

# Memories as Assets: Strategic Memory Protection in Choice over Time

GAL ZAUBERMAN  
REBECCA K. RATNER  
B. KYU KIM\*

We present five studies supporting our *strategic memory protection* theory. When people make decisions about experiences to consume over time, they treat their memories of previous experiences as assets to be protected. The first two studies demonstrate that people tend to avoid situations that they believe will threaten their ability to retrieve special (rather than merely pleasant) memories. The next three studies demonstrate that people seek to obtain memory pointers to help them cue special memories at a later time when they anticipate interference from subsequent events. These preferences are driven by people's lay theories about the importance and difficulty of obtaining and retrieving special memories.

Research on decision making has identified three distinct sources of pleasure or pain that consumers can derive from an experience: the pre-experience utility from anticipation, the utility from the experience itself, and the post-experience utility from memory (Elster and Loewenstein 1992; Kahneman 1994; Loewenstein 1987). Thus, a single event such as a vacation or a special evening out can influence utility first through savoring, then through the unfolding of the experience, and finally through recollection (Elster and Loewenstein 1992). The current work examines the last component, utility from memory. In particular, we focus on how a desire to protect special memories can affect consumers' choices about what to experience and what items to acquire.

The need for individuals to make decisions in the context of existing memories is ubiquitous, ranging from memories of ordinary experiences (e.g., shopping at a particular mall or previous lunches at a given cafeteria) to memories of

more meaningful experiences (e.g., one's honeymoon, a trek to the Everest base camp, or a particularly special meal with close friends). Whereas memories of mundane experiences help individuals navigate through daily life, memories of extraordinary and meaningful life events have important consequences for self-definition, well-being, and life satisfaction (Keinan and Kivetz 2007; Leboe and Ansons 2006; Singer and Salovey 1993; Tversky and Griffin 2000; Van Boven and Gilovich 2003; Wildschut et al. 2006). We refer to this second category of events as those that are "special," consistent with the Merriam-Webster dictionary's primary definition of *special* as "distinguished by some unusual quality; especially being in some way superior."

Naturally, the specific experiences that a given individual will encode as special are inherently subjective. In the present work, we do not examine the various determinants of an individual's judgment about what makes an experience special. Instead, we draw from prior research on nostalgia that explores the types of experiences that people want to look back on, as well as the emotional triggers and consequences of engaging in nostalgic thinking (Wildschut et al. 2006). This literature suggests that the type of experiences that people typically want to look back on feature the self in "interactions with important others (e.g., friends, loved ones) or momentous events (e.g., graduation ceremonies, birth of a child)" (Wildschut et al. 2006, 988). Further, it has been shown that thinking back to such special experiences increases individuals' positive self-regard and positive affect as compared to thinking back to mundane events (Wildschut et al. 2006). People's propensity to derive utility from these special memories, however, directly relies on their ability to remember these earlier experiences.

In this article, we focus on individuals' desire to engage

---

\*Gal Zauberan is associate professor of marketing at the Wharton School, University of Pennsylvania, Philadelphia, PA 19104 (gal@wharton.upenn.edu). Rebecca K. Ratner is associate professor of marketing at the Robert H. Smith School of Business, University of Maryland, College Park, MD 20742 (rratner@umd.edu). B. Kyu Kim is a doctoral student at the Wharton School, University of Pennsylvania, Philadelphia, PA 19104 (bkyu@wharton.upenn.edu). The authors contributed equally to this article. The authors thank Jim Bettman, Wes Hutchinson, and Mara Mather for helpful comments on a previous draft of the article and Swapna Putcha and Angie Skinner for coding the data in study 1. The authors also thank the editor, associate editor, and three reviewers for their helpful comments.

John Deighton served as editor and Stephen Nowlis served as associate editor for this article.

Electronically published September 11, 2008

in what we call *strategic memory protection*, that is, behaviors that people think will allow them to protect their ability to remember those experiences that they want to look back on later. It is noteworthy that, although researchers from diverse areas have acknowledged the importance of utility from memory (Baumgartner, Sujan, and Bettman 1992; Belk 1988; Holbrook 1993; Mather 2004; Wildschut et al. 2006), we know relatively little about the strategies in which people engage to protect their ability to do so. Our conceptualization of *memories as assets* highlights people's efforts to protect the experiential capital that they have accumulated.

We will focus on two key predictions that relate to different strategies in which people might engage. The first main prediction is *memory protection through avoidance*, in which people tend to avoid situations that they believe will threaten their ability to derive utility from special (rather than merely pleasant) memories. The second main prediction is *memory protection through acquisition*, in which people seek to obtain memory pointers to help them cue special memories at a later time.

## STRATEGIC MEMORY PROTECTION

For a past experience to provide pleasure through reminiscing, it is not enough for the experience to be initially encoded in memory: it needs to be recalled and be subject to conscious reflection (Elster and Loewenstein 1992; Tulving and Thompson 1973). In addition, the principle of associative interference suggests that one's ability to retrieve initially encoded information can be impeded by information that is encoded subsequently (Bower, Thompson-Schill, and Tulving 1994; Cowley 2007; Postman and Underwood 1973). Specifically, memory models based on an associative network with spreading activation suggest that, when a cue is activated, activation then spreads along links to the other information nodes with which the activated node is associated. In the context of repeated experiences, any subsequent nonspecial experiences that unfold with some of the same cues present (e.g., in the same location) as in the initial special experience could threaten one's ability to recall the original special experience.

Yet, strategic memory protection is not simply about looking back; rather it is inherently a forward-looking process. To what extent are people forward looking about managing their memory assets? Extensive research on intertemporal decisions has shown that people exhibit myopic preferences (Benartzi and Thaler 1995; Kahneman and Lovallo 1993; Zauberman 2003); that is, people view decisions in isolation and put disproportionately higher weight on the present than on the future. This implies that people might not consider future utility from memory prospectively and thus that they might invest insufficiently in memorable experiences and their protection. Our proposed process is more consistent with other research that suggests situations in which people are forward looking about their intertemporal consumption (Werthenbroch and Carmon 1997), such as smokers buying

smaller packages of cigarettes to limit how much they consume later (Werthenbroch 1998).

## Memory Protection through Avoidance

One of our key ideas is that when people are making decisions about what experiences to acquire over time, they do not simply want to repeat experiences that were favorable in the past (Ratner, Kahn, and Kahneman 1999), as would be predicted by reinforcement learning models (Thorndike 1898). Rather we argue that people avoid situations that they believe will threaten their ability to retrieve special memories. For example, people might be concerned about adding new associations to their memory of the original experience (e.g., as when one has a memory of one's vacation with friends in a particular resort and returns to that same place for a business meeting). If new associations (e.g., conversations with one's boss over dinner) might be created that link to one's initial memory, these new associations could be brought to mind when one tries to think back to the special experience (Lustig, Konkel, and Jacoby 2004). Thus, we hypothesize that people avoid experiences that would add new associations to cues associated with an initial special experience:

- H1:** People avoid repeating an experience that they consider very special more than an experience that was nonspecial.
- H2:** The preference to avoid repeating a special experience compared to a nonspecial experience is driven by a desire to protect special memories.

Following the same logic, we further suggest that one important moderator of the desire to protect memory through avoidance is the extent to which the elements present in the subsequent experience would match those present in the original special experience. Whereas individuals will avoid situations in which key elements have changed and therefore new associations could be created that might interfere with their ability to recall the initial memory, they will be less concerned about avoiding situations in which key elements remain the same. Therefore we hypothesize:

- H3:** The preference to avoid repeating a special experience compared to a nonspecial experience is greater when different elements than the original experience will be present more than when the same elements in the original experience will be present.

## Memory Protection through Acquisition

In addition to engaging in protecting special memories through avoidance, we propose that people also seek to acquire *memory pointers*—items that they believe will help them later to retrieve these earlier memories. Consumer research utilizing qualitative methods suggests that consumers often possess objects associated with favorable occasions

(Belk 1988; Tian and Belk 2006). Such possessions might consist of photographs of happy moments, trophies from past accomplishment, mementos from past romances, and souvenirs of enjoyable travel (Belk 1988). In the context of the current research, individuals might anticipate that effective memory pointers would be any physical objects that are associated with a special experience. Our goal is to test these ideas as further evidence for the more general theory of strategic memory protection by examining the conditions and motivations that induce a preference for such memory pointers and the types of memory cues people think will be most effective.

