ASSOCIATION FOR CONSUMER RESEARCH

Labovitz School of Business & Economics, University of Minnesota Duluth, 11 E. Superior Street, Suite 210, Duluth, MN 55802

Malleability of Taste Perception: Biasing Effects of Rating Scale Format on Taste Recognition, Product Evaluation, and Willingness to Pay

Antonia Mantonakis, Brock University, Canada

Norbert Schwarz, University of Southern California, USA

Amanda Wudarzewski, University of Waterloo, Canada

Carolyn Yoon, University of Michigan, USA

In three experiments we show that the measurement tool on which consumers describe a taste sample influences consumers' concurrent impression of the sample, biases later identification of the sample in a taste recognition test, and affects overall product evaluation and WTP, and this is moderated by product knowledge.

[to cite]:

Antonia Mantonakis, Norbert Schwarz, Amanda Wudarzewski, and Carolyn Yoon (2015) ,"Malleability of Taste Perception: Biasing Effects of Rating Scale Format on Taste Recognition, Product Evaluation, and Willingness to Pay", in NA - Advances in Consumer Research Volume 43, eds. Kristin Diehl and Carolyn Yoon, Duluth, MN : Association for Consumer Research, Pages: 218-223.

[url]:

http://www.acrwebsite.org/volumes/1019393/volumes/v43/NA-43

The Malleable Past: The Formation and Function of Memory for Experiences

Chair: Jackie Silverman, University of Pennsylvania, USA

SESSION OVERVIEW

The unique set of experiences that people accumulate over the course of their lives comes to define who they are as individuals. Recalling the memories of these experiences can increase one's sense of meaning and well-being (Wildschut et al. 2006; Holbrook 1993). Accordingly, people engage in certain actions in the present to create memories they can draw on in the future (Elster and Loewenstein 1992; Keinan and Kivetz 2011). They also strongly value opportunities to preserve and protect their memories (Zauberman, Ratner, and Kim 2009; Baumgartner, Sujan, and Bettman 1992). Given that memories of experiences are so valuable, it is important to understand what factors affect the formation and recollection of these memories, and how these memories impact future decisions.

The first two papers in this session focus on how factors present during the experience can influence memory of the experience. **Zauberman, Silverman, Diehl, and Barasch** investigate how taking photos during an experience can affect memory accuracy for different aspects of the experience. They find that taking photos improves recognition of visual aspects of the experience, but impairs recognition of auditory and higher-level information present during the experience. **Mantonakis, Schwarz, Wudarzewski, and Yoon** examine how using different ways to rate experiences affects memories of these experiences. They show that using bipolar (vs. unipolar) scales leads to more extreme ratings of taste attributes, such as concentration of a beverage, and that memory for the experience subsequently follows these ratings. For positively valued attributes, such recollections can heighten evaluations and willingness to pay for future taste experiences.

The final two papers focus on the role of memories of experiences in consumers' lives. **Martin, Reimann, and Norton** examine how memories for experiences affect whether consumers are risk seeking or risk averse when choosing future experiences. They show that for experiences, consumers recall more extreme experiences as references points, leading them to become risk averse for negative experiences but risk seeking for positive experiences. Finally, while consumers may intend to revisit memories of experiences to make future decisions, **Tully and Meyvis** show that they systematically overestimate *how much* they will retrospect on any given experience. The authors show that unless tangible reminders cue people's thinking, they are unlikely to do so as frequently as they expect.

Experiences are the building blocks of people's lives, and remembering them is not only essential for personal identity and satisfaction (Singer and Blagov, 2004; Van Boven & Gilovich, 2003), but also integral in consumer decision-making (Bettman 1979). Together, this session highlights the diverse ways in which memories of experiences impact our daily lives. All four projects are working papers with at least three studies completed. Given the widespread applicability of the issues discussed, we expect this session to attract researchers interested in memory, experiential purchases, risk preferences, picture-taking, taste, and measurement tools. In the spirit of the conference theme "Advancing Connections," we hope that the diverse approaches to studying this topic will generate a lively and fruitful discussion.

