how much time they spend on the event in question. This understudied domain deserves further investigation, as many real-life consumption events are ones over which consumers have similar control (e.g., dining out, purchasing durable goods, or subscribing to monthly services). However, there are other circumstances in which consumers have no control over the duration (e.g., medical surgery or public transportation) or the variations in duration (e.g., flight delays). How might unpacking and valence interactively affect "wishful" consumption time, and how might the difference between the prediction and actual consumption time change the enjoyment or pain consumers receive from the affective experience? This is also an interesting question for future research.

On a related note, although the present research does not address the issue of accuracy in time prediction, it may be important to understand how unpacking interacts with valence to affect accuracy in time judgments. Our theory, like support theory, is concerned only with changes in time estimates and not with the question of whether unpacking improves or worsens biases in numerical judgments. Our findings do show that predictions of consumption time are highly flexible in that they are subject to contextual factors—representation and the valence of target events. Given that accuracy is likely to be multiply determined (e.g., by factors such as consistency in action and prediction, whether consumers remember their prediction during consumption, and so forth), this issue is beyond the scope of the present research, but it deserves further investigation in the future.

Our research focused primarily on identifying intensity of predicted consumption experience as an important mediator for the effect of unpacking. As such, we did not address or tease apart possible explanations—diminishing return on marginal utility, reference-point dependence, and

so forth—for why unpacking increases predicted enjoyment or displeasure from an affective event. A deeper investigation would not only help us better understand the effect of unpacking but would also shed light on the underlying mechanism for the general effect of unpacking on numerical judgments, hedonic editing, mental accounting, or (more broadly) prospect theory.

Attention to predicted enjoyment may also play a role, even though the results of studies 2 and 3 suggest that unpacking did not alter attention to predicted enjoyment. We realize these are null effects, but the fact that we consistently observed that unpacking had no effect on attention across studies does suggest that participants in the packed condition did not simply tune out during judgment and that attention to enjoyment cannot not be the key driver for the observed effects in our studies. However, the target events in our studies are only mildly positive or negative. It is possible that for more extreme affective experiences, such as getting married or receiving painful medical treatments, unpacking might increase attention to the predicted enjoyment or pain when people evaluate these events. The increased attention might interact with event valence to produce effects on time estimates that are similar to those observed in our studies.

Finally, our research is focused on anticipatory enjoyment and time estimates. As such, we did not examine the effect of unpacking on affective experiences from the past. Although it is possible that consumers may rely on past consumption experiences to plan for future consumption (e.g., repeated purchase), prior research suggests that consumers are forward looking and unlikely to be affected by past experiences in their decision making. Indeed, people often fail to learn from their errors (planning fallacy; Buehler, Griffin, and Ross 2002) and tend to base their judgment on wishful thinking, even when contradictory distributional information is readily available ("I can do better next time"; Buehler et al. 2002). However, it would be fruitful for future research to explore how the interaction between valence and unpacking extends to purchase decisions when consumers consider the retrospective, rather than prospective, consumption time.

APPENDIX A

MATERIALS USED IN EXPERIMENT 1

Note that, in the packed conditions, the three activities were described in one paragraph.

Pleasant Condition: Attending Social Activities

Meet a blind date at a local bar on a Friday evening. Upon arrival, you find your date is very attractive and seems like a great person. You can sense this is going to be a fun night out.

Attend a birthday party on a Saturday afternoon. It is your best friend's birthday and you have been looking forward to this party for a long time. When you arrive, there

are already a lot of guests and many of your close friends have arrived. Everyone seems to be having a great time.

Chat with someone over the phone on a Sunday afternoon. You receive a phone call from a good friend. You and your friend have not talked for a long time and you would love to catch up with this friend.

Unpleasant Condition: Attending Social Activities

Meet a blind date at a local bar on a Friday evening. Upon arrival, you find your date is unattractive and unpleasant. You are very disappointed, and you would rather stay at home to study than waste your time in the bar.

Attend a friend's birthday party on Saturday afternoon. You do not want to go to the party because you need to study for final exams. When you arrive, there are already a lot of guests, but you do not know anyone except the person who invited you. You also see some people leaving.

Chat with someone over the phone on a Sunday afternoon. You receive a phone call from an acquaintance. You have not talked to this person for a long time because you do not like him or her.

APPENDIX B

MATERIALS USED IN EXPERIMENT 3

Intuitive-Pleasant Condition:

Consistent with people's intuition, prior research has found that spending more time on pleasant activities increases the pleasantness of these activities. Therefore this finding prescribes that people should spend more time on pleasurable activities and not worry too much about time constraints (living in the moment) to increase their happiness.

Intuitive-Unpleasant Condition:

Consistent with people's intuition, prior research has found that spending less time on unpleasant activities decreases the unpleasantness of these activities because of overall reduced negative feelings. Therefore this finding prescribes that people should spend less time on unpleasant activities to reduce their pain.

Counter-Pleasant Condition:

Contrary to people's intuition, prior research has found that spending less time on pleasant activities actually increases the pleasantness of these activities because satiation of the pleasantness can be avoided (i.e., stop before getting bored). Therefore this finding prescribes that people should spend less time on pleasurable activities to increase their happiness.

Counter-Unpleasant Condition:

Contrary to people's intuition, prior research has found that spending more time on unpleasant activities actually decreases the unpleasantness of these activities because people adapt to unpleasant experiences over time. Therefore this finding prescribes that people should spend more time on unpleasant activities to reduce their pain.

