

CAPTURING AND KEEPING THE CUSTOMER EXPERIENCE:
THE EFFECT OF PHOTO CUES ON REMEMBERED ENJOYMENT AND FUTURE
INTENTIONS

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Submitted to the faculty of the University Graduate School
in partial fulfillment of the requirements
for the degree
Doctor of Philosophy
in the Kelley School of Business,
Indiana University
June 2022

Accepted by the Graduate Faculty, Indiana University, in partial fulfillment of the requirements
for the degree of Doctor of Philosophy.

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June 01, 2022

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ACKNOWLEDGMENTS

First and foremost, I would like to express my deepest gratitude for the encouragement and mentorship from my advisor, Raymond Burke. I am extremely grateful for the valuable guidance and constructive feedback from my dissertation committee, Shanker Krishnan, Jenny Olson, and Edward Hirt. I have been inspired by them to become a scholar who has a passion for research. Many thanks to Adam Duhachek and Mansur Khamitov whose knowledge and insights steered me through my research projects. I would like to thank Alex Leykin for his help with data collection and interpretation and Marketing Science Institute (MSI)'s financial support for this research. I would like to extend my sincere thanks to the faculty, doctoral students, and staff in the Department of Marketing and the Kelley Ph.D. program for their unwavering support. I feel very fortunate and blessed to be in such a wonderful and supportive group. I hope to spread the value I learned during my Ph.D. to my future colleagues and students as I pursue my dream career in academia. Additionally, I am also thankful to all my friends and Little Scholars who have made my Ph.D. journey enjoyable. Finally, I would like to express my huge gratitude to my family who is always there for me and supports me with endless love.

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The creation of engaging and enjoyable customer experiences is important in many industries, and this enjoyment often extends beyond the physical experience through the memories retained by customers. These memories provide enduring value to consumers. Yet, despite their importance, there is a lack of research examining how to enhance consumers' memory of the experience and its impact on future behavior in a marketing context.

In my dissertation, I investigate how consumers' viewing of photos of past experiences affects their remembered enjoyment, other emotions, and behavioral responses. Across seven studies, multiple methodologies (including life-sized virtual scenarios, head-mounted displays, eye-tracking, GSR, and retrospective reporting) were used to create immersive experiences and measure consumer engagement and emotional response. In Studies 1A and 1B, participants outfitted with mobile eye-tracking glasses experienced life-sized virtual scenarios (Frankfurt tour, fire performance, campus festival). Studies 2A and 2B used participants' real-world experiences (e.g., campus life, birthday, vacation) as stimuli to improve the external validity of the research and test the generalizability of the findings. Study 3 examined whether photos of emotionally engaging (peak) scenes have a greater impact on remembered emotions and behavioral intentions than images of frequently photographed, but non-peak scenes. Study 4 examined how photographic images can selectively cue specific emotional reactions (positive or negative) associated with a dynamic consumer experience, thereby affecting the consumer's

future behavioral intentions. Study 5 compares the effect of peak versus non-peak cues with a more immersive VR simulation. The results from these studies show that, when photo cues are present, consumers remember greater enjoyment, have greater repurchase intentions, and are more likely to share their experience with others. However, the findings show that when negative moments are cued, remembered enjoyment, repurchase intentions, and recommendation likelihood are reduced.

This research contributes to the growing literature on the customer experience by exploring how consumers can “capture and keep” their past experiences and the associated emotional reactions with photographic images. Furthermore, it provides managerial insights on how to leverage digital photography to maintain consumers’ memory of enjoyment over time, encourage future loyalty and positive word-of-mouth, and bring economic value to the firm.

Keywords: Customer Experience, Enjoyment, Memory of Emotions, Photograph, Simulation, Eye Tracking, Biometric Measures

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TABLE OF CONTENTS

Title Page -----	i
Acknowledgments -----	iv
Abstract -----	v
Table of Contents -----	vii
1. Chapter 1: Introduction -----	1
2. Chapter 2: Theoretical Background and Hypotheses -----	4
3. Chapter 3: Studies -----	21
4. Chapter 4: General Discussion -----	49
References -----	56
Figures and Tables -----	71
Appendices -----	87
Curriculum Vitae (CV)	

CHAPTER 1

INTRODUCTION

Riley recently visited a theme park and had a great time. A month after her visit, she received a promotional email from the theme park. Will this email remind her of the enjoyment she experienced at the park? Will she decide to return to the theme park in the near future, and perhaps share her experience with others, encouraging them to visit?

The creation of engaging and enjoyable customer experiences is important in many industries, including travel, hotels, restaurants, theme parks, shopping centers, sporting events, performing arts, as well as digital experiences such as movies and video games. According to research by Eventbrite (2019), 78% of millennials prefer spending money on experiences or events to purchasing goods, and 55% say they are spending more on these things than ever before. These experiences range from mundane activities such as having a cup of coffee at a café to “bucket list” endeavors such as scaling a mountain or going on safari.

Research has shown that experiential products offer greater consumer satisfaction and well-being than material products (e.g., Dunn and Norton 2013; cf. Nicolao, Irwin, and Goodman 2009). Firms invest substantial resources to create experiences that will maximize consumer enjoyment because this can boost their economic value through direct revenues (e.g., ticket purchases) and incidental purchases (food, beverages, souvenirs; Pine and Gilmore 1999; Schmitt 1999). At the same time, consumers look for ways to get the most enjoyment out of their consumption experiences (Clarkson, Janiszewski, and Cinelli 2013).

While the physical experience is certainly important, another key consideration is the customer’s future memory of the experience (Pine and Gilmore 2017; Schmitt 1999). The

retained memories affect the recalled value of the experience to the consumer, his or her future loyalty to the firm and willingness to pay, and the memories that he or she shares with others through social communication, thus impacting the behavior of others (Pine and Gilmore 2017). Considerable research in cognitive psychology has shown that people's recollection of their past experiences is often different from the actual experiences (Kahneman 1999; Redelmeier, Katz, and Kahneman 2003; Wirtz, Kruger, and Napa-Scollon 2003), and it is the *remembered experience* that is most important in driving people's subsequent behaviors.

Despite the importance of consumers' memories of their experiences, there is a lack of research examining the influence of memory cues (such as photos, souvenirs, and mementos) on consumers' recall of their past enjoyment of products and services and the potential of such cues to enhance marketing performance. Consumers' emotional reactions fade over time, so it is important for companies to remind consumers how much they enjoyed their experiences, extending the positive feelings into the future. Also, consumers often make repurchase decisions, and this is a prime opportunity for reminders. In this research, I attempt to understand how photographs can serve as memory cues that boost the recall of consumers' emotions experienced in the past and explore how the content of these photos can "capture and keep" important moments from the experience and trigger the recall of specific emotional reactions.