Photographic Memory: The Effects of Photo-Taking on Memory for Auditory and Visual Information

EXTENDED ABSTRACT

Memory plays a key role across a wide range of contexts such as childhood development (Nelson and Fivush 2004), the formation of self-identity (Howe and Courage 1997), and decision-making (Lynch and Srull 1982; Alba and Hutchinson 1987). Since memory is fallible, people frequently create external memory records such as lists and diaries to capture knowledge and experiences (e.g. Block and Morwitz 1999). Today, photography in particular plays an integral role in how we document our experiences for the future. Given the prevalence of the behavior, it is important to understand how the act of taking pictures itself influences people's memory of their experiences, even *without* revisiting those photos.

Prior work on memory and photography has focused on the role photos can play in cueing past memories (Neisser and Libby 2000; Wade et. al. 2002; Glenberg and Grimes 1995). However, this work has focused on the role of revisiting photos after the event. Only one recent paper (Henkel 2014) examined the effect of photo-taking on memory and showed that being directed to take pictures can impair visual recognition of objects. However, by instructing people when to take photos, this paper was unable to examine how freely deciding when and what to take pictures of affects memory. This autonomy is integral to photo-taking and may be crucial in examining its effect on memory. On one hand, taking photos may cause people to remember more from their experiences. Photo-taking has been shown to make people more engaged in their experience (Barasch, Diehl, and Zauberman 2015), which could cause people to remember more details. On the other hand, taking photos may lead people to remember less about their experiences; the photographer may pass off the responsibility of remembering the details to the photos, much like people can shift their memory of information to computers when they expect to access it later (Sparrow, Liu, and Wegner 2011). Additionally, retaining other aspects of the experience (e.g. auditory information) may be particularly important as that information is not documented by photo-taking. In general auditory and visual stimuli are recalled

at similar rates (Brand and Jolles 1985) and recall of auditory and visual memories occur along the same neural pathway (Buckner et. al. 1996). However, due to its visual nature photo-taking may focus photographers more on the visual aspects of an experience to the detriment of other aspects.

In four studies we examine the effect of photo-taking on visual and auditory memory. We find that photo-takers consistently remember visual information better but remember auditory information worse.

In studies 1 through 3, lab participants use a unique computer interface that allows them to "experience" an event by watching a first-hand video and taking pictures by clicking a button. This procedure provided consistency across experiences in each condition, thus ensuring high internal validity.

In study 1, we examined how taking photos affects visual memory. 251 MTurk participants took photos during, or simply experienced, a bus tour of London. This video contained only instrumental background music without any auditory information in order to eliminate any chance for auditory cues to influence participants' photo-taking behavior or their memory. After watching the bus tour, participants answered 11 visual recognition questions.

We found that taking photos affects memory for visual information; in a two-way ANOVA, participants in the camera condition remembered more of what they had seen (M=58.1%, SD=20.3) compared to participants in the control condition (M=52.8%, SD=19.7, F(1, 249)=4.46, p=.036).

In study 2, we shifted our focus from visual to auditory information. 171 lab participants were randomly assigned to take pictures during, or simply experience, the Hershey Park factory tour ride. Afterwards, participants answered 10 auditory recognition questions.

Contrary to our findings for memory of visual information, a two-way ANOVA reveals that participants who took pictures remembered less (M=51.5%, SD=26.2) than participants who were not given a camera (M=58.6%, SD=26.1, F(1,169)=6.27, p=.013).

In study 3 we examined on the effect of photo-taking on both visual and auditory memory simultaneously, as would be expected in a real life experience. 306 MTurk participants were randomly assigned to take pictures, or simply experience, three narrated tours of three different art galleries. Participants then answered 7 visual and 8 auditory recognition questions about the experience.

In a mixed ANOVA, there is a main effect of type of question (F(1,63)=114.44, p<.001), such that participants remembered more visual than auditory information. There is also a significant interaction between type of question and condition (F(1,304)=461.28, p<.001). While participants in the camera condition remember significantly more visual information (M=87.2%, SD=18.5) than participants in the control condition (M=76.3%, SD=23.3, F(1,304)=20.46, p<.001), participants in the camera condition remember significantly less auditory information (M=43.9%, SD=21.7) than those in the control condition (M=56.0%, SD=21.3, F(1,304)=24.54, p<.001).