We further propose that individuals will distinguish between items that are associated specifically with a special experience (e.g., a ticket that was used to get into a specific favorite concert) and those that are not associated only with a given special experience (e.g., a season's pass that was used to get into all concerts that season). If an item can form a unique association with a special experience, then people might anticipate that it can serve as a more effective memory pointer later because it will activate the memory of the target event without also activating memories of other events. For example, when people experience a special vacation with their friends and also have an upcoming less pleasing business trip to the same place, they will be particularly interested in acquiring a memory pointer that will remind them only of the vacation without also reminding them of the business trip. Thus, we suggest that, under such circumstances, people will anticipate that an item that points directly to the special experience (i.e., a specific cue) would have greater value as a memory pointer than a product that could serve as a retrieval cue for both the target special experience and other nonspecial experiences (i.e., a generic cue). Further, whereas individuals will value specific over generic cues following a special experience, we hypothesize that this will not be the case following a nonspecial experience. Therefore, we hypothesize:

- H4:** When a special experience is expected to be followed by another interfering experience, preference for a specific cue will be greater than for a generic cue.
- H5:** The preference for a specific rather than a generic cue is greater following a special experience than a nonspecial experience.
- H6:** The greater preference for a specific rather than a generic cue following a special experience compared to a nonspecial experience is driven by a desire to protect special memories.

### Lay Theories about Memory Protection

When are consumers more likely to try to be strategic about protecting their memories, and what are some of the associated cognitions? Our key construct relies on people's

perception that it can be difficult to recall spontaneously past special memories. Research in psychology has demonstrated that perceived recall difficulty of past experiences is quite malleable and that it affects subsequent judgments. For example, participants who were asked to list many (i.e., 12) childhood experiences felt difficulty in recalling the past, which in turn led them to believe they had a poor memory, as compared to those who were asked to list only a few (i.e., 2) childhood experiences (Belli et al. 1998; Winkielman, Schwarz, and Belli 1998). In the context of the current research, those who believe that they have a harder time recalling past experiences should value memory protection to a greater degree than those who think that it is easy to recall past experiences. Based on this, we hypothesize:

- H7:** People's desire to protect a special memory is greater when they believe that recalling past experiences is difficult rather than easy.

### Overview of Studies

We find support for our strategic memory protection theory and associated hypotheses in five studies. Across studies, we ask respondents either to describe actual special or nonspecial experiences that they had or to read scenarios describing such experiences. Studies 1 and 2 test our avoidance hypotheses and indicate that people are less interested in returning to a place where they had a special experience as compared to a place where they had a nonspecial experience (hypothesis 1) and that a desire to protect their special memories underlies this avoidance tendency (hypothesis 2). Studies 1 and 2 further show that this avoidance behavior emerges more when people expect the subsequent experience to contain different elements rather than the same elements present during the initial experience (hypothesis 3). Studies 3–5 test our cue acquisition hypotheses. Study 3 demonstrates that people are more interested in obtaining a memory pointer that they think will be associated specifically with the special event and not also with a subsequent event (hypothesis 4). Study 4 shows that this preference for the specific cue is greater following a special experience than one that is nonspecial (hypothesis 5) and that it is driven by a desire to protect special memories (hypothesis 6). In study 5, we experimentally manipulate people's beliefs about the difficulty of recalling special memories and find that these beliefs play a causal role in leading people to adopt memory protection strategies (hypothesis 7).

### STUDY 1: DESIRE NOT TO RETURN TO A SPECIAL PLACE

In study 1, we test our hypotheses that people will be reluctant to repeat an earlier experience that they considered to be special more than an experience that they considered not special (hypothesis 1) and that a desire to protect special memories contributes to this avoidance behavior (hypothesis 2). Specifically, we test whether memory protection concerns lead people to be less likely to return to a place where

they previously had a special experience as compared to a place where they had a nonspecial experience. On this new occasion, they are told that one of the key elements from the original experience (i.e., the person they were with) will be substituted with another (i.e., a different person). In this study, we draw from people's own idiosyncratic repertoire of personal experiences to test whether memory protection concerns can lead people to avoid returning to places where they had special experiences.

## Methods

One hundred and ninety-five graduate students at the University of North Carolina participated in the study in exchange for a \$10 donation to a local charity. The experiment included two parts.

In part 1, participants were randomly assigned to describe either an evening out that they considered "particularly special" ( $N = 101$ ) or an evening out that was "pleasant but not particularly special" ( $N = 94$ ). After providing a detailed written description of the experience (e.g., when and where it occurred, whom they were with, and how they felt during the experience), participants rated how special the experience was using a 7-point scale (1 = not at all special, 7 = extremely special). Participants then were asked to imagine that they had an opportunity to go back to the same place with a different person (or people) and to rate how much they would want to go back again using a 7-point scale (1 = definitely not go back, 4 = no preference, 7 = definitely go back). After providing this rating, they were also asked to explain why they would or would not want to return to this place.

In part 2 of this study, we asked all participants to focus on a special experience. The participants were told that we were interested in understanding why people might want to repeat or not repeat a special experience, and they were asked to think about a "particularly special (i.e., favorable and memorable) experience you have had (for example, a vacation or an evening out)." Participants were given several blank lines on which to provide a written description of that experience. They then were asked to describe "circumstances under which you would like to return to the place where the special experience occurred" and "circumstances under which you would not like to return to the place where the special experience occurred."

## Results

The analyses included the rating scales from part 1 and content analyses of parts 1 and 2. The content analysis was designed to directly examine the role of memory protection in individuals' preferences about whether to return to the place where they had the original experience.<sup>1</sup> Two independent coders were used, and disagreements were resolved with discussion.

<sup>1</sup>Complete instructions to the coders are available from the authors.

*Part 1: Desire to Return to a Special versus Pleasant Place.* Respondents' own ratings of how special their experience was indicated that they described experiences that were more special ( $M = 5.80$ ) in the special experience than in the nonspecial condition ( $M = 3.80$ ;  $F(1, 193) = 208.29$ ,  $p < .001$ ). In addition, two independent coders read individuals' descriptions of their experiences and rated each on a 3-point scale in terms of how happy the person appeared to be about the experience (1 = unhappy, 3 = happy; Cohen's  $\kappa = .55$ , intraclass  $r = .79$ ) and how intense the experience was (1 = low intensity, 3 = high intensity; Cohen's  $\kappa = .47$ , intraclass  $r = .78$ ). These manipulation checks confirm that the experiences participants described reflected greater happiness and intensity in the special than in the nonspecial experience condition ( $M = 2.85$  vs.  $M = 2.49$  for happiness ratings;  $F(1, 189) = 25.46$ ,  $p < .0001$ ;  $M = 2.43$  vs.  $M = 1.72$  for intensity ratings;  $F(1, 189) = 75.98$ ,  $p < .0001$ ).<sup>2</sup>

As predicted, participants indicated that they were less interested in returning to the same place where they had a particularly special evening out ( $M = 4.09$ ) than to a place that was pleasant but not particularly special ( $M = 4.85$ ;  $F(1, 192) = 7.72$ ,  $p < .01$ ).<sup>3</sup> Participants' open-ended responses were coded further for whether they said there were circumstances in which they would return to this place (in no circumstances, in some circumstances, or in all circumstances; Cohen's  $\kappa = .41$ , intraclass  $r = .66$ ). Consistent with a strong form of hypothesis 1, 10.9% (11 of 101) in the special experience condition as compared to 2.1% (2 of 94) in the nonspecial experience condition indicated that under no circumstances would they want to return to this place ( $\chi^2(1, N = 195) = 6.00$ ,  $p < .02$ ).

To examine directly whether this reluctance to return is driven in part by memory-protection concerns (hypothesis 2), the data were coded for mentions of strategic memory protection (i.e., whether the person indicates a desire not to have a new experience that could taint or ruin their memory; Cohen's  $\kappa = .45$ , intraclass  $r = .63$ ). The results show that 10.9% (11 of 101) mentioned strategic memory protection when describing whether they would return to a place where they had a special experience versus only 2.1% (2 of 94) mentioning it when describing whether they would return to a place where they had a pleasant experience ( $\chi^2(1, N = 195) = 6.00$ ,  $p < .02$ ). Furthermore, those who mentioned strategic memory protection were significantly less interested in returning than those who did not mention strategic memory protection ( $M = 2.15$  vs.  $M = 4.62$ ;  $F(1, 192) = 21.76$ ,  $p < .0001$ ). A similar pattern of results emerged for coding of memory-related words (e.g., "memory," "remember").

*Part 2: Circumstances Leading to Return versus Not Return to a Special Place.* The same two coders judged people's open-ended responses in part 2 examining the cir-

<sup>2</sup>Four participants had missing values from the coders and were not included in this analysis.