This research has the potential to make several theoretical contributions. First, this research contributes to the literature on consumer memory (Bettman 1979; Zauberan, Ratner, and Kim 2009) by examining how the cuing of "peak moments" of a past experience can enhance the recollection of specific emotions experienced during these moments. In this research, I define "peak moments" as the times when individuals are most emotionally engaged in the activity (Kahneman 1999; Redelmeier, Katz, and Kahneman 2003). While much of the

prior research on retrieval cues has focused on recalling information such as words (Lehmer and Bäuml 2018; Rundus 1973) or brand names (Alba and Chattopadhyay 1985), this research focus on the recollection of emotions from past experiences and the moderating role of photo cues.

Second, this research investigates the impact of remembered emotions on subsequent consumer behaviors such as repurchase intentions and word-of-mouth communication and photo sharing (e.g., Damasio 1994; Hendersen 1985; Levine, 1997; Levine, Prohaska, Burgess, Rice, and Laulhere 2001; Robinson 2014; Robinson, Blissett, and Higgs 2012). As the popularity of experiences continues to grow, it is important to understand how remembered enjoyment influences consumers' future behaviors and market outcomes.

The third contribution of this research is its emphasis on enhancing consumer enjoyment at the recollection stage, after an experience has occurred. While abundant research has explored the ways to boost enjoyment at the time of a customer experience (e.g., Diehl, Zauberman, and Barasch 2016; Hwang, Shin, and Mattila 2018; Mandel and Nowlis 2008; Moses et al. 2018; Nardini, Lutz, and LeBoeuf 2019; Nowlis, Mandel, and McCabe 2004; Ofir and Simonson 2007; Raghunathan, Naylor, and Hoyer 2006), this research focuses on improving future memory of positive emotional reactions.

Given the growing importance of experiences to consumers and the widespread use of digital photography, it is critical for marketers to understand the influence of photo cues on consumer memory for previously experienced emotions. The number of smartphone users in the U.S. has grown to almost 240 million in 2018 (Statista DMO), and the number of digital photos taken worldwide is estimated to be over 1.2 trillion – 100 billion more than in the previous year – with 85% of these photos taken using smartphones (InfoTrends). Over 350 million photos are posted every day (Smith 2016), with 80 million photos per day shared on Instagram (Brandwatch

2018). By encouraging consumers to take and share company- and brand-related photos that capture their peak, positive experiences, firms may help customers to reflect on their positive experiences and enjoyment over time, thus improving the firms' reputation and customer loyalty (Brakus, Schmitt, and Zarantonello 2009).

The goals of this research are to 1) investigate how customers' product and service experiences can be "captured and kept" through the use of photographic images, which serve as memory cues; 2) measure the impact of these cues on consumers' memory for and enjoyment of the experiences, and their emotional and behavioral responses to the associated companies, products, and services; 3) explore how different types of cues (different moments of the experience) moderate this effect; and 4) identify contextual factors that will maximize the impact of memory cues on remembered enjoyment and future purchase intentions (see Figure 1).

-- See Figure 1 --

CHAPTER 2

THEORETICAL BACKGROUND AND HYPOTHESES

2.1. BASIC MECHANISM OF MEMORY

Learning and memory processes involve three stages: encoding, storage, and retrieval (Melton 1963). At the encoding stage, people perceive, process, and learn the incoming information. This acquired material is stored in the brain in the form of memory traces. Memory traces are not perfect – they do not always capture encoded information accurately. Thus, a

perfect recreation of past experiences is not possible. For example, consumers do not recall the intensity of a previously experienced affective reaction accurately (Christianson and Safer 1996).

When consumers attempt to remember past events, memory traces help them reconstruct what they have experienced or what information they have acquired, but other factors also affect what is remembered. Baddeley (1999) explains that forgetting is often due to memories interfering with one another. For example, activities that consumers engage in during the interval between the initial experience and the retrieval stage may cause retroactive interference (McGeoch 1932). Cowley (2007) shows that when consumers are exposed to postexperience information (in this case, advertising), it interferes with the retrieval of affective reactions generated during the experience, which leads to inaccurate recall. She argues that consumers use postexperience behavior to judge whether they like the experience because it is more accessible and can be mistaken as diagnostic. Similarly, consumers' prior knowledge or experience before the focal experience being retrieved may impact the memory of the focal event (proactive interference; Underwood 1957). The dynamic nature of consumer experiences, involving a variety of emotions felt over the course of an experience, may make it even more difficult for consumers to accurately remember the nature and intensity of their emotional reactions. One reason that discrepancies occur between actual and remembered experiences is that consumers employ heuristics that make selective use of memories. When reflecting on past experiences, it would be too cognitively demanding to recall all of the details, so instead people rely on just a few salient moments that are more readily accessible than others (Kahneman et al. 1993; Morewedge, Gilbert, and Wilson 2005). This is especially likely to be true for consumer experiences, which are often dynamic and multisensory, occurring over time and space. During a complex experience, such as visiting a theme park or traveling a new country, consumers' level

of engagement and cognitive and emotional reactions will change from one moment to the next (e.g., while waiting in line, riding an attraction, stopping for food, and buying souvenirs). This can make it difficult for people to accurately remember the nature and intensity of the experienced emotions (e.g., Holmberg and Holmes 1994; Levine 1997; Levine and Pizarro 2004).

Memory researchers have found considerable support for the “peak-end rule,” which predicts that the most intense moments (the peaks) and the final moments (the end) of an experience highly influence memory of the overall experience (Kahneman 1999; Redelmeier, Katz, and Kahneman 2003) (see Figure 2). These peak moments are often more distinctive, and therefore easier to recall at a later time (Rajaram 1993, 1998; Rajaram and Roediger 1997). They may also be more emotional, which adds to their distinctiveness and leads to greater attention and depth of processing (Ochsner 2000). In a marketing context, Montgomery and Unnava (2009) find that the biggest influence on remembered enjoyment is the specific moments that particularly stand out or surprise consumers rather than the temporal order. However, timing can also play an important role. For example, Garbinsky, Morewedge, and Shiv (2014) report that people’s enjoyment at the end (vs. beginning) of eating food drives their decision to repeat a gustatory experience. In many cases, the end or “finale” of an experience is often highly distinctive and memorable (Robinson 2014). In the current research, I investigate how consumers respond when they are reminded of the distinctive moments of their experiences. The specific moments that a given individual will find most emotionally engaging are inherently subjective and thus different across individuals. I attempt to capture participant’s emotionally peak moments in several studies.