To assess the external validity of our lab findings, we conducted a field study in a museum exhibit. 203 participants were given a map and audio guide and were randomly assigned to take photos as they wished, or simply experience, a self-guided tour of an exhibit. Afterwards, they answered 9 visual and 9 auditory recognition questions (time 1). A week later, 142 participants answered 7 visual and 5 auditory recognition (time 2).

In a three-way mixed ANOVA, participants remember more at time 1 ($M_{time\ 1}$=72.5%, SD=15.9; $M_{time\ 2}$=63.8%, SD=21.3) and more visual information (M_{visual}=73.6%, SD=16.6; $M_{auditory}$=65.4%, SD=20.1). Replicating the previous studies, there is a two-way interaction between condition and type of question (F(1,200)=11.33, p<.001); participants in the camera condition remember more visual information than participants in the control condition (M_{camera}=72.5%, SD=1.4; $M_{control}$=68.2%, SD=1.7) but less auditory information (M_{camera}=59.4%, SD=1.6; $M_{control}$=64.4%, SD=1.8). There is also a two-way interaction between time and type of question (F(1,200)=7.64, p=.006); participants remember less at time 2, but the decrease is significantly larger for auditory memory ($M_{time\ 1}$=68.7%, SD=1.4; $M_{time\ 2}$=55.1%, SD=1.9) than for visual memory ($M_{time\ 1}$=73.5%, SD=1.2; $M_{time\ 2}$=67.3%, SD=1.7).

Overall, we find that photo-taking improves visual recognition but hinders auditory recognition. These results hold when participants' auditory and visual memory are tested individually or simultaneously, and in an externally valid field study.

Malleability of Taste Perception: Biasing Effects of Rating Scale Format on Taste Recognition, Product Evaluation, and Willingness to Pay

EXTENDED ABSTRACT

Subjective experiences are fleeting and poorly represented in memory; people resort to reconstruction strategies shortly after an experience (Schwarz, 2007). As in other domains of autobiographical memory (Schwarz & Sudman, 1994), people will draw on any accessible piece of information that may be useful to reconstruct the experience, including general knowledge about the domain and memorable features of the episode related to the experience. We propose that the same logic applies to taste experiences: the experience itself is fleeting and not well represented in memory; hence, consumers can introspect on it while they are having the experience, but need to reconstruct it later on. This leaves the door open for systematic errors of memory for taste that can affect downstream intentions and behaviors.

According to sensory testing experts, tasters are typically asked to indicate their experiences on rating scales (S. Kirkmeyer, personal communication, August 3, 2011), and remember them later or compare them with the taste of other samples. Similarly, consumers who sample products need to remember their sensory experiences for later purchase decisions. Whereas potential biases on sensory perceptions arising from non-sensory information like the brand (Hoegg & Alba, 2007), color (Garber, Hyatt & Starr, 2000), price (Plassmann, O'Doherty, Shiv, & Rangel, 2008) or information about the ingredients (Lee, Frederick, & Ariely, 2006) have been examined, other likely sources of bias have gone unnoticed, such as the format in which consumers report their taste experience.

Suppose that consumers at a winery taste a new ice wine and rate its attributes along rating scales. In one condition, an 11-point scale ranges from "not at all sweet" = 0 to "very sweet" = 10; and in the other condition, it ranges from "not at all sweet" = -5 to "very sweet" = +5. Previous research on social judgments (Schwarz, et. al., 1991) showed that the latter set of values results in more extreme ratings. Would this effect of rating scales also apply to a product that is tasted?

In **Experiment 1**, participants sampled an unlabeled orange juice. Depending on condition, they were assigned to rate attributes of the juice on either a bipolar (-5 to +5) or unipolar (0 to 10) scale. Participants then completed a taste recognition task. They sampled three orange juices and attempted to identify the one they had tasted earlier; the original sample was presented along with a more concentrated one as well as a less concentrated one. We predicted that the sampled drink would receive higher attribute ratings when participants were given a bipolar than unipolar scale (**hypothesis 1**), and that participants in the bipolar scale condition would be more likely to misidentify the more concentrated test sample as the one

they had originally tasted, consistent with the higher taste attribute ratings they provided (**hypothesis 2**).