<sup>3</sup>One participant did not provide a rating of how likely they would be to go back and was not included in these analyses.

cumstances in which respondents would versus would not want to return to the place where the special experience occurred. The coded data indicated that respondents would want to return only if they were with the same person with whom they had been during the initial special experience: 56 noted that they would only want to go back with the same person (Cohen's  $\kappa = .67$ , intraclass  $r = .87$ ), whereas only six indicated that they would not want to return with the same person (Cohen's  $\kappa = .65$ , intraclass  $r = .82$ ; McNemar  $\chi^2(1, N = 195) = 38.73, p < .0001$ ). In addition, of those who specified whether they would want to return if the experience would be similar or different from the initial experience, 44 said that they would want to return if it were similar and only three said that they would want to return if it were different ( $\chi^2(1, N = 47) = 35.77, p < .0001$ ). All results reported for part 2 held regardless of the condition to which participants had been assigned in part 1.

### Discussion and Follow-up Study

The results of study 1 support our avoidance-related hypotheses (hypotheses 1–3). Participants indicated that they were less interested in returning to a place where they had a special experience than to a place where they had a non-special experience (hypothesis 1). The open-ended data indicate that a desire to protect special memories contributes to this avoidance behavior (hypothesis 2). Further, in this study, participants indicated that they would be less interested in returning with a different person (or people) than with the same person(s) to a place where they had had a special experience than a place where they had had a pleasant but not particularly special experience (hypothesis 3). If they were to return to the special place, they wanted the experience to be as similar as possible to how it had been on the earlier special occasion. For example, one respondent who had described his honeymoon destination indicated that he did not want to return “without my wife. I would not want to go frequently, for fear that it may lose its charm, or I/we may have a poor experience that taints our memory.”

The results of study 1 therefore support our prediction that people are reluctant to add new associations to the set of elements associated with a particularly special experience. It is important to note that we do not argue that people always choose not to return to a place where they had a special experience. Indeed, our data show that only the minority indicated that under no circumstances would they return. The critical result is that, in direct support of strategic memory protection, such avoidance was more frequent for special than for nonspecial experiences and that those who mentioned memory-related concerns showed avoidance to a greater degree.

A possible additional explanation for the avoidance preference expressed by participants in this study is that they expected that they would not enjoy returning to the scene of an earlier special experience when a key component had changed. We tested for this in a follow-up study by asking 35 undergraduates from the same university to describe a special experience (e.g., vacation or an evening out) and

then to consider going back again, either with the same person or with a different person (manipulated between-subjects). They were asked whether they would like to go back in that circumstance, on a 7-point scale, with endpoints labeled “definitely not” and “definitely,” and how favorable they thought that the second experience would be compared to the first if they were to go back (1 = much less favorable, 4 = about the same, 7 = much more favorable). Consistent with the results of the main study 1, the results indicate a greater likelihood to return to the place with the same person ( $M = 6.84$ ) than with a different person ( $M = 3.94$ ;  $F(1, 33) = 26.44, p < .0001$ ). The results also indicated greater anticipated enjoyment with the same person ( $M = 4.58$ ) than with a different person ( $M = 3.00$ ;  $F(1, 33) = 11.41, p = .002$ ). However, an ANCOVA indicated that the preference for repeating the experience with the same person rather than with a different person continues to emerge even when one controls for the anticipated favorability of the new experience. We found a significant main effect of same versus different person on likelihood of returning ( $F(1, 32) = 10.91, p < .002$ ), as well as a significant effect of anticipated favorability ( $F(1, 32) = 18.41, p < .0001$ ). Therefore, the results of study 1 and the follow-up study support our hypotheses 1 and 2 that avoidance is driven by strategic memory protection concerns and not simply by expectations that a person would enjoy a subsequent experience less when circumstances had changed.

### STUDY 2: AVOIDANCE WHEN SPECIAL PLACE HAS CHANGED

If people are concerned about protecting special memories, then they will avoid repeating an experience when key elements from the original experience are expected to be different from rather than the same as in the original experience (hypothesis 3). Indeed, results from study 1 using participants' own past personal experiences and their open-ended responses provide support for this hypothesis. In study 2 we manipulate whether key aspects of the experience that participants consider have changed or have remained unchanged vis-à-vis the original experience, while we otherwise hold constant the scenarios. Further, we test whether avoidance behavior generalizes to nonromantic settings. Drawing from the experiences generated by participants in study 1 and the literature on nostalgia (e.g., Wildschut et al. 2006), we describe a special experience as one involving interactions with important others (i.e., close friends) and meaningful conversations, whereas the nonspecial experience is described to be pleasant but not particularly meaningful (as in study 1). In addition, to gain further insight into the nature of people's memory protection concerns, we measure respondents' beliefs about the extent to which a new experience could make it hard for them to recall the moments of the original special experience and whether a new experience could taint their memory of the original experience. Both types of memory-protection concerns could lead people to avoid having a new experience that

could hinder their ability to derive utility from memory from that initial special experience.

## Methods

One hundred and eighty-eight undergraduates at the University of Pennsylvania participated in this study in exchange for \$10. The study used a 2 (initial experience: special vs. nonspecial)  $\times$  2 (subsequent place: unchanged vs. changed) between-subjects design.

*Initial Event and Manipulation Checks.* All participants first were asked to imagine that they went on a week-long vacation to Albuquerque, New Mexico, with two of their best friends and stayed in an Albuquerque-style hotel near the center of the Old Town. In the *special experience* condition, participants read that the weather was sunny and warm and that they went on some nice walks around the historic area, enjoyed the New Mexican cuisine, and enjoyed spending time by the pool, where they had many deep and meaningful conversations with their friends. In the *nonspecial experience* condition, participants read that the weather was good and that they went on some walks around the historic area, tasted the New Mexican cuisine, and spent time by the pool of the hotel. After reading this scenario about the initial experience, all participants rated to what extent the vacation would be personally meaningful and special for them (on separate 11-point scales, where 1 = not at all, 11 = very).

*Subsequent Event and Measures.* Next, participants were asked to consider a subsequent occasion on which they would need to participate in an upcoming industry business meeting in Albuquerque. They were told that this meeting would consist of 4 long days of technical discussions and presentations by industry firms and that their task was to indicate in which hotel they would prefer to stay during the business trip: the hotel in which they had stayed with their friends or a different hotel of similar quality.

Before participants indicated in which hotel they would prefer to stay, we manipulated whether they would experience a changed or unchanged place if they were to return to the hotel in which they had vacationed with their friends. Specifically, we told participants in the *changed place* condition that the business meeting would be located in the same venue as the lodging for meeting attendees, which would require that the hosting hotel temporarily change to accommodate the business meeting. Participants read that the hosting hotel would have multiple information stations in the lobby and pool area and that each room would contain two beds and a meeting table. Participants in the *unchanged place* condition were told that the business meeting would take place in a convention center, which would be set up with information stations and meeting rooms throughout to accommodate the meeting, while the lodging for meeting attendees would be in local hotels. These descriptions were designed so that participants in the changed place condition would envision that, if the hotel in which they had stayed with their friends were to become the hosting hotel, the hotel

would appear substantially changed vis-à-vis their earlier stay at the hotel with their friends; participants in the unchanged condition would envision that the hotel would remain the same as in the earlier experience.

After reading this description of the upcoming business trip and conference logistics, participants were asked whether they would prefer to return to the hotel in which they had stayed with their friends or to stay in another hotel instead ( $-5$  = strongly prefer a different hotel,  $5$  = strongly prefer the same hotel). We next measured participants' beliefs about memories by asking them to indicate the extent to which they thought that returning to the hotel where they had stayed with their friends would (1) taint their memory of their trip with their friends and (2) interfere with their ability to remember the moments from their trip with their friends (on separate 11-point scales, where 1 = not at all, 11 = very much).

## Results

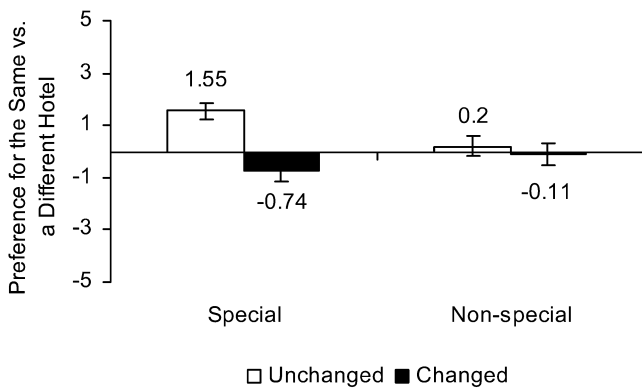
*Manipulation Checks.* Participants rated the initial experience as more meaningful in the special than in the nonspecial experience condition ( $M = 9.18$  vs.  $M = 7.51$ ;  $t(186) = -5.63, p < .001$ ) and as more special in the special than in the nonspecial experience condition ( $M = 9.13$  vs.  $M = 7.70$ ;  $t(186) = -4.58, p < .001$ ). These two measures were highly correlated ( $r = .86, p < .0001$ ), suggesting that meaningfulness is related to how special an experience is perceived to be (e.g., Wildschut et al. 2006).