-- See Figure 2 --

2.2. MEMORY FOR EMOTIONS

LeDoux (1992) argues that memory for the emotions experienced at prior events will be more enduring than the informational details of what happened. Supporting this, research suggests that people have superior memory for emotional experience than cognitive information. Emotional intensity increases the vividness (Conway 1995; Thompson et al. 1996), duration, and detail of memory (LeDoux 2000). As a consequence, people are better able to recall events that are emotional rather than non-emotional. Hamann et al. (1999) report that people remember emotional and interesting pictures better than neutral pictures. With a PET scan study, they found that bilateral amygdala activity increases when encoding emotional pictures compared to neutral pictures, with a consequent boost in memory for emotional pictures over neutral pictures.

However, people do not always accurately recall the emotions they experienced (e.g., Breckler 1994; Holmberg and Holmes 1994; Levine 1997; Levine and Pizarro 2004). Similar to the memory for cognitive information discussed in the previous section, people's current appraisals of past events and post-event experiences determine which part of emotional reactions from their past experiences are reconstructed, and this impacts their memories (Levine and Pizarro 2004). Taken together, this research indicates that emotional memories are malleable and can be inaccurate and selective.

Prior literature on emotions and memory shows that the emotional content of a prior experience influences how it is remembered (e.g., Berntsen and Rubin 2002; Rimmele et al. 2011; Sharot, Verfaellie, and Yonelinas 2007; St. Jacques and Levine 2007; Talarico, LaBar, and Rubin 2004). For example, Rimmele et al. (2011) found that people had a greater feeling of

remembering when the experience was emotional, although their memory of contextual details was less accurate. Also, people were more likely to remember central details when the experiences were shocking compared to when they were happy.

Other research on emotion and memory focuses on how one's emotional state at the time of retrieval impacts recall of cognitive information (e.g., what people saw in an image, what the story depicted). One stream of research has found that emotion (arousal) negatively impacts memory for detail (e.g., Clifford and Hollin 1981; Loftus and Burns 1982; see Heuer and Reisberg 1992 for a review) while another showed that arousal enhances memory for detail (e.g., Andrews 1990; Heuer and Reisberg 1990). Addressing this inconsistency, Burke, Heuer, and Reisberg (1992) discovered that whether emotion plays a positive or negative role on remembering informational details depends on the to-be-remembered material. Emotion benefits memory for gist and basic-level visual information and details associated with the event's center while it impairs memory for details not relevant to the event's center. On a related note, researchers have investigated whether a person's mood at the time of retrieval enhances his or her recall of similar (i.e., "mood-congruent") emotional memories (Blaney 1986, Bower 1981; Matt, Vazquez, and Campbell 1992).

Although memory is incomplete and sometimes biased, it can play a critical role in determining people's future preferences and behaviors. People often make choices to repeat or avoid experiences in the future based on what emotions they recall having experienced in similar past activities or events (Damasio 1994; Hendersen 1985; Levine, 1997; Levine et al. 2001; Robinson 1980). Levine and Safer (2002) argue that emotional memories importantly influence future behavior because those are from current appraisals of the emotion-eliciting situation rather than reflecting the accurate emotions in the past. Fazio and Zanna (1978) and Smith and

Swinyard (1983) also argue that people's affective reaction to the prior direct experience often determines their future attitudes or feelings.

In summary, prior research suggests that (a) emotional experiences are often more memorable than the informational details, especially when the emotions are intense, (b) these memories may be incomplete and reconstructed at the time of retrieval, and (c) emotional memories can impact future behavior towards similar activities. However, there is a lack of research on how emotions are encoded and retrieved from memory, which emotions are most memorable, and how one can facilitate recall of the emotional elements of an experience.

2.3. THE ROLE OF MEMORY CUES

When people reflect on their past experiences, they may have difficulty recalling their affective reactions from the experience, and instead use other accessible information that they perceive as diagnostic to make decisions. According to Feldman and Lynch's (1988) accessibility-diagnostics framework, consumers make judgments based on the most accessible and diagnostic information. Research has also shown that if people's memory of their experiences is not easily accessible, they try to retrieve memories that they can easily access (Banaji and Hardin 1994; Rubin 1995; Symons and Johnson 1997; Zimmer 2001; Zimmer and Cohen 2001) and that they perceive as diagnostic of their feelings (Bem 1965, 1972). Retrieval cues can play an important role in facilitating the recall of associated memories (Bettman 1979; Keller 1987). For example, companies often use common features across a product's advertisements, point-of-purchase displays, and packaging to remind consumers of the associated brand information (Keller 1987; Lynch and Srull 1982).

Several articles in consumer psychology have explored the mnemonic value of photographs, mementos, and souvenirs (Belk 1988; Belk, Wallendorf, and Sherry Jr. 1989; Curasi, Price, and Arnould 2004; Epp and Price 2010; O’Guinn and Belk 1989; Penaloza 2001; Price, Arnould, and Curasi 2000; Turley and Stephanie 2012). The literature has shown that consumers value particularly positive memories (e.g., of a vacation) as their assets, and will protect these memories by buying physical possessions that will serve as memory markers and retrieval cues (Zauberman, Ratner, and Kim 2009). For example, when people visit a new city for travel, they buy a souvenir to bring home which can help them retain memories of the city when they reflect on their past experience.

What people perceive and the way it is encoded determines which information is stored in memory. In turn, what is stored becomes a determinant of what memory cues are effective in granting access to what is stored (Tulving and Thomson 1973). According to the encoding specificity principle (Tulving and Thompson 1973), a retrieval cue will be more effective in retrieving the available information in people’s memory when it matches the memory trace of the prior experience. For example, Godden and Baddeley (1975) found that students showed a better performance on a test when they took the test in the same place as they learned the materials compared to the students who took the test in a different environment. The place where they took the test becomes an environmental cue which facilitates participants’ retrieval of information.

Effective memory cues have significant overlap with the encoded, target information, and are distinct from other information stored in memory (Bellezza and Hoyt 1992; Geiselman et al. 1986; Tullis and Benjamin 2015). If there is cue overload (i.e., when a cue contains too many associations; Watkins and Watkins 1975), it will result in the recall of less accurate information at a slower speed (fan effect; Anderson 1983). As a given concept is associated with more facts,

then recalling any one fact connected to the concept requires more time (Anderson and Reder 1999).