As predicted (hypothesis 1), participants gave higher attribute ratings on the bipolar (M = 7.16) than on the unipolar (M = 6.31) scale, $F(1, 126) = 6.11$, $p < .01$. This confirms the success of the scale manipulation (Schwarz et al., 1991). Accuracy at identifying the correct orange juice as the one sampled earlier was higher in the unipolar (M = .53) than the bipolar condition (M = .46), z-contrast = 4.72, $p < .01$. As predicted (hypothesis 2), the error was systematic: the more concentrated juice was more likely to be misidentified as the one sampled earlier when participants had made the initial attribute ratings along a bipolar (M = .23) rather than unipolar scale (M = .17), z-contrast = 3.11, p = .01.

We predicted that this this biased reconstruction will also influence subsequent evaluations of the product (**hypothesis 3**), and affect consumers' subsequent WTP (**hypothesis 4**). We tested these ideas in **Experiment 2**, where we extended the range of dependent variables to consumers' overall product evaluations and willingness to pay.

Attribute ratings were higher on the bipolar (M = 6.05) than on the unipolar (M = 4.90) scale, $F(1, 163) = 20.96$, $p < .001$. Supporting hypotheses 3 and 4, respectively, participants rated the standard sample of orange juice more highly when they had rated its attributes on bipolar (M = 6.05) rather than unipolar (M = 4.28) scales, $F(1, 163) = 22.24$, $p < .001$. The former participants were willing to pay more for the juice (M = \$2.38) than the latter (M = \$1.67), $F(1, 163) = 25.87$, $p < .001$.

Accuracy at identifying the correct sample as the one sampled earlier was higher in the unipolar (M = .56) than the bipolar (M = .43) scale condition, z-contrast = 3.69, $p < .001$. Again, the more concentrated juice sample was twice as likely to be misidentified as the one sampled earlier in the bipolar (M = .29) than unipolar (M = .14) rating conditions, z-contrast = 4.26, $p < .001$.

We expect that these influences are less pronounced for experts than for novices in a given product domain (**hypothesis 5**), because they would be less biased by the scale. In **Experiment 3**, we gave participants wine to sample, and to rate attributes of it on either a bipolar (-5 to +5) or unipolar (0 to 10) scale. Next, we gave participants questions pertaining to the wine (e.g., "How much would you be willing to pay for a bottle of this wine?"), and their level of wine expertise.

Ratings on the 4 attributes were combined to produce a single evaluation index. We examined mean differences between the conditions, with expertise as a covariate. Evaluation was higher for the bipolar (M = 7.14) than the unipolar condition (M = 6.53), $F(1,77) = 5.51$, $p < .03$. To examine whether the numerical values manipulation affected WTP, we examined mean differences between the conditions, with expertise as a covariate. WTP was higher for the bipolar condition than the unipolar condition (WTP means = \$17.51 and \$15.05; log(WTP) means = 2.80 and 2.61; $F(1,77) = 4.07$, $p < .05$).

Thus, managers may be able to influence purchase-related variables such as willingness to pay by using the right response scales.

Risk Preferences for Experiences, or How Desserts Are Like Losses

EXTENDED ABSTRACT

How can we predict, when people make choices in everyday life, whether they will be risk-seeking or risk-averse? If these choices relate to money, we know the answer fairly confidently; extensive research has been devoted to risk preferences for money, demonstrating that people are risk-seeking when choosing between monetary losses and risk-averse when choosing between monetary gains (e.g., Kahneman & Tversky, 1979; Rabin & Thaler, 2001; Stewart, Chater, Stott, & Reimers, 2003; Wang & Johnson, 2012). Despite this well-documented research on risk preferences for money, suprisingly little attention has been paid to risk preferences for non-monetary experiences, either negative (disgusting foods and visits to the dentist) or positive (desserts and visits to the movies). Facing a choice between seeing a "safe" movie that receives many 3-star ratings and a "risky" movie that receives many 5-star but also many 1-star ratings, how do people evaluate the potential risks and rewards? Generally speaking, how will memories of experiences influence the way we form risk preferences?