*Desire to Return versus to Avoid Returning.* A 2-way ANOVA was conducted to test the effects of initial experience (special vs. nonspecial) and subsequent place (changed vs. unchanged) on people's desire to return to the hotel where they had had the vacation with their friends versus to go to a different hotel of the same quality. As predicted, a significant initial experience  $\times$  subsequent place interaction emerged ( $F(1, 184) = 7.49, p < .01$ ); whereas the participants' preferences in the nonspecial experience condition to return to the same hotel versus to go to another hotel did not differ as a function of the nature of the subsequent place ( $M = .20$  for unchanged vs.  $M = -.11$  for changed;  $F(1, 184) < 1$ ), the preferences of participants in the special experience condition to return to the hotel where they had stayed with their friends were greater if the hotel would be unchanged ( $M = 1.55$ ) than if it would be changed ( $M = -.74$ ;  $F(1, 184) = 21.2, p < .001$ ); see figure 1.

Note that this overall pattern demonstrates a desire to avoid returning to the place more when it was special than pleasant if the place would be changed but a desire to return to the place more when the initial experience was special rather than nonspecial when the place would be unchanged. One-group tests compared people's preferences to the neutral point on the scale (i.e., "0" reflected indifference between going back to the same hotel or to a different hotel). When the hotel would be changed, participants in the special experience condition preferred to stay in another hotel ( $M = -.74$ ;  $t(46) = -1.98, p = .05$ ). However, when the

FIGURE 1

MEAN PREFERENCE FOR THE SAME HOTEL AS A FUNCTION OF SPECIAL VERSUS NONSPECIAL INITIAL EXPERIENCE AND WHETHER HOTEL WILL BE CHANGED VERSUS UNCHANGED (STUDY 2)



NOTE.—Error bars represent standard errors of the mean.

hotel would be unchanged, participants in the special experience condition preferred to return to the hotel in which they had stayed with their friends ( $M = 1.55$ ;  $t(50) = 4.85$ ,  $p < .001$ ). Participants in both of the nonspecial experience conditions (i.e., the changed and unchanged hotel conditions) were indifferent between the two hotels.

**Lay Theories about Memory.** An ANOVA to test the effects of initial experience and subsequent place on the “taint memory” measure revealed a main effect of the initial experience, such that people believed that their memory would be tainted more when the initial experience was special rather than nonspecial ( $M = 5.84$  vs.  $M = 4.89$ ;  $F(1, 184) = 5.71$ ,  $p < .05$ ), and a main effect of the subsequent place, such that the memory would be tainted more when the subsequent place was changed rather than unchanged ( $M = 6.07$  vs.  $M = 4.73$ ;  $F(1, 184) = 10.32$ ,  $p = .002$ ). The measure about anticipated interference revealed a marginally significant effect of the subsequent place, such that participants anticipated that there would be more interference in recall of the moments of the vacation if the subsequent place were changed rather than unchanged ( $M = 4.29$  vs.  $M = 3.64$ ;  $F(1, 184) = 3.26$ ,  $p = .07$ ).

These two measures (taint and interference) were highly correlated ( $r = .52$ ,  $p < .0001$ ). A factor analysis revealed only a single factor explaining 75.9% of the variance, suggesting that these two facets of memory protection concerns are highly related for our participants. Therefore, to test directly whether memory protection concerns are driving the differences in preference between the special and nonspecial conditions we reported above, we conducted a moderated mediation analysis (Baron and Kenny 1986; MacKinnon 2008; Muller, Judd, and Yzerbyt 2005) using a composite score (i.e., the arithmetic mean of the two items). Specifically, we examined whether the composite score mediated the impact of subsequent place (e.g., changed vs.

unchanged) on the desired subsequent experience (i.e., preference for the same vs. a different hotel) separately for each level of the experience (i.e., special vs. nonspecial). In the special experience condition, the changed versus unchanged subsequent place manipulation had a significant effect on memory protection concerns ( $t(96) = -3.28$ ,  $p = .001$ ) and memory protection concerns had a significant effect on preference for subsequent experience ( $t(96) = -7.19$ ,  $p < .001$ ). The direct effect of the subsequent place (changed vs. unchanged) on the desired subsequent experience was significant ( $t(96) = -4.67$ ,  $p = .0001$ ), and it remained significant when memory concerns were controlled for ( $t(96) = -3.2$ ,  $p = .002$ ), but it was significantly reduced in magnitude, indicating a significant partial mediation (Sobel  $z = 2.98$ ,  $p < .001$ ).

However, in the nonspecial experience conditions, memory protection concerns did not play a mediating role. In the nonspecial experience condition, the effect of subsequent place (changed vs. unchanged) did not have a significant effect on memory protection concerns ( $t(88) = 1.10$ ,  $p = .28$ ) and the effect of memory protection concerns did have a significant effect on desired subsequent experience ( $t(88) = -3.8$ ,  $p < .001$ ). It is important that the direct impact of the subsequent place on the desired subsequent experience was not significant ( $t(88) = -0.58$ ,  $p = .56$ ) and, indicating a lack of mediation, that this (nonsignificant) effect was not significantly reduced when we controlled for memory concerns ( $t(88) = -.18$ ,  $p = .86$ ; Sobel  $z = 1.06$ ,  $p > .29$ ).

As a final step to establish a moderated mediation (see MacKinnon 2008), we tested whether the mediation effect in each level of the initial experience (i.e., special vs. nonspecial) was significantly different using the pooled standard error of the mediated effect from each level. As we predicted, indicating a significant moderated mediation, this analysis confirmed that the two mediated effects were different ( $z = -1.92$ ,  $p < .05$ ). Therefore, supporting our theory, memory concerns mediated the difference in preferences for the changed place versus the unchanged place in the special condition but did not do so in the nonspecial condition.

## Discussion

As expected, participants wanted to return to a special place when it would be similar to the initial experience but they wanted to avoid returning to a place where they had an initial special experience if key elements would be substantially changed (hypothesis 3). This finding, based on an experimental manipulation of whether the subsequent place would be changed or unchanged, is consistent with our analysis of the coded responses in study 1. The results of both studies 1 and 2 further suggest that avoidance is driven by memory protection concerns (hypothesis 2). In the next studies, we extend our memory protection analysis to test our ideas about cue acquisition.

### STUDY 3: SPECIFIC VERSUS GENERIC CUES WHEN ANTICIPATED INTERFERENCE

In study 3 we move from testing memory protection through avoidance to testing memory protection through cue acquisition. Our results thus far indicate that, when a special experience could be followed by a second experience that could hinder one's ability to retrieve the initial experience, memory protection concerns arise that drive consumer choice. When such a subsequent experience is inevitable, we propose that individuals will prefer to acquire a specific cue pointing only to the special experience more than a generic cue that could point them to both the special and nonspecial experiences (hypothesis 4). In the present study, we used a scenario similar to that used in study 2. We asked all respondents to imagine having a special vacation trip to a San Diego resort and then asked half of them to imagine that they would be returning to the same city for a business trip soon afterward. We predicted that people would prefer to purchase a souvenir that would remind them specifically of the initial resort rather than one that would remind them of the city of San Diego more generally when they anticipated the vacation to be followed by a business trip to the same city.

#### Methods

One hundred and twenty-two undergraduate students at the University of North Carolina participated in this experiment for extra credit in an introductory marketing course. Participants were randomly assigned to one of the four conditions in a 2 (subsequent trip: none vs. business trip)  $\times$  2 (recall cue: specific vs. generic) between-subjects design.

Participants in the *no subsequent trip* condition were told that they were going to visit San Diego: "The visit is a vacation trip with your romantic partner. You will stay at a resort with nice bungalows on a beautiful beach." Participants in the *business trip* condition were told that they were going to visit San Diego two times: in addition to the vacation trip with their romantic partner, they would have another trip planned to San Diego two weeks after their vacation and this would be a business trip with their boss. They were told, "You will stay at a business hotel in downtown San Diego. You will assist your boss all the time and not have any free time."