Rundus (1973) proposed that recall cues could also have detrimental effects. In his model, he shows that when some of the items of a list are recalled, the probability of recall for the remaining list items is decreased. In other words, providing a part of a list as recall cues does not help and may even prevent people from recalling the remaining list items. Alba and Chattopadhyay (1985) applied this model in a marketing context, examining the part-category cueing effects in brand recall. They found that when a larger subset of brands is provided as retrieval cues, this reduced recall of the remaining brands. The information cued and recalled earlier interferes with subsequent retrieval of other information, inhibiting recall of the remaining items.

Bower and Forgas (2001) model the storage and retrieval of affective information using an associative network model of memory. They propose that when people encounter information that elicits an affective reaction, the context for the elicitation is updated in a new node and associated with existing positive and negative valence nodes. When people subsequently make overall affective evaluations of the experience, their judgments are influenced by the relative salience or activation of the positive and negative valence nodes (Bower and Forgas 2001). For instance, if a consumer has been to a theme park and experienced both positive and negative emotions, a new node for the experience will be created and associated with both a positive and a negative valence node. Consumers who subsequently view photos of moments when they had positive emotions will activate the positive valence node and evaluate the experience as enjoyable. On the contrary, those who view photos of moments when they had negative emotions will activate the negative valence node and evaluate the experience as less enjoyable. If there is

no exposure to any cue, there will be a weaker activation of one or both of the valence nodes, reducing the emotional response.

Research on emotion and memory has mostly focused on examining the role of memory valence or recalling emotional memories, but limited attention has been given to the role of cue valence (Sheldon and Donahue 2017). Only a few studies examined the role of emotional characteristics of a cue (e.g., positive or negative) on biographical memories in clinical contexts (e.g., depression; Dalglish et al. 2007; Williams and Broadbent 1986). Sheldon and Donahue (2017) emphasized the role of emotional elements of the cues themselves in addition to the emotions from the remembered experience. They examined the effect of emotional characteristics of memory cues on autobiographical memory recall using musical stimuli with different emotional arousal (happy, peaceful, scary, sad) and valence. They tested people's retrieval of the past event, not a specific moment or emotions experienced during the event, and found that musical cues with high arousal and positive valence were most effective in a quick retrieval of memories. They also found that highly arousing cues made the memory less vivid and distinctive, but there was an association between cues which are both highly arousing and positive with memories that are greater in social and energetic nature.

2.4. MEMORY FOR VISUAL INFORMATION

Prior research suggests that pictures and images are more likely to be remembered than words (e.g., Bower 1972, Sampson 1970). This picture superiority in recall is often explained with dual-coding theory (Paivio 1976, 1986). Paivio, Rogers, and Smythe (1968) argue that this advantage of pictures over words is because they are dually coded. Specifically, picture stimuli are more memorable than word stimuli because pictures are encoded both as images and as

verbal marks while word stimuli are only encoded as verbal marks. Thus, in case either images or verbal marks fade in memory, people can still retrieve the other trace, which will contribute to their recall (Paivio and Csapo 1973).

Another line of research suggests that pictures are remembered better than words (Mintzer and Snodgrass 1999) due to the distinctiveness of their visual features (Nelson, Reed, and Walling 1976) or their semantic/conceptual features (Weldon, Roediger, and Challis 1989; Weldon and Roediger 1987). Curran and Doyle (2011) found that this picture superiority effect is because distinctive attributes of pictures are encoded and it boosts recollection. Schneider et al. (2020) provided evidence of photos impacting retrieval by finding that presenting “decorative pictures” (i.e., pictures that do not consist of learning-goal-relevant information) in the learning test (retrieval) as a memory cue in addition to learning materials (encoding) significantly enhanced students’ performance.

2.5. THE IMPACT OF PHOTOS ON MEMORY

Recent research in the psychology and marketing literature has focused on how the act of photo taking impacts memory encoding and the enjoyment at the time of the experience. For example, researchers find that photo taking can reduce consumer attention to detail and location memory (Henkel 2014), boost visual memory but diminish auditory memory in volitional tasks (Barasch et al. 2017), and enhance the enjoyment of moderately positive experiences (Diehl, Zauberaman, and Barasch 2016) while reducing the enjoyment of highly enjoyable experiences (Nardini, Lutz, and LeBoeuf 2019).

However, the reason people take photos is to be able to re-experience an event or activity at a future time or to share it with others. As noted earlier, the consumer psychology literature

has demonstrated the mnemonic value of photographs, mementos, and souvenirs. For example, Winterich, Reczek, and Irwin (2017) showed that taking a photo of a product before disposing of it is an effective strategy for preserving memories. They found that the photograph can play a role as a memory cue for the product even after the product is no longer with the consumer. Zauberman, Ratner, and Kim (2009) have shown that for special events, people prefer to retain objects or “memory pointers” (e.g., photos, memories, trophies) that are specifically related to the original experience rather than more generic objects that have a weaker relationship. Such context-specific items are thought to be more helpful for recalling the experience at a later time. Photos taken at the time of an experience are effective memory pointers because they capture the specific valued moments from the actual experience. Photos may increase the clarity and vividness of some elements of the experience while suppressing the recall of others (Lehmer and Bäuml 2018). Thus, when people are exposed to the photos of a certain moment of a past experience, it will make the moment in the photo more salient but may block the recall of other moments from the experience (Rundus 1973) (see Figure 3).

-- See Figure 3 --

2.6. CUSTOMER EXPERIENCE, ENJOYMENT, AND RECOLLECTION

Experiences define people as individuals and can greatly affect their life satisfaction (Carter and Gilovich 2012; Van Boven and Gilovich 2003). There are several characteristics which are unique to experiences. First, they are dynamic, occurring over time and space. Consumers may feel different levels of engagement and a variety of emotions during the course of an experience. Thus, different moments of the experience can be more or less important and

have different affective associations (Kahneman 1999; Redelmeier, Katz, and Kahneman 2003). For example, at a restaurant, consumers may experience anticipation while waiting for their food to come out. After tasting an appetizer, they may experience disappointment if the quality of the food fails to meet their expectations. Then, they may be happy with their main dish and enjoy it. Among the various emotions they experienced during a visit to the restaurant, the specific emotion(s) they remember in the future may vary as a function of the context and memory cues available.

Also, experiences are multisensory: people see, smell, taste, hear, and touch. Experiences consequently generate multiple memory traces and potential paths for retrieval. In addition, experiences have behavioral, cognitive, and emotional elements. For example, when consumers visit a festival, they may watch demonstrations (cognitive) while eating food (behavioral) and feel joy (emotional). Consumers build their own experiences by making choices at the time of consumption, so the same event may be experienced differently across individuals.