Given the established contrast between risk preferences for positive and negative gambles, valence offers an intuitively appealing prediction about risk preferences for experiences: negative experiences (e.g., dentist visits) might be similar to monetary losses, while positive experiences (e.g., desserts) might be similar to monetary gains, implying risk-seeking for negative experiences and risk-aversion for positive experiences. However, we propose and provide convergent evidence stemming from six experiments reported below that people are generally risk-seeking for positive experiences and risk-averse for negative experiences, the mirror image of choices for money: people gamble on desserts, but not on dentists.

We suggest that this reversal is because the reference points that are commonly drawn upon when making decisions about experiences and money are based on different types of memories. Reference points are critical to understanding risk preferences because they serve as the basis against which possible outcomes are compared; outcomes are treated as losses whenever they fall below some reference point but as gains when they exceed that reference point (March & Shapira, 1992; Payne, Laughhunn, & Crum, 1980). For monetary prospects, zero change in wealth (i.e., the status quo) serves as a salient reference point, such that monetary gambles with positive values are typically treated as gains and those with negative values are treated as losses (Kahneman & Tversky, 1979; Rabin & Thaler, 2001; Tversky & Kahneman, 1992). For experiences, on the other hand, research shows that reference points may be determined not by neutral memories but rather by extreme memories (e.g., the best dessert and the worst dentist visit): individuals asked to recall *typical* instances of past experiences in positive and negative domains in fact recall the *most extreme* positive and negative experiences they have had in those domains (Gershoff, Mukherjee, & Mukhopadhyay, 2003; Morewedge, Gilbert, & Wilson, 2005), and these readily available memories offer convenient reference points (Koszegi & Rabin, 2006; Novemsky & Dhar, 2005; Thaler & Johnson, 1990). Should the memory of the best dessert one has ever eaten serve as a reference point when choosing between desserts, then ironically many of the available options, despite being positive experiences, will be treated as comparative losses – precisely because they fall below the salient reference point (Kahneman & Tversky, 1979). Similarly, should the memory of the most burdensome chore come to mind when choosing which chore to tackle, many of the available options – despite being negative experiences – will be treated as comparative gains.

This account suggests several interrelated hypotheses, which we test in six experiments. In Experiment 1a, we find support for our first hypothesis that people are generally more risk-averse for negative categories of experience and risk-seeking for positive categories of experience, a reversal of the relationship between valence and risk preferences observed for money. In Experiment 1b, we assess external validity by employing an incentive-compatible experiment with a real choice. In Experiment 2, we document that this reversal in risk preferences is due to a fundamental difference between risk

in the quality of experiences and risk in quantities of money. Indeed, we observe similar risk preferences for quantities of experiences and quantities of money of the same valence, but again the opposite pattern for experiential quality. In Experiment 3, we rule out alternative explanations relating solely to the way that people use rating scales for experience quality. When participants list equivalent experiences and monetary outcomes, from which we construct "equivalent" risky choices, they exhibit different risk preferences depending on whether these choices are expressed as experiential outcomes or their monetary equivalents. In Experiment 4, we assess the reference points that individuals use to make choices; reference points for gambles are closer to zero, whereas reference points for experiences are closer to extremes. In Experiment 5, we show that subjective utility functions are convex for positive experiences and monetary losses, but concave for negative experiences and monetary gains, consistent with extreme reference points for experiences; these utility curves also predict risky choices across all four domains.

"We'll Always Have Paris (Though We May Not Think of It): Consumers Overestimate How Often They Will Retrospect about Experiences."

EXTENDED ABSTRACT

People enjoy retrospecting about past experiences and appear to do it quite often. Past research suggests that we spend upwards of 50% of relaxed, social conversation talking about our experiences (Dunbar, Marriott, and Duncan 1997) and that sharing information about ourselves and our experiences is intrinsically rewarding (Tamir and Mitchell 2012). Memories also appear to be one of the reasons why consumers are happier with their experiences than with their material goods (Van Boven and Gilovich 2003). Furthermore, consumers seem to anticipate the future retrospection that experiences provide as they sometimes choose experiences as a function of their retrospective value (Keinan and Kivetz 2011; Ratner, Kahn, and Kahneman 1999). But how accurate are consumers at predicting the extent of their retrospection?