REFERENCES

- Bilgin, Baler and Robyn A. LeBoeuf (2010), "Looming Losses in Future Time Perception," *Journal of Marketing Research*, 47 (June), 520–30.
- Buehler, Roger, Dale Griffin, and Michael Ross (2002), "Inside the Planning Fallacy: The Causes and Consequences of Optimistic Time Predictions," in *Heuristics and Biases: The Psychology of Intuitive Judgment*, ed. Tom Gilovich, Dale Griffin, and Daniel Kahneman, Cambridge: Cambridge University Press, 250–70.
- Dellavigna, Stefano and Ulrike Malmendier (2006), "Paying Not to Go to the Gym with Ulrike Malmendier," *American Economic Review*, 96 (June), 694–719.
- Faro, David (2010), "Changing the Future by Reshaping the Past: The Influence of Causal Beliefs on Estimates of Time to Onset," *Journal of Consumer Research*, 37 (August), 279–91.
- Hamilton, Rebecca W., Rebecca K. Ratner, and Debora V. Thompson (2011), "Outpacing Others: When Consumers Value Products Based on Relative Usage Frequency," *Journal of Consumer Research*, electronically published January 6.
- Hsee, Christopher K. and Claire I. Tsai (2008), "Hedonomics in Consumer Behavior," in *Handbook of Consumer Psychology*, ed. Curtis P. Haugtvedt, Paul M. Herr, and Frank R. Kardes, Mahwah, NJ: Erlbaum, 639–58.
- Kahneman, Daniel and Amos Tversky (1979), "Prospect Theory: An Analysis of Decision under Risk," *Econometrica*, 47 (March), 263–92.
- Kruger, Joseph A. and Matt Evans (2004), "If You Don't Want to Be Late, Enumerate: Unpacking Reduces the Planning Fallacy," *Journal of Experimental Social Psychology*, 40 (September), 586–98.
- Lemon, Katherine N., Tiffany Barnett White, and Russell S. Winer (2002), "Dynamic Customer Relationship Management: Incorporating Future Considerations into the Service Retention Decision," *Journal of Marketing*, 66 (January), 1–14.
- Loewenstein, George F., Elke U. Weber, Christopher K. Hsee, and Ned Welch (2001), "Risk as Feelings," *Psychological Bulletin*, 127 (March), 267–86.
- MacGregor, Donald G., Sarah Lichtenstein, and Paul Slovic (1988), "Structuring Knowledge Retrieval: An Analysis of Decomposed Quantitative Judgments," *Organizational Behavior and Human Decision Processes*, 42 (December), 303–23.
- McGrath, Joseph E. and Franziska Tschan (2003), *Temporal Matters in Social Psychology: Examining the Role of Time in the Lives of Groups and Individuals*, Washington, DC: APA.
- Preacher, Kristopher J. and Andrew F. Hayes (2008), "Asymptotic and Resampling Strategies for Assessing and Comparing Indirect Effects in Multiple Mediator Models," *Behavioral Research Methods*, 40 (August), 879–91.
- Prelec, Drazen and George Loewenstein (1998), "The Red and the Black: Mental Accounting of Savings and Debt," *Marketing Science*, 17 (January), 4–28.
- Read, Daniel (2001), "Is Time-Discounting Hyperbolic or Sub-additive?" *Journal of Risk and Uncertainty*, 23 (July), 5–32.
- Read, Daniel, George Loewenstein, and Matthew Rabin (1999), "Choice Bracketing," *Journal of Risk and Uncertainty*, 19 (December), 171–97.
- Scholten, Marc and Daniel Read (2006), "Discounting by Intervals: A Generalized Model of Intertemporal Choice," *Management Science*, 52 (September), 1424–36.
- Schwarz, Norbert and Gerald L. Clore (1983), "Mood, Misattribution, and Judgments of Well-Being: Informative and Di-

- rective Functions of Affective States,” *Journal of Personality and Social Psychology*, 45 (September), 513–23.
- Tanner, Robin J. and Kurt A. Carlson (2009), “Unrealistically Optimistic Consumers: A Selective Hypothesis Testing Account for Optimism in Predictions of Future Behavior,” *Journal of Consumer Research*, 35 (February), 810–22.
- Thaler, Richard H. (1985), “Mental Accounting and Consumer Choice,” *Marketing Science*, 4 (Summer), 199–214.
- Thaler, Richard H. and Eric J. Johnson (1990), “Gambling with the House Money and Trying to Break Even: The Effects of Prior Outcomes on Risky Choice,” *Management Science*, 36 (June), 643–60.
- Tversky, Amos and Derek J. Koehler (1994), “Support Theory: A Nonextensional Representation of Subjective Probability,” *Psychological Review*, 101 (October), 547–67.
- Weber, Martin, Franz Eisenfuhr, and Detlof von Winterfeldt (1988), “The Effects of Splitting Attributes on Weights in Multiattribute Utility Measurement,” *Management Science*, 34 (April), 431–45.
- Yeung, Catherine and Dilip Soman (2007), “The Duration Heuristic,” *Journal of Consumer Research*, 34 (October), 315–26.
- Zhao, Xinshu, John J. Lynch, and Qimei Chen (2010), “Reconsidering Mediation: Tests, Claims and Implications for Theory Building,” *Journal of Consumer Research*, 37 (August), 197–206.