On the next page, all respondents were given a description of their vacation and asked to imagine the experience. Specifically, they were told to imagine: "You stay in a private bungalow on a beautiful beach. You find cloudless blue skies, lapping waves, soft sand beaches and lush gardens. You and your romantic partner are having a wonderful time in the resort." Then, they imagined going to a souvenir shop in the resort on the last day of their vacation and were asked to indicate on an 11-point scale from 1 (not at all likely) to 11 (very likely) how likely they would be to purchase one of two souvenirs: respondents in the *specific cue* condition

were asked the likelihood of buying a magnet of a beautiful miniature bungalow on which the name of the resort is imprinted and respondents in the *generic cue* condition were asked the likelihood of buying a beautiful graphic of San Diego on which the word "California" is imprinted. After completing the main task, participants indicated on an 11-point scale from 1 (not at all) to 11 (very much) how enjoyable they thought the vacation with the romantic partner would be for them. Participants in the business trip condition ( $N = 60$ ) also indicated how enjoyable the business trip would be.

#### Results and Discussion

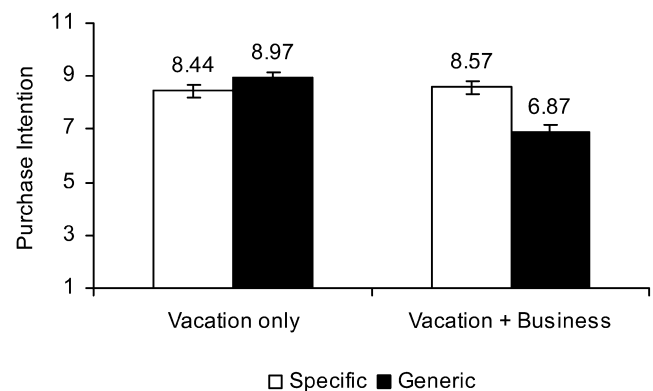
**Manipulation Check.** As expected, reported levels of enjoyment from the vacation did not differ between conditions ( $M = 10.40$  vs.  $M = 10.22$ ;  $t(120) = 1.12$ , NS). The participants in the business trip condition anticipated that the vacation would be more enjoyable than the business trip would be ( $M = 10.22$  vs.  $M = 5.18$ ;  $t(59) = 18.23$ ,  $p < .0001$ ).

**Interest in Buying the Memory Pointer.** A 2 (subsequent trip: none vs. business trip)  $\times$  2 (recall cue: specific vs. generic) ANOVA revealed the predicted trip by recall cue interaction ( $F(1, 118) = 4.87$ ,  $p < .05$ ); see figure 2. In the no subsequent trip condition, participants reported a similar likelihood to purchase the magnet when offered the resort-specific magnet versus the more generic magnet ( $M = 8.44$  vs.  $M = 8.97$ ;  $F(1, 118) < 1$ ). However, respondents who expected to have an upcoming business trip to the same city were more interested in the magnet when in the specific cue condition ( $M = 8.57$ ) than in the generic cue condition ( $M = 6.87$ ;  $F(1, 118) = 5.57$ ,  $p < .05$ ).

**Posttest.** We conducted a follow-up study with a dif-

FIGURE 2

MEAN PURCHASE INTENTION FOR A SPECIFIC VERSUS GENERIC MAGNET AS A FUNCTION OF WHETHER VACATION WILL BE FOLLOWED BY BUSINESS TRIP (STUDY 3)



NOTE.—Error bars represent standard errors of the mean.



ferent set of participants from the same population ( $N = 164$ ) to address the possibility that participants showed reduced interest in acquiring the generic cue in the subsequent trip condition because they would have another opportunity (i.e., during the business trip) to buy the generic cue later rather than due to memory protection concerns. Participants read the same scenarios used in the main study and were asked to indicate how frequently they expected to visit San Diego in the future (1 = not at all, 11 = very frequently). Results showed neither main effects for subsequent trip ( $F(1, 160) < 1$ ) or for recall cue ( $F(1, 160) = 1.26$ , NS) nor an interaction ( $F(1, 160) < 1$ ). Participants in the business trip condition ( $N = 83$ ) also were asked to indicate how likely they would be to buy souvenirs when they returned on the business trip (1 = not at all, 11 = very much). Results showed that those in the generic cue condition were not more likely (in fact were directionally less likely) to buy souvenirs on the business trip than those in the specific cue condition ( $M = 3.88$  vs.  $M = 4.78$ ;  $t(81) = -.57$ ,  $t = .12$ ). Obviously, null results should be interpreted with caution, but these results indicate that a desire to buy the generic cue at a later time is not a likely alternative explanation for the greater interest in the specific cue than in the generic cue when a business trip is anticipated.

In sum, results from study 3 support our hypothesis 4—when people expect an upcoming interfering experience, they seek to acquire unique rather than generic memory cues. In the next study, we examine more directly whether individuals' preference to obtain these memory cues is indeed driven by people's desire to protect their memory for special experiences. The role of memory protection is further supported by the results of study 2, which indicated a similar design that anticipating a business meeting after a vacation evoked concerns about memory protection.

#### STUDY 4: ACQUIRING SPECIFIC VERSUS GENERIC CUES AFTER SPECIAL EXPERIENCES

Study 4 tests whether memory protection concerns lead people to seek to obtain items that they think will later help them to remember an earlier special experience even though they would forgo these same items in the context of a nonspecial experience (hypotheses 5 and 6). We hypothesize that individuals will prefer to obtain objects that are associated specifically with the original experience (e.g., a Mayan sculpture after a vacation in Mexico) rather than a more generic product that is attractive yet not meaningfully related to the initial experience (e.g., a popular CD unrelated to the vacation in Mexico) to a greater degree when the initial experience is special rather than merely pleasant. Furthermore, in this study we constructed a scenario for the special experience condition in which the experience was not uniformly positive (e.g., some bad weather on the vacation), drawing from the literature on nostalgia that indicates that people do sometimes want to look back on meaningful experiences that included negative moments (Wildschut et al. 2006). We pre-

dict that, even when the special experience includes some negative aspects, people prefer specific rather than generic cues more for the overall special experience than for a merely pleasant experience. In this study, we also measured participants' beliefs about the extent to which the target item would help them to remember their experience.

#### Methods

Participants were one hundred and twenty-eight undergraduates at the University of Pennsylvania who participated in this experiment for \$10. Participants were randomly assigned to one of the four conditions in a 2 (experience: special vs. nonspecial)  $\times$  2 (product: sculpture vs. music CD) between-subjects design.

Participants were asked to imagine that they traveled to a resort in Cancun, Mexico, with two of their good friends. The resort was described as being near the world's largest Mayan ruins. Those in the *special experience* condition imagined that the weather was mixed, with several rainy days and several days of sunshine and blue skies. They read that they spent the sunny days on the beach and the rainy days indoors, reading for fun and having many deep and meaningful conversations with their friends and much laughter. Those in the *nonspecial experience* condition imagined that the weather was good, with blue skies and sunshine each day they were there. They were told that they spent most of their time lying on the beach and reading for fun. After imagining this time in the resort, they were asked a number of questions about their vacation and then for their interest in purchasing an item (either a traditional Mayan wooden sculpture or a CD of their favorite band) at a gift shop near their hotel on the last day of their trip.

*Ratings of Trip.* Participants rated to what extent the vacation would be personally meaningful, special, as well as how easy it would be for them to remember the details of the trip (all on separate 11-point scales, where 1 = not at all, 11 = very).

*Purchase of Sculpture or CD.* Next, all participants indicated their interest in buying the described product—"a traditional Mayan wooden sculpture" or "a limited edition version of a music CD by your favorite band"—on an 11-point scale from 1 (not strong) to 11 (very strong). Both items were sold for \$20 at the gift shop. Finally, they reported to what extent the product would help them to remember their experience during their vacation (1 = not at all, 11 = very much).

*Pretest of Baseline Preferences.* To measure baseline preference of undergraduate students for a wooden sculpture and a music CD, 31 undergraduates from the same university who did not participate in the main study indicated their interest in buying either a traditional Mayan wooden sculpture or a CD of their favorite band for \$20 at a gift shop on an 11-point scale (1 = not strong, 11 = very strong). Respondents indicated greater interest in buying the CD than

in buying a wooden sculpture ( $M = 6.99$  vs.  $M = 4.53$ ;  $t(31) = -2.16, p < .05$ ).

## Results and Discussion

**Manipulation Checks.** Those in the special experience condition rated the vacation as more personally meaningful than did those in the nonspecial experience condition ( $M = 9.69$  vs.  $M = 8.86$ ;  $t(126) = 2.45, p < .05$ ) and as more special ( $M = 9.88$  vs.  $M = 8.75$ ;  $t(126) = 3.55, p < .001$ ). Participants also rated the experience as more memorable in the special experience condition ( $M = 9.49$ ) as compared to the nonspecial experience condition ( $M = 8.41$ ;  $t(126) = 2.97, p < .01$ ).