Because sharing one's experiences is intrinsically rewarding, people should want to talk about their experiences. However, given the abundance of experiences people live through, people cannot and do not continue to talk about all of their experiences indefinitely. Memories of experiences are less likely to come to mind over time. Indeed, the majority of memories that people remember and think about have recently occurred (Crovitz and Schiffman 1974). Yet, since consumers have a strong desire to retrospect about their experiences, they may underestimate the difficulty of bringing past experiences to mind. In support of this idea, a recent study found that people were not able to remember details of a previous conversation despite a previous belief that they would be able to (Zhang et al. 2014). We therefore expect consumers to systematically overestimate how much they will retrospect about an experience. We show that this overestimation is not the result of misconstrual of the event (it persists after the experience occurred), is moderated by the positivity of the experience, and is attenuated when physical reminders are present to facilitate retrospection.

In a first study, participants were asked to consider an experience that had occurred 3-6 months in the past or that would occur 3-6 months in the future. After describing the experience, participants indicated how often they did (past condition) or would (future condition) think about and talk about the experience during the two months following the experience. Next, they rated the experience on a number of dimensions. As expected, participants in the future condition predicted greater retrospection than participants in the past condition actually recalled ($F(1,157) = 15.08$, $p < .001$). This result held when adjusting for differences in participants' perception of their experience ($F(1, 154) = 8.18$, $p = .005$) and when adjusting for the type of experiences people wrote about ($F(1,117) = 8.79$, $p = .004$). Thus, people considering a future experience predict more frequent retrospection than participants report having actually engaged in after a past experience.

Study 2 was designed to rule out misconstrual of the future experience as an explanation for the overestimation of future retrospection. To this end, attendants of the U.S. Open tennis tournament were asked to predict their future retrospection a day *after* they attended the tournament. Two months later, we measured their actual retrospection. As expected, participants predicted they would talk about their U.S. Open experience more often than they reported having done at time 2 ($F(1,139) = 259.62$, $p < .001$). This overestimation was moderated by their willingness to recommend the experience ($F(1,138) = 10.46$, $p = .002$). These findings indicate that the overestimation is not simply misconstrual of a future, unknown experience, and that it is more pronounced for people who feel more positively about the experience—suggesting a motivated reasoning process.

In study 3, we replicated the results of study 2 with an experience for which retrospection should be a particularly important contributor to the value of the experience. A group going on an African safari completed the survey days after returning to the U.S. and completed a follow-up survey two months later. In this study, we measured the estimated frequency of looking at pictures of the event rather than the estimated frequency of thinking about the event, since the former should be easier to objectively recall at time 2. Replicating earlier studies, participants overestimated how much they would retrospect about the safari ($F(1,26) = 21.42$, $p < .001$). In line with a motivational explanation, this overestimation was moderated by how much participants reported wanting to talk about the trip at time 1 ($F(1,25) = 6.078$, $p = .021$).

We have proposed that the overestimation of retrospection occurs because people want to recall experiences, but do not recognize the difficulty of spontaneously recalling previous experiences. In the last 2 studies, we examined this latter proposition by demonstrating that overestimation is attenuated when physical objects serve as reminders to cue retrospection.

In a fourth study, participants in an obstacle course fun run completed a survey in the days following the run and completed a follow-up survey two months later. In addition to indicating their frequency of talking and looking at pictures, respondents indicated whether they had purchased a souvenir. Replicating previous studies, people overestimated how much they would retrospect about the race ($F(1,152) = 97.24$, $p < .001$). However, a significant time by souvenir interaction showed that this overestimation was attenuated for people who purchased a souvenir ($F(1,152) = 4.32$, $p = .039$): souvenirs increased actual, but not predicted retrospection (people do not intuit their impact).