In the decision making literature, there are 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, according to Elster and Loewenstein (1992), in a single event such as traveling to a new place or attending a festival, the utility is first influenced through savoring, then through the unfolding of the actual experience, and finally through recollection. In this research, I focus on the last step: the recollection stage after the experience.

Enjoyment is a dominant positive emotion deriving from experiences, so examining what makes experiences “enjoyable” attracts interest from both companies and consumers. Much of

the prior research on customer experiences has focused on identifying the causes of enjoyment for experiential and material products at the time of consumption (e.g., Kumar and Gilovich 2016; Van Boven 2005; Van Boven and Gilovich 2003) – the utility from the experience itself. For example, Nowlis, Mandel, and McCabe (2004) report that consumers enjoy pleasurable products more when there is a delay before consumption occurs. Then, at the time of consumption, consumers experience higher enjoyment when the items are portrayed as less healthy (Raghunathan, Naylor, and Hoyer 2006).

The consumption context also plays a role in the enjoyment of the experience. For example, Hwang, Shin, and Mattila (2018) show that, in a solo consumption experience, consumers have a more positive attitude towards other customers and higher enjoyment of their food when the spatial distance between the dining tables is small. In a shopping context, customers who receive a flower as a gift at the beginning of their store visit have higher emotional arousal and enhanced shopping enjoyment (Moses et al. 2018).

When consumers make predictions about uncertain events, this decreases their enjoyment of observing the events (Mandel and Nowlis 2008). Similarly, consumers tend to rate their shopping experience less favorably after stating their pre-purchase expectations (Ofir and Simonson 2007). These findings help marketers to understand how to maximize customer enjoyment at the time of the consumption experience.

Relatively less attention has been paid to the post-experience consequences of remembered enjoyment. If consumers have a pleasant and *memorable* experience, they are more likely to repeat the experience and share their experiences with others, which brings financial value to companies by increasing revenues and reducing marketing costs (Chun, Diehl, and MacInnis 2017; Moore 2012). Consumers derive pleasure from reminiscing about enjoyable past

experiences and are willing to invest in creating such memories. For example, research by the Hilton Hotel chain reveals that travel is the most frequently recalled “happy memory,” and nearly two-thirds of consumers say they plan trips to create memories with family and friends. These positive memories may encourage consumers to become repeat customers and share their experiences with others, positively enhancing customer retention and acquisition.

Despite its importance, there is a lack of research examining the memorability of customer experiences (cf. Chun, Diehl, and MacInnis 2017) and how marketers can trigger favorable memories. Experiences provide pleasure at the time of consumption, and this enjoyment can extend into the future when the consumer reflects on these experiences and shares them with others (cf. Elster and Loewenstein 1992; Tulving and Thompson 1973). For example, when people go on a vacation, they enjoy their experiences, such as visiting a museum, taking a cruise tour, having a great meal at a local restaurant, or lying on a beach. However, another part of pleasure comes from reminiscing about their vacation after they return home. Recalling memories of a past experience through reflection is a critical part of enjoying experiences. Therefore, not only what is being encoded in memory during the experience but also what is being retrieved after the experience is important and meaningful for both consumers and companies.

As noted earlier, research in cognitive psychology has shown that people’s recollection of their past experiences is often different from the actual experiences (Kahneman 1999; Redelmeier, Katz, and Kahneman 2003; Wirtz, Kruger, and Napa-Scollon 2003), and it is the remembered experience that is most important in driving people’s subsequent behaviors. For example, Robinson (2014) reports that remembered enjoyment, not the actual enjoyment experienced, is a better predictor of future expected enjoyment. Similarly, Robinson, Blissett,

and Higgs (2012) find that the greater enjoyment people remember, the more likely they are to choose the same (food) item again in the future. Consumers often form an evaluation based on the heuristic, and affect is often the information that influences the heuristic (Schwarz and Clore 1983, 1988). Consumers' current memory of whether they have enjoyed the experience or not guides their decisions about future consumption. Thus, remembering how much the previous experience was enjoyed significantly influences consumers' future behaviors such as whether to repeat the experience, how much time they want to spend on the experience, or whether to share their experience with others.

2.7. HYPOTHESES

In summary, there is growing interest in marketing in creating engaging and memorable product and service experiences that drive company revenues, customer loyalty, and positive word of mouth. These experiences are often complex, having dynamic informational, emotional, behavioral, and multisensory elements that make it difficult for consumers to recall all the details. Consumers' memories of past consumption experiences may be poor due to a variety of factors including memory encoding (inattention, lack of emotional engagement) and retrieval (retroactive and proactive interference) processes. Consequently, when consumers reflect on their past experiences and make judgments, they employ heuristics that make selective use of memories, and it is the remembered experience that determines future behavior (Feldman and Lynch 1988).

Which elements of past experiences are consumers likely to recall? Prior research suggests that the most intense ("peak") and final ("end") moments will be most memorable

(Garbinsky, Morewedge, and Shiv 2014; Montgomery and Unnava 2009). Emotional and visual memories also appear to be especially memorable.

Retrieval cues can also play an important role in triggering consumers' memories. Prior research has shown the beneficial effects of advertising and product packaging cues on memory for brand information (Keller 1987; Lynch and Srull 1982). There is also evidence that photo taking can boost the encoding of visual memories (Barasch et al. 2017) and these photos can help to preserve positive memories (Curasi et al. 2004; Zauberan, Ratner, and Kim 2009). However, these studies have not investigated consumers' abilities to recall their emotional experiences, which emotions are most memorable, and the impact of memory cues on the selective recall of positive and negative elements of an experience.

Based on prior research and the conceptual model presented in Figures 3 and 4, I propose that showing consumers photos associated with specific moments from a past experience will cue their recall of these moments and the associated emotional reactions, enriching their recollection of the experience. Thus, when consumers view photos of moments they enjoyed, it will strengthen positive emotions toward the experience and future purchase intentions. Furthermore, I expect that photos which depict unique moments from a past experience, especially “peak moments” that were highly engaging and emotional, will be effective memory cues since these photos will distinctly match the memory trace of the prior experience. Presenting such photos may have the additional impact of suppressing the recall of other, non-cued elements of the experience due to the part-list cuing effect (Alba and Chattopadhyay 1985; Rundus 1973). When product and service experiences have both positive and negative elements, consumer exposure to photos associated with the positive elements will lead to greater recalled enjoyment, while cues associated with the negative elements will cause the experience to be

remembered as less enjoyable. I use visual stimuli (photos taken during the experience) as retrieval cues in this research because of their higher distinctiveness and memorability relative to verbal/textual cues. Also, I expect photos to be an effective memory cue because photos capture the specific moment from the experience.