**Interest in Buying the Product at the Resort.** A 2 (experience: special vs. nonspecial)  $\times$  2 (product: sculpture vs. music CD) ANOVA revealed the predicted experience by product interaction ( $F(1, 124) = 8.49, p < .01$ ); see figure 3. Specifically, within the nonspecial experience condition, people were more interested in the CD than the sculpture ( $M = 7.09$  vs.  $M = 5.38$ ;  $F(1, 124) = 4.67, p < .05$ ), mirroring the baseline preferences revealed in the pretest. However, within the special experience condition, people were more interested in the sculpture than the CD ( $M = 6.85$  vs.  $M = 5.29$ ;  $F(1, 124) = 3.81, p = .05$ ).

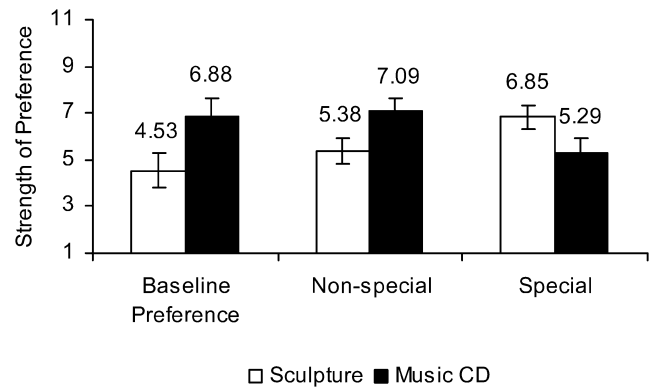
To examine more directly whether concerns about how well the product would function as a memory cue explain individuals' increased preference for the wooden sculpture in the special experience condition, we performed an ANOVA on their ratings of how helpful the product would be for remembering their vacation experience later. A significant experience by product interaction emerged on this measure ( $F(1, 124) = 3.90, p = .05$ ). Specifically, participants indicated that the sculpture would be more helpful as a memory cue for the special experience than the nonspecial experience ( $M = 6.85$  vs.  $M = 5.41$ ;  $F(1, 124) = 3.75, p = .055$ ). However, the extent to which the music CD would help them remember the vacation experience did not differ across the experiences ( $M = 6.71$  vs.  $M = 7.34$ ;  $F(1, 124) < 1$ ).

To examine hypothesis 6 and to further examine hypothesis 5, we again performed a moderated mediation (MacKinnon 2008), as described in study 2. That is, we tested whether anticipated helpfulness of the memory pointer mediated the effect of experience (i.e., special vs. nonspecial) on purchase intention separately for the specific cue (i.e., wooden sculpture) and generic cue (i.e., music CD) conditions. In the specific cue condition, the special versus nonspecial manipulation had a marginally significant impact on anticipated helpfulness of the memory pointer ( $t(63) = 1.44, p < .07$ ); the effect of anticipated helpfulness on the purchase intention was significant ( $t(63) = 5.68, p < .001$ ), as was the direct effect of experience on purchase intention ( $t(63) = 1.97, p < .05$ ). When controlling for anticipated helpfulness, the direct path from experience to purchase intention became nonsignificant ( $t(63) = 1.04, p > .30$ ; Sobel  $z = 1.77, p < .08$ ).

However, in the generic cue (i.e., music CD) condition,

FIGURE 3

MEAN STRENGTH OF PREFERENCE FOR A WOODEN SCULPTURE VERSUS A MUSIC CD FOLLOWING A SPECIAL VERSUS NONSPECIAL EXPERIENCE (STUDY 4)



NOTE.—Error bars represent standard errors of the mean.

memory protection concerns did not play a mediating role. In the generic cue condition, the experience manipulation (i.e., special vs. nonspecial) did not have a significant effect on anticipated helpfulness ( $t(61) = -.89, p > .37$ ). The effect of anticipated helpfulness on the purchase intention was significant ( $t(61) = 5.78, p < .001$ ), as was the direct impact of experience on the purchase intention ( $t(61) = -2.15, p = .04$ ). When the anticipated helpfulness was controlled for, this effect of experience on purchase intention was not reduced significantly ( $t(61) = -1.98, p = .05$ ), indicating no mediation (Sobel  $z = -.88, p > .37$ ). Finally, confirming a significant moderated mediation (MacKinnon 2008), the test of the equality of the mediated effects for each type of products (i.e., sculpture vs. music CD) revealed that the two mediated effects were significantly different ( $z = 1.88, p < .05$ ). Supporting our theory, this analysis indicated that the anticipated helpfulness of the memory pointer mediated the difference in preferences for the memory pointer in the special experience condition as compared to the nonspecial experience condition when the pointer consisted of a specific cue but not when it was a generic cue.

In sum, supporting hypothesis 5, the results of study 4 indicate that people prefer specific cues that they think will later help them to remember an earlier special experience even though they would forgo these same items in the context of a nonspecial experience. This desire to protect special memories emerges even though participants rated the special experience as more memorable than the nonspecial experience. Supporting hypothesis 6, the mediation results indicate that people showed greater preference for the specific cue (i.e., the wooden sculpture) because they believed it would help them to remember their special experience and this was not the case for the generic cue (i.e., music CD).

### STUDY 5: MANIPULATING PERCEIVED RECALL DIFFICULTY

The final study seeks more direct evidence that people’s beliefs about how difficult it will be to retrieve special memories play a causal role in driving their consumption behaviors. Specifically, we test the hypothesis that those who are led to believe that recalling special experiences is difficult will show increased interest in memory protection (hypothesis 7), as demonstrated in their interest in acquiring a memory pointer. In this experiment, we again rely (as in study 1) on participants’ recollections of their own previous special experiences in our manipulation of whether they believe recall of past experiences is easy or difficult. Following previous research (e.g., Belli et al. 1998; Winkielman et al. 1998), we expected that participants who were required to recall many (e.g., 10) past experiences that were particularly special, as compared to those who were required to recall only a few (e.g., 2), would experience greater recall difficulty and therefore would have a greater preference for a product that might serve as a recall cue.

#### Methods

Two hundred and twenty-four undergraduate students at the University of North Carolina participated in this experiment for extra credit in a marketing course. Participants were randomly assigned to one of the four conditions in a 2 (experience: special vs. nonspecial) × 2 (ease of recall: easy vs. difficult) between-subjects design.

Participants were asked to think back to their own “particularly special experiences that you would like to look back on and think about” and to briefly write them down. Those in the *easy retrieval* condition were asked to recall two such experiences, and those in the *difficult retrieval* condition were asked to recall 10 such experiences.

After finishing this recall task, all participants were prompted to imagine having dinner at a restaurant overlooking the Caribbean sea. The *special experience* was described as having dinner looking out on a beautiful sunset. The *nonspecial experience* was described as one in which the weather was bad and they had dinner looking out at thick fog. After imagining the dining experience, they indicated their willingness to pay in dollars for a keychain with a picture of the beach that was being sold in the restaurant’s gift shop. In addition, they were asked, answering on an 11-point scale (1 = not at all, 11 = very much), “How often do you think you will want to think back to this experience?”

#### Results and Discussion

**Manipulation Check.** As expected, participants in the special experience condition indicated wanting to think back more ( $M = 8.66$ ) to the experience than those in the nonspecial experience condition ( $M = 6.96$ ;  $t(222) = 6.48$ ,  $p < .001$ ).