In the final study, participants predicted how much they would talk and think about a purchase that was either an experience or a material good. A month later, participants indicated how often they did in fact talk and think about the purchase. Since material goods persist physically, we expected that the overestimation would be unique to experiences. As predicted, overestimation depended on purchase type ($F(1, 73) = 8.41$, $p = .005$): participants (marginally) overestimated how often they would talk and think about their experiences ($F(1, 73) = 3.25$, $p = .076$), but *underestimated* how often they would talk and think about their material purchases ($F(1, 73) = 5.16$, $p = .026$), indicating that people's overestimation is specific to experiences.

REFERENCES

Alba, J. W., & Hutchinson, J. W. (1987). Dimensions of consumer expertise. *Journal of consumer research*, 411-454.

Barasch, A., Diehl, K., & Zauberman, G. (2014). Does taking photos get in the way? The effect of photo-taking on the enjoyment of experiences. *Wharton Working Paper.*

Baumgartner, H., Sujan, M., & Bettman, J. R. (1992). Autobiographical memories, affect, and consumer information processing. *Journal of consumer psychology*, *1*(1), 53-82.

Bettman, J. R. (1979). Memory factors in consumer choice: A review. *The Journal of marketing*, 37-53.

Brand, N., & Jolles, J. (1985). Learning and retrieval rate of words presented auditorily and visually. *The Journal of general psychology*, *112*(2), 201-210.

Buckner, R. L., Raichle, M. E., Miezin, F. M., & Petersen, S. E. (1996). Functional anatomic studies of memory retrieval for auditory words and visual pictures. *The journal of neuroscience*, *16*(19), 6219-6235.

Crovitz, H. F., & Schiffman, H. (1974). Frequency of episodic memories as a function of their age. *Bulletin of the Psychonomic Society,* 4(5), 517-518.

Dunbar, R. IM, Marriott, A. & Duncan, N.D.C. (1997). Human conversational behavior. *Human Nature*, 8(3), 231-246.

Garber, L., Hyatt, E., & Starr, R. (2000). The effects of food color on perceived flavor. *Journal of Marketing Theory and Practice*, *8*(4), 59-73.

Garry, M., & Gerrie, M. P. (2005). When photographs create false memories. *Current directions in psychological science*, *14*(6), 321-325.

Gershoff, A. D., Mukherjee, A., & Mukhopadhyay, A. (2003). Consumer acceptance of online agent advice: Extremity and positivity effects. *Journal of Consumer Psychology, 13*(1), 161-170.

Glenberg, A. M., & Grimes, T. (1995). Memory and faces: Pictures help you remember who said what. *Personality and social psychology bulletin*, *21*(3), 196-206.

Henkel, L. A. (2014). Point-and-shoot memories: The influence of taking photos on memory for a museum tour. *Psychological science*, *25*(2), 396-402.

Hoegg, J., & Alba, J. W. (2007). Taste perception: More than meets the tongue. *Journal of Consumer Research, 33*(4), 490-498.

Holbrook, M. B. (1993). Nostalgia and consumption preferences: Some emerging patterns of consumer tastes. *Journal of consumer research*, 245-256.

Howe, M. L., & Courage, M. L. (1997). The emergence and early development of autobiographical memory. *Psychological review*, *104*(3), 499.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica, 47*, 263-291.

Keinan, A., & Kivetz, R. (2011). Productivity orientation and the consumption of collectable experiences. *Journal of consumer research*, *37*(6), 935-950.

Koszegi, B., & Rabin, M. (2006). A model of reference-dependent preferences. *The Quarterly Journal of Economics, 121*(4), 1133-1165.

Lee, L., Frederick, S., & Ariely, D. (2006). Try it, you'll like it: The influence of expectation, consumption, and revelation on preferences for beer. *Psychological Science, 17*(12), 1054-1058.

Loewenstein, G., & Elster, J. (1992). Utility from memory and anticipation. *Choice over time*, 213-234.

Loftus, E. F., & Pickrell, J. E. (1995). The formation of false memories. *Psychiatric annals*, *25*(12), 720-725.

Lynch Jr, J. G., & Srull, T. K. (1982). Memory and attentional factors in consumer choice: Concepts and research methods. *Journal of consumer research*, 18-37.

March, J. G., & Shapira, Z. (1992). Variable risk preferences and the focus of attention. *Psychological Review, 99*(1), 172-183.