-- See Figure 4 --

Formally, I hypothesize:

- H1: When photos associated with an enjoyable past experience are present (vs. absent), consumers will be more likely to a) remember greater enjoyment, b) repeat/repurchase the experience, and c) share their experience with others.
- H2: Photo cues associated with the emotional peaks of an experience (i.e., high visual attention and emotional response) will produce a greater increase in remembered enjoyment, repeat purchase intentions, and sharing of the experience than non-peak photo cues and the absence of photo cues (control condition).
- H3: When photo cues associated with positive (vs. negative) moments are presented, consumers will be more likely to a) remember greater enjoyment, b) repeat/repurchase the experience, and c) share their experience with others.
- H4: Photo cuing effects will be strengthened when the consumer's original experience evoked a strong (vs. weak) emotional response.

CHAPTER 3

STUDIES

3.1. OVERVIEW OF STUDIES

Seven studies were conducted in laboratory and online settings to address the research questions. Across studies, consumers engaged with a variety of experiences (e.g., festival, theme park, travel) using dynamic, immersive, and realistic scenarios (created with first-person videos displayed on wall-sized projection screens, desktop monitors, and head-mounted displays), and their behavioral and emotional reactions and “peak moments” were recorded using a diverse set of methodologies (e.g., eye tracking, pressing up/down arrow keys, GSR, heartrate).

The goal of the studies is to investigate how consumers’ experiences can be “captured and kept” through the presentation of photos serving as retrieval cues. Study 1A examines consumers’ emotional reactions remembered in response to viewing photo cues. Study 1B extends this research by examining the impact of photo cues on subsequent behavioral responses. In Studies 1A and 1B, respondents were recruited to participate in a consumer research study where they were outfitted with mobile eye tracking glasses, stood in front of a wall-sized 4K laser-projected display screen, and viewed a life-sized 180VR walkthrough of an experiential scenario (see Figure 5). The visual attention data were used to identify “peak” scenes (i.e., scenes with a greater number and longer duration of eye fixations), and these images were used as photo cues for the experimental manipulations. Previous research has revealed that these peak moments are highly memorable (Kahneman 1999; Montgomery and Unnava 2009; Redelmeier, Katz, and Kahneman 2003). The laboratory setting provides a high degree of control, but it does not have the same level of realism as consumer experiences in the real world. To address this issue and

enhance the external validity and generalizability of the findings, Studies 2A and 2B extend the research by replicating the earlier findings using consumers' actual experiences where they are more likely to have rich, detailed, multisensory memories. For many consumer experiences, there are a wide array of photographic images that could be used to trigger memories of a past activity. Study 3 examines whether photos of emotionally engaging (or peak) scenes have a greater impact on remembered emotions and behavioral intentions than images of frequently photographed but non-peak scenes, or a no-photo control condition. Study 4 explores whether photo cues can selectively trigger positive and negative memories of a past experience and the degree to which these effects are conditional on the strength of the emotional association. In the fifth and final study, the cueing effect of the emotionally peak versus non-peak scenes is examined with a more immersive, 360-degree simulation presented using a head-mounted display. Table 1 provides an overview of the studies and Appendix A shows the photo cues used in each study.

-- See Figure 5 and Table 1 --

To test the robustness of the findings across different intervals between the completion of the customer experience and the measurement of recalled emotions and behavioral response, the timing of the follow-up survey was varied from no delay (Study 1A) to 10 minutes (Study 5), 15 minutes (Studies 3 and 4), one week (Study 1B), five months (Study 2A), and up to one year (Study 2B) after the experience.

3.2. STUDY 1

Studies 1A and 1B examine the basic photo cueing effect on remembered enjoyment and behavioral intentions. These studies were conducted in the Customer Interface Lab at the Kelley School of Business, Indiana University. Participants engaged in virtual experiences by watching videos projected on a 6 × 20-foot wall-sized screen. Mobile eye-tracking glasses were used to measure participants' attentional engagement and capture peak moments during the experience.

3.2.1. STUDY 1A: PHOTO CUEING AND CONSUMERS' REMEMBERED ENJOYMENT

The primary goal of Study 1A is to test the prediction that presenting photos from an experience causes consumers to remember greater enjoyment. Two virtual experiences were used in the study: a city tour of Frankfurt Germany and a stage performance ("Fire Show"). The presentation order was counterbalanced. Those consumers who are presented with photos of the experience are predicted to report greater recalled enjoyment of the experience than those who saw no photos.

3.2.1.1 Methods

Participants and Design. Fifty-seven participants (35.1% female, $M_{\text{age}} = 20.14$, $SD = .48$) were recruited from an undergraduate subject pool in exchange for partial course credit. The participants were randomly assigned to one of two photo cue (present vs. absent) between-subjects conditions.

Procedure. Upon arrival in the lab, participants were informed about the study procedure and provided with Study Information Sheet. Then, participants were asked to put on eye-tracking glasses and stand facing a 6 × 20-foot panoramic display screen filled with images from two 4K

laser projectors (see Figure 5). Each respondent experienced a virtual tour of Frankfurt and attended a virtual stage performance – fire show. They were asked to imagine being at the actual locations, experiencing the events in person. The ordering of the experience presentation was counterbalanced across participants. After watching each video, they were asked to complete a short survey. In the survey, the participants’ remembered enjoyment of each experience was measured (7-point Likert Scale; 1: Not at all, 7: Very much). Participants in “photo cue present” condition were presented with three photos for each of the Frankfurt tour and fire show with survey questions for each of the experiences. Participants in “photo cue absent” condition were not presented with photos.

3.2.1.2. Results

First, eye-tracking data revealed that participants had a greater number and longer duration of fixations for the scenes used as photo cues (see Figure 6) confirming that these photos were of “peak” scenes.

-- See Figure 6 --

I predicted that photo cues would be positively associated with remembered enjoyment. To test this hypothesis, I ran a repeated measures ANOVA with memory cue present/absent as a between-subject factor, experience type (Frankfurt Tour and Fire Show) as a within-subject factor, and remembered enjoyment as a dependent variable. The result revealed a marginally significant main effect of photo cue on remembered enjoyment ($M_{\text{present}} = 5.30$, $SD = 1.27$ vs.