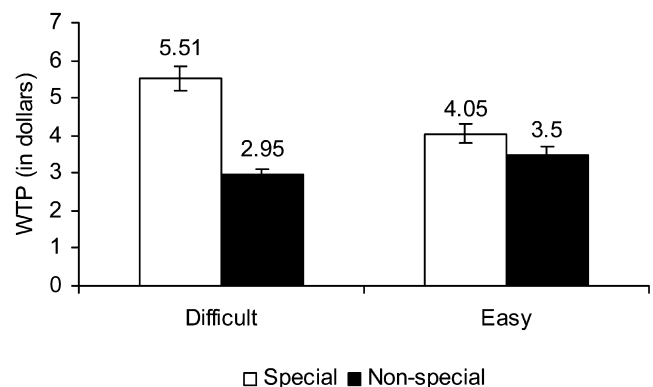
**Willingness-to-Pay for Key Chain.** A 2 (experience: special vs. nonspecial) × 2 (ease of recall: easy vs. difficult) ANOVA revealed a main effect of experience ( $F(1, 220) = 9.61$ ,  $p < .01$ ) on willingness-to-pay for the key chain, indicating that participants in the special experience condition were willing to pay more ( $M = \$4.78$ ) than those in the nonspecial experience condition ( $M = \$3.23$ ). Moreover, as predicted, this main effect was qualified by a significant experience and ease of recall interaction ( $F(1, 220) = 4.02$ ,  $p < .05$ ; see fig. 4). For those in the difficult retrieval condition, willingness-to-pay for the key chain was higher following the special experience ( $M = \$5.51$ ) than following the nonspecial experience ( $M = \$2.95$ ;  $F(1, 220) = 13.03$ ,  $p < .001$ ). However, for those in the easy retrieval condition, willingness-to-pay for the keychain was similar following the special ( $M = \$4.05$ ) and nonspecial experience ( $M = \$3.50$ ;  $F(1, 220) < 1$ ). Similarly, within the special experience condition, those who thought that recalling past experiences was difficult had a stronger preference for a memory pointer product than those who thought that recalling past experiences was easy ( $M = \$5.51$  vs.  $M = \$4.05$ ;  $F(1, 220) = 4.27$ ,  $p < .04$ ). The simple effect within the nonspecial experience condition was not significant ( $M = \$2.95$  vs.  $M = \$3.50$ , respectively;  $F(1, 220) < 1$ ). The results of study 5 therefore provide direct evidence for our hypothesis that individuals’ beliefs about how easy it will be to later recall earlier experiences plays a causal role in driving their consumption preferences (hypothesis 7).

### GENERAL DISCUSSION

This article introduces *strategic memory protection* theory and focuses on two key strategies in which consumers treat their memories as assets: (1) memory protection through avoidance, in which people avoid situations that they believe

FIGURE 4

MEAN WILLINGNESS-TO-PAY FOR A KEY CHAIN OF THOSE WHO BELIEVE RECALLING THE PAST IS DIFFICULT VERSUS EASY AS A FUNCTION OF EXPERIENCES (STUDY 5)



NOTE.—Error bars represent standard errors of the mean.

will threaten their ability to remember special experiences, and (2) memory protection through acquisition, in which people seek to obtain memory pointers to cue special memories. We propose that both strategies are driven by people's lay theories about memory. We find that, when people select which experiences and products to consume, they care about more than the enjoyment from actual consumption: they also consider the extent to which the experiences and products they select will affect their ability to recall later their previous special experiences.

Strategic memory protection does not, of course, apply to every decision, and it is likely to arise only when considering those experiences that people like to think back on later. However, although these types of experiences are only a subset of the experiences that one encounters, being able to remember these experiences can be very important to individuals' long-term life satisfaction (e.g., Singer and Salovey 1993; Wildschut et al. 2006).

## Summary and Discussion of Main Findings

We present results from five studies showing that consumers engage in a strategic decision process that takes memory protection considerations into account. Supporting our memory protection through avoidance hypotheses, we show in studies 1 and 2 that individuals avoid putting themselves back into situations that have been special in the past (hypothesis 1) when they believe that doing so could threaten their memories of an initial special experience (hypothesis 2). Further, these studies show that avoidance is greater when people expect that the new situation would be changed rather than unchanged relative to the original experience (hypothesis 3). Supporting our memory protection through acquisition hypotheses (4–6), studies 3–5 show that, when individuals believe that future events might interfere with their ability to remember earlier special experiences, they will seek to acquire memory cues to help them retrieve those special memories. These studies further show that individuals are particularly interested in acquiring specific cues that are associated with the special experience rather than generic cues that will be associated with both the special experience and a subsequent experience (hypotheses 4 and 5) and that this preference is driven by the anticipated helpfulness of the cue to protect their memory (hypothesis 6). Finally, study 5 shows that participants are most interested in acquiring these cues when they believe that recalling previous experiences is difficult (hypothesis 7).

Our results indicate that memory protection concerns led people to be less interested in returning to a place where they had had a previous experience that was meaningful than in returning to a place that had merely been pleasant. This result is contrary to a reinforcement model of learning (Thorndike 1898), in which people repeat those experiences that were most pleasing in the past, and it suggests that people are strategic about managing their future enjoyment. Further, this desire to protect memories of meaningful experiences emerged even though participants thought that

these experiences would be more memorable than mundane experiences would be.

Individuals' reluctance to return to a place where they previously had a special experience and their desire to obtain specific memory pointers appear to relate to the perceived reproducibility of that initial special experience. Concerns about returning to a place where they previously had a special experience appear to be heightened when there are significant changes to one of the key elements in the initial experience. When individuals believe that they can repeat the key elements that were present during the initial special experience (e.g., going back to the honeymoon spot with the same person), they are more interested in doing so. Perhaps they anticipate that returning to this place under the same conditions as the initial event will provide them with an opportunity to more easily retrieve the earlier memory (Tulving 1983).

## Theoretical Implications and Future Directions

*Active Managers of Future Enjoyment.* Previous research suggests that people "collect" unique experiences (e.g., Keinan and Kivetz 2007) and derive utility from past special experiences (Wildschut et al. 2006). Indeed, memories for such emotion-laden events often are more vivid than memories for nonemotional events (Reisberg and Hertel 2005). Our findings suggest that people engage in behaviors that they think will ensure further their ability to recall these special experiences. We find that people not only anticipate what will bring them positive utility in the future but that they also try to manage their ability to derive future utility, treating memories as assets to be protected. Our interest in people's beliefs about what will maximize future well-being is consistent with recent work on affective forecasting (Gilbert and Ebert 2002; Novemsky and Ratner 2003). However, whereas research on affective forecasting typically examines the accuracy of people's lay beliefs, the present work examines implications of people's beliefs for the behaviors in which they engage.

Future research could investigate moderators of these memory protection phenomena. The results of study 2 indicate that the degree to which the subsequent experience will match the initial experience affects whether people seek to avoid versus repeat a special experience. Additional moderators likely exist that will affect the degree to which individuals seek to protect their memories through avoidance, through cue acquisition, or through other mechanisms, if at all. Indeed, there might be characteristics of those memories that are particularly likely to be protected (e.g., those important for self-definition) and characteristics of situations in which memory protection does not loom as large (e.g., when the individual is more focused on utilitarian rather than hedonic aspects of the consumption experience).

*Accurate Retrieval versus a Rosy View.* The memory literature focuses on actual interference and retrieval effects (i.e., on the accuracy of memory, see Koriat, Goldsmith, and Pansky [2000]), as well as on people's lay theories (i.e.,

meta-memory processes) pertaining to the accuracy and source of their memories. For example, participants in cognitive psychology studies rely on their beliefs about the memorability of certain types of information to judge the source of information presented in a memory test (Mather, Shafir, and Johnson 2003), and other research examines factors that affect people's subjective confidence in the accuracy of their memories (Son and Metcalfe 2005). Our findings extend work on meta-memory by examining people's beliefs about retroactive interference, particularly as these relate to the decisions that people make about how to avoid such interference. Our results do not speak to whether the memory protection strategies that individuals adopt will be effective, although this is an interesting direction for future research. Indeed, individuals' interest in trying to re-create special experiences by having new experiences that closely match the original could actually produce more interference rather than less, as greater retroactive interference is found when subsequently encountered stimuli more closely matches what was previously encountered (Gillund and Shiffrin 1984; Gordon, Hendrick, and Levine 2002). Further, we do not require that individuals are engaging in strategies to be able to recall accurately their special experiences later. In fact, it is possible that they do not even desire to recall these special experiences accurately but simply want to remember the most favorable aspects (Leboe and Ansons 2006; see Walker, Skowronski, and Thompson 2003).

*Individual Differences in Memory Protection.* A fruitful avenue for future research could be to investigate whether there are systematic individual differences in the extent to which people exhibit these memory protection strategies. For example, research suggests that older adults might be more concerned about protecting positive memories than are younger adults (Mather 2004). In addition, individual differences in the extent of savoring (Bryant 2003) could be an important predictor of the extent to which people strategically protect their memories. People also tend to differ in the extent to which they think about the past versus the present or future (Zimbardo and Boyd 1999), and this might predict the extent to which people will engage in these strategies.

*Memories That People Would Like to Forget.* Our focus has been on people's desire to protect special memories, but our theory could also speak to memories that people would like to forget. These could be memories of unpleasant situations or of experiences that at one point were special but now are painful to remember. This dynamic was nicely demonstrated in *Eternal Sunshine of the Spotless Mind*, in which Jim Carrey's character is eager to get rid of cues that will remind him of happy times spent with his ex-girlfriend. When people are trying to forget memories, they might show avoidance of reexposure to those cues (i.e., memory forgetting through avoidance) because they do not want to cue the earlier memory. An interesting possibility is that people could hold a mistaken lay theory if actually repeating an experience associated with a past negative event

is more effective in rewriting the memory and preventing recall of the original negative experience (e.g., a corrective experience).