Morewedge, C. K., Gilbert, D. T., & Wilson, T. D. (2005). The least likely of times. *Psychological Science, 16*(8), 626-630.

Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological science, 25(6), 1159-1168.*

Neisser, U., & Libby, L. K. (2000). Remembering life experiences. In E. Tulving & F. I. M. Craik (Eds.), *The Oxford handbook of memory* (pp. 315-332). New York: Oxford University Press.

Novemsky, N., & Dhar, R. (2005). Goal fulfillment and goal targets in sequential choice. *Journal of Consumer Research, 32*(3), 396-404.

Payne, J. W., Laughhunn, D. J., & Crum, R. (1980). Translation of gambles and aspiration level effects in risky choice behavior. *Management Science, 26*(10), 1039-1060.

Plassmann, H., O'Doherty, J., Shiv, B., & Rangel, A. (2008). Marketing actions modulate the neural representation of experienced pleasantness. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, *105*(3), 1050-1054.

Rabin, M., & Thaler, R. H. (2001). Anomalies: Risk aversion. *Journal of Economic Perspectives, 15*(1), 219-232.

Ratner, R. K., Kahn, B.E. & Kahneman, D. (1999). Choosing less-preferred experiences for the sake of variety. *Journal of Consumer Research*, 26 (1), 1-15.

Schacter, D. L., Chiu, C. Y. P., & Ochsner, K. N. (1993). Implicit memory: A selective review. *Annual review of neuroscience*, *16*(1), 159-182.

Schwarz, N. (2007). Attitude construction: Evaluation in context. *Social Cognition,* 25, 638-656.

Schwarz, N., & Sudman, S. (1994). *Autobiographical Memory and the Validity of Retrospective Reports*. New York, NY: Springer-Verlag.

Schwarz, N., Knauper, B., Hippler, H., Noelle-Neumann, E., & Clark, L. (1991). Rating scales: Numeric values may change the meaning of scale labels. *Public Opinion Quarterly, 55*(4), 570-582.

Singer, J. A., & Blagov, P. (2004). The integrative function of narrative processing: Autobiographical memory, self-defining memories, and the life story of identity. In D. Beike, D. Behrend, & J. Lampinen (Eds.), *Memory and the self* (pp. 117-138). Philadelphia: Psychology Press.

Sparrow, B., Liu, J., & Wegner, D. M. (2011). Google effects on memory: Cognitive consequences of having information at our fingertips. *Science*, *333*(6043), 776-778.

Stewart, N., Chater, N., Stott, H. P., & Reimers, S. (2003). Prospect relativity: How choice options influence decision under risk. *Journal of Experimental Psychology: General, 132*(1), 23-46.

Tamir, D. I., & Mitchell, J.P. (2012). Disclosing information about the self is intrinsically rewarding. *Proceedings of the National Academy of Sciences*, 109(21), 8038-8043.

Thaler, R.H., & Johnson, E.J. (1990). Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice. *Management Science, 36*(6), 643-660.

Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty, 5*(4), 297-323.

Van Boven, L., & Gilovich T. (2003). To do or to have? That is the question. *Journal of Personality and Social Psychology*, 85(6), 1193–1202.

Wade, K. A., Garry, M., Read, J. D., & Lindsay, D. S. (2002). A picture is worth a thousand lies: Using false photographs to create false childhood memories. *Psychonomic Bulletin & Review*, *9*(3), 597-603.

Wang, X.T., & Johnson, J. G. (2012). A tri-reference point theory of decision making under risk. *Journal of Experimental Psychology: General, 141*(4), 743-756.

Wildschut, T., Sedikides, C., Arndt, J., & Routledge, C.D. (2006). Nostalgia: Content, triggers, functions. *Journal of personality and social psychology*, 91, 975–993.

Zauberman, G., Ratner, R. K., & Kim, B. K. (2009). Memories as assets: Strategic memory protection in choice over time. *Journal of consumer research*, *35*(5), 715-728.

Zhang, T., Kim, T., Wood Brooks, A. Gino, F., & Norton, M.I. (2014). A "Present" for the future: The unexpected value of rediscovery," *Psychological Science,* October, 25(10), 1851-1860.