$M_{\text{absent}} = 4.81$, $SD = 1.17$; $F(1, 55) = 3.42$, $p = .070$), and no significant interaction between photo cue and experience type ($p = .40$).

3.2.1.3. Discussion

Study 1A provides preliminary support for the prediction that photo cues enhance consumers' remembered enjoyment. Participants who were presented with photos of the experience indicated that they had greater enjoyment compared to people who were not presented with photos. The effect was marginally significant, and this may have been due to the small sample size used in this study. Data were collected with a single eye-tracking device and panoramic display screen, so only one respondent could be run during each 30-minute session. Also, as the video played, participants were told to vividly imagine that they are experiencing it in person. However, the professionally filmed video may restrict participants' involvement in the simulation. Therefore, first-person videos of interactive experiences were used in the subsequent studies.

3.2.2 STUDY 1B: PHOTO CUEING AND CONSUMERS' BEHAVIORAL RESPONSES

Study 1B extends the findings of Study 1A in three ways. First, whereas in Study 1A, I measured consumers' remembered enjoyment (i.e., their emotional response), in Study 1B, I demonstrate the effect of photo cues on consumers' behavioral responses such as repurchase intention and intention to share their experience with others. These behavioral responses have potentially important implications for companies since they can help increase firm sales and profits. Second, while I used online videos created by professional filmmakers in Study 1A, to increase the realism and enhance the first-hand experience in Study 1B, I attended one of Indiana

University's campus festivals and filmed the experience in person with a 3D 180-degree camera. Third, to examine the durability of consumers' memories, I extended the time between the experience and the follow-up survey. In Study 1A, participants responded to a survey immediately after the experience, but in Study 1B, they received an electronic survey via email one week after the study. I predicted that photo cues will increase consumers' future repurchase intention and intention to share the experience with others.

3.2.2.1. Methods

Participants and Design. Fifty-three undergraduate students (34.0% female, $M_{\text{age}} = 20.17$, $SD = .55$) from Indiana University participated in this study and received partial course credit as compensation. A one-factor (photo cue: present vs. absent) between-subjects design was used with random assignment.

Procedure. Upon arrival in the lab, participants were informed about the study's purpose and procedure. Then, they were asked to wear eye-tracking glasses and stand in front of the wall-sized 4K laser projected display screens (the same as in Study 1A). The instruction on the screen asked them to imagine that they came to a university campus festival looking for fun activities. After the virtual reality simulation, they were told that they will receive a follow-up survey via email about a week after the study.

One week after the study, participants were emailed an online survey to measure their recollection of the experience, planned social communication (word-of-mouth), and future purchase intentions (7-point Likert Scale; 1: Not at all, 7: Very much). Three photos of the original experience were either presented or absent in the survey, allowing measurement of the memory cuing effects. Following the memory literature (e.g., Kahneman 1999; Redelmeier,

Katz, and Kahneman 2003), I used peak and end scenes as photo cues. These scenes were confirmed as peak scenes through eye tracking (see Figure 7).

-- See Figure 7 --

3.2.2.2 Results

For each dependent variable, the effect approached significance. As predicted, compared to the participants who were not presented with photo cues ($M = 3.35$, $SD = 1.33$), participants who were exposed to photo cues had a higher interest in attending a similar campus festival in the future ($M = 4.15$, $SD = 1.66$; $F(1, 51) = 3.77$, $p = .058$). Also, participants who viewed photo cues wanted to spend more time at the festival ($M_{\text{present}} = 32.93$ minutes, $SD = 19.89$ vs. $M_{\text{absent}} = 24.00$ minutes, $SD = 14.72$; $F(1, 51) = 3.43$, $p = .070$). Further, viewing the photos increased respondents' likelihood of sharing photos of the campus festival with others ($M_{\text{present}} = 3.33$, $SD = 2.02$ vs. $M_{\text{absent}} = 2.50$, $SD = 1.56$; $F(1, 51) = 2.82$, $p = .099$).

3.2.2.3. Discussion

Using a first-person video of a relevant, real-world experience, Study 1B provides evidence that photo cues impact consumers' behavioral responses beyond emotional responses. People expressed a greater interest in revisiting the event and spending more time at the event when they viewed photos from their past experience. In addition, viewing photos encouraged participants to share their photos from the event with others.

Despite the small sample size (which was due to the individual-level data collection), there is evidence that photo cues can boost consumers' behavioral responses in addition to emotional responses tested in Study 1A.

3.3. STUDY 2

In Studies 1A and 1B, various simulations and videos were used as stimuli for the virtual experiences. This provides a high level of control, standardizing the experience across participants, but with some loss of realism. An alternative is to use people's actual experiences, which are likely to be more engaging and memorable. In Studies 2A and 2B, I replicate the earlier findings using participants' real-world experiences to demonstrate the generalizability of the findings and enhance the external validity of this research.

3.3.1. STUDY 2A: REMEMBERING COLLEGE LIFE BEFORE THE PANDEMIC

Study 2A examines whether photo cues impact consumers' remembered enjoyment in a natural setting with consumers' own experiences. The study was conducted in Fall, 2020 when many universities in the U.S. moved classes online and restricted social gatherings, activities, and events due to the COVID-19 pandemic. Since students' college lives changed dramatically during the pandemic, with many restrictions, I was interested in measuring how well they recalled their college experience before the pandemic, both with and without photo cues.

3.3.1.1. Methods

Participants and Design. A total of 206 undergraduate students (38.3% female; $M_{\text{age}} = 20.35$, $SD = .72$) from Indiana University took part in this study in exchange for partial course

credit. The study was conducted online and none of the participants were freshmen. Considering the situation surrounding COVID-19, some of the students were living away from the university campus and taking all of their classes online. I was unable to compare the two groups due to the large discrepancy of the sample sizes (out of town $N = 21$ vs. in town $N = 185$). To hold all conditions constant except for the experimental manipulations, I removed the data from the students who were outside of town ($N = 21$) and only used the data from the students who resided in town (either on or off campus) during the semester when this study was conducted. Thus, a total of 185 participants (36.8% female; $M_{age} = 20.38$, $SD = .73$) were included in the analysis. Participants were randomly assigned to one of two photo-cue conditions (present vs. absent).

Procedure. Participants were asked to complete a brief survey on “Indiana University Student Life.” First, they were asked to report where they are currently living: in the town where the campus is located or outside of town. In the “photo-cue present” condition, five photos featuring the Indiana University campus and students were presented with a question, whereas the “photo-cue absent” condition presented a question without photos. The photos used as retrieval cues included pictures of campus landmarks, a group of students wearing school apparel, and a crowded campus with students. These contexts were different from what students experienced during their time in town when the study was conducted. Covid restrictions included no gatherings, no in-person events, closed facilities, mandatory masking, and online classes. Participants were asked to recall their memories of the college life before the pandemic and indicate how much they enjoyed it (7-point Likert Scale; 1: Not at all, 7: Very much).

3.3.1.2. Results

A one-way analysis of variance (ANOVA) revealed significant differences between the two photo-cue (present vs. absent) conditions on remembered enjoyment. Specifically, participants were more likely to recall that they enjoyed their campus life before the pandemic when the photo cues were present ($M = 6.55$, $SD = .81$) compared to when they were absent ($M = 6.24$, $SD = 1.08$; $F(1, 183) = 4.68$, $p = .032$).

3.3.1.3. Discussion

Replicating the earlier findings, Study 2A demonstrates a positive effect of photo cues on remembered enjoyment of consumers' real-world experiences. In addition, I provide evidence that there is a photo cue effect, not only with one-time experiences such as attending a campus festival, but also with broader and longer-term experiences such as one's campus life, which can be a combination of various experiences. In addition, the participants of this study came back to campus five months after their courses were moved online (from March to August, 2020). This five-month interval between pre-pandemic college life and the recall task during the study allows us to measure if the memory cue is effective after a longer time period.

3.3.2. STUDY 2B: REMEMBERING VARIOUS OCCASIONS IN THE PAST

Study 2B extends the findings in three important ways. First, participants were asked to recall their personal experiences during special occasions in the past. Second, participants were asked to recall four different occasions and answer questions for each occasion. By including multiple experiences, I could examine whether the photo-cue effect generalized across occasions or was limited to a specific type of occasion. Participants were asked to recall their last

Christmas, birthday party, vacation, and college party. These occasions were selected as a result of a pretest among 250 participants from the same pool. In the pretest, participants were provided with a list of various activities and occasions and asked to indicate those where they took at least one photo and currently have access to the image(s). Last Christmas, birthday party, vacation, and college party are the four occasions when the most people indicated having taken at least one photo and currently have access to the image(s). Lastly, in the photo cue condition, they were asked to view their own photos taken during the occasions as a memory cue.

3.3.2.1. Methods

Participants and Design. Two hundred and thirty-seven undergraduate students (32.1% female; $M_{\text{age}} = 20.63$, $SD = .85$) participated in this study in exchange for partial course credit. In addition, I randomly selected 10 participants to receive a \$20 Amazon gift card. This study employed a 4 (occasion: Christmas vs. birthday vs. vacation vs. college party) \times 2 (photo cue: present vs. absent) mixed design. Occasion was a within-subject variable and photo cue was a between-subject variable.

Procedure. Participants were asked to recall the last time they experienced the occasion. To rule out the confounding factor of event timing, the instructions specified the time frame of the occasion: Christmas in the year before the study, last birthday, last vacation in the last 12 months, and a college party in the last 12 months. In the photo-cue present condition, they were asked to look on their own device (e.g., smartphone, computer, cloud storage, etc.) for a photo of the occasion and upload it to the online questionnaire. In the photo-cue absent condition, they skipped this photo-upload task.

Then, they completed a questionnaire either with the photo they uploaded present (photo-cue present condition) or without a photo (photo-cue absent condition). I measured the emotions that participants remembered from the occasions (enjoy, excited, and happy). The scores for these three items were averaged to create an index of “remembered positive reaction” (Christmas: $\alpha = .91$; Birthday: $\alpha = .95$; Vacation: $\alpha = .95$; College party: $\alpha = .95$). I also measured how engaging they found the occasion. Next, they were asked to indicate how much they miss the occasion, how much they want to go back and relive the experience, how much they want to do a similar activity again, and how likely they are to share the experience with others. In addition, to rule out the possibility that consumers’ feelings of remembrance triggered a perception of greater remembered enjoyment (regardless of cue presence), I added a question asking how well they can remember the occasion (all items in this study used 7-point Likert Scale; 1: Not at all, 7: Very much). After participants finished responding to the questions on each recalled occasion, they moved on to the next occasion and followed the same procedure.

3.3.2.2. Results

The “remembered positive emotion” index was submitted to a 4 (occasion: Christmas vs. birthday vs. vacation vs. college party) \times 2 (photo cue: present vs. absent) mixed ANOVA with “occasion” as a within-subject factor and “photo cue” as a between-subject factor. The photo cue manipulation had a significant main effect on (a) the remembered positive emotion index, and how much participants (b) miss the occasion, (c) want to go back and relive the experience, (d) want to engage in similar activities, and (e) are likely to share the experience with others. Specifically, across the four occasions, participants were more likely to remember positive emotions when they viewed their photos of the occasion by uploading it to the study ($M = 5.91$,

SD = .80) compared to when they did not view the photo ($M = 5.51$, $SD = .93$; $F(1, 235) = 12.30$, $p = .001$) (see Figure 8). Participants were more likely to miss the occasions when they have viewed their photos ($M = 5.17$, $SD = 1.17$) compared to when they did not view the photos ($M = 4.78$, $SD = 1.24$; $F(1, 235) = 6.15$, $p = .014$). Photo cue also increased participants' desire to go back and relive the experience ($M_{\text{present}} = 5.33$, $SD = 1.16$ vs. $M_{\text{absent}} = 4.82$, $SD = 1.28$; $F(1, 235) = 9.96$, $p = .002$), interest in doing similar activities ($M_{\text{present}} = 5.73$, $SD = .95$ vs. $M_{\text{absent}} = 5.25$, $SD = 1.16$; $F(1, 235) = 11.81$, $p = .001$), and likelihood of sharing their experience with others ($M_{\text{present}} = 5.59$, $SD = 1.06$ vs. $M_{\text{absent}} = 5.17$, $SD = 1.37$; $F(1, 235) = 6.87$, $p = .009$). These three items represent their behavioral intentions.

-- See Figure 8 --

As predicted, there was no effect of photo cue on how well participants felt they remembered the occasions ($p = .21$), ruling out the alternative explanation that participants feel like they remember more of the experience with the help of the photo cue and base their judgment of enjoyment on the amount of information recalled. Instead, the findings are in line with the prediction based on the part-set cuing effect (Alba and Chattopadhyay 1985; Rundus 1973) that consumers remember only part of their experience, and photo cues trigger their memory of enjoyment while suppressing other details and emotions associated with the experience. Furthermore, as