## Conclusions

The goal of our investigation is to introduce the idea that people treat memories as assets to be protected and in particular to demonstrate two key approaches to strategic memory protection that consumers follow: memory protection through avoidance and memory protection through acquisition. There has been a great deal of research on memory and consumer decision making, but there has been surprisingly little experimental research examining the decision strategies that individuals use to protect their memories. Our research is a first step, identifying two such strategies and the role of consumers' lay beliefs about memory as an important determinant. We believe that this research highlights the ways in which people can be strategic about deriving utility at points in the future and that it suggests a number of avenues for further inquiry.

## REFERENCES

- Baron, Reuben M. and David A. Kenny (1986), "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations," *Journal of Personality and Social Psychology*, 51 (December), 1173-82.
- Baumgartner, Hans, Mita Sujun, and James R. Bettman (1992), "Autobiographical Memories, Affect, and Consumer Information Processing," *Journal of Consumer Psychology*, 1 (November), 53-82.
- Belk, Russell W. (1988), "Possessions and the Extended Self," *Journal of Consumer Research*, 15 (September), 139-67.
- Belli, Robert F., Piotr Winkielman, J. Don Read, Norbert Schwarz, and Steven J. Lynn (1998), "Recalling More Childhood Events Leads to Judgments of Poorer Memory: Implications for the Recovered/False Memory Debate," *Psychonomic Bulletin and Review*, 5 (June), 318-23.
- Benartzi, Shlomo and Richard H. Thaler (1995), "Myopic Loss Aversion and the Equity Premium Puzzle," *Quarterly Journal of Economics*, 110 (February), 73-92.
- Bower, Gordon H., Sharon Thompson-Schill, and Endel Tulving (1994), "Reducing Retroactive Interference: An Interference Analysis," *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 20 (January), 51-66.
- Bryant, Fred B. (2003), "Savoring Beliefs Inventory (SBI): A Scale for Measuring Beliefs about Savoring," *Journal of Mental Health*, 12 (April), 175-96.
- Cowley, Elizabeth (2007), "How Enjoyable Was It? Remembering an Affective Reaction to a Previous Consumption Experience," *Journal of Consumer Research*, 34 (December), 494-505.
- Elster, Jon and George Loewenstein (1992), "Utility from Memory and Anticipation," in *Choice over Time*, ed. George Loewenstein and Jon Elster, New York: Russell Sage Foundation, 213-34.
- Gilbert, Daniel and Jane E. J. Ebert (2002), "Decisions and Revisions: The Affective Forecasting of Changeable Outcomes,"

- Journal of Personality and Social Psychology*, 82 (April), 503–14.
- Gillund, Gary and Richard M. Shiffrin (1984), "A Retrieval Model for Both Recognition and Recall," *Psychological Review*, 91 (January), 1–67.
- Gordon, Peter C., Randall Hendrick, and William H. Levine (2002), "Memory-Load Interference in Syntactic Processing," *Psychological Science*, 13 (September), 425–30.
- Holbrook, Morris B. (1993), "Nostalgia and Consumption Preferences," *Journal of Consumer Research*, 20 (September), 245–56.
- Kahneman, Daniel (1994), "New Challenges to the Rationality Assumption," *Journal of Institutional and Theoretical Economics*, 150 (March), 18–36.
- Kahneman, Daniel and Dan Lovallo (1993), "Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking," *Management Science*, 39 (January), 17–31.
- Keinan, Anat and Ran Kivetz (2007), "Productivity Mindset and the Consumption of Collectable Experiences," Working paper, Columbia University, New York.
- Koriat, Asher, Morris Goldsmith, and Aina Pansky (2000), "Toward a Psychology of Memory Accuracy," *Annual Review of Psychology*, 51 (February), 481–537.
- Leboe, Jason P. and Tamara L. Ansons (2006), "On Misattributing Good Memory to a Happy Past: An Investigation into the Cognitive Roots of Nostalgia," *Emotion*, 6 (November), 596–610.
- Loewenstein, George (1987), "Anticipation and the Valuation of Delayed Consumption," *Economic Journal*, 97 (September), 666–84.
- Lustig, Cindy, Alex Konkel, and Larry L. Jacoby (2004), "Which Route to Recovery? Controlled Retrieval and Accessibility Bias in Retroactive Interference," *Psychological Science*, 15 (November), 729–35.
- MacKinnon, David P. (2008), *Introduction to Statistical Mediation Analysis*, Multivariate Applications Series, New York: Erlbaum.
- Mather, Mara (2004), "Aging and Emotional Memory," in *Memory and Emotion*, ed. Daniel Reisberg and Paula Hertel, New York: Oxford University Press, 272–301.
- Mather, Mara, Eldar Shafir, and Marcia K. Johnson (2003), "Remembering Chosen and Assigned Options," *Memory and Cognition*, 31 (April), 422–33.
- Muller, Dominique, Charles M. Judd, and Vincent Y. Yzerbyt (2005), "When Moderation Is Mediated and Mediation Is Moderated," *Journal of Personality and Social Psychology*, 89 (December), 852–63.
- Novemsky, Nathan and Rebecca K. Ratner (2003), "The Time Course and Impact of Consumers' Erroneous Beliefs about Hedonic Contrast Effects," *Journal of Consumer Research*, 29 (March), 507–16.
- Postman, Leo and Benton J. Underwood (1973), "Critical Issues in Interference Theory," *Memory and Cognition*, 1 (January), 19–40.
- Ratner, Rebecca K., Barbara E. Kahn, and Daniel Kahneman (1999), "Choosing Less-Preferred Experiences for the Sake of Variety," *Journal of Consumer Research*, 26 (June), 1–15.
- Reisberg, Daniel and Paula Hertel (2005), *Memory and Emotion*, New York: Oxford University Press.
- Singer, Jefferson A. and Peter Salovey (1993), *The Remembered Self: Emotion and Memory in Personality*, New York: Free Press.
- Son, Lisa K. and Janet Metcalfe (2005), "Judgments of Learning: A Two-Stage Process," *Memory and Cognition*, 33 (September), 1116–29.
- Thorndike, Edward L. (1898), "Animal Intelligence: An Experimental Study of the Associative Processes in Animals," *Psychological Review: Series of Monograph Supplements*, 2 (4), 1–109.
- Tian, Kelly and Russell W. Belk (2006), "Extended Self and Possessions in the Workplace," *Journal of Consumer Research*, 32 (September), 297–310.
- Tulving, Endel (1983), *Elements of Episodic Memory*, New York: Oxford University Press.
- Tulving, Endel and Donald M. Thompson (1973), "Encoding Specificity and Retrieval Processes in Episodic Memory," *Psychological Review*, 80 (September), 352–73.
- Tversky, Amos and Dale Griffin (2000), "Endowments and Contrast in Judgments of Well-Being," in *Choices, Values and Frames*, ed. Daniel Kahneman and Amos Tversky, New York: Cambridge University Press, 709–25.
- Van Boven, Leaf and Thomas Gilovich (2003), "To Do or to Have? That Is the Question," *Journal of Personality and Social Psychology*, 85 (June), 1193–202.
- Walker, W. Richard, John J. Skowronski, and Charles P. Thompson (2003), "Life Is Pleasant and Memory Helps to Keep It That Way!" *Review of General Psychology*, 7 (June), 203–10.
- Werthenbroch, Klaus (1998), "Consumption Self-Control by Rationing Purchase Quantities of Virtue and Vice," *Marketing Science*, 17 (April), 317–37.
- Werthenbroch, Klaus and Ziv Carmon (1997), "Dynamic Preference Maintenance," *Marketing Letters*, 8 (January), 145–52.
- Wildschut, Tim, Constantine Sedikides, Jamie Arndt, and Clay Routledge (2006), "Nostalgia: Content, Triggers, Functions," *Journal of Personality and Social Psychology*, 91 (November), 975–93.
- Winkielman, Piotr, Norbert Schwarz, and Robert F. Belli (1998), "The Role of Ease of Retrieval and Attribution in Memory Judgment," *Psychological Science*, 9 (March), 124–26.
- Zauberman, Gal (2003), "The Intertemporal Dynamics of Consumer Lock-In," *Journal of Consumer Research*, 30 (December), 405–19.
- Zimbardo, Philip G. and John N. Boyd (1999), "Putting Time in Perspective: A Valid, Reliable Individual-Differences Metric," *Journal of Personality and Social Psychology*, 77 (December), 1271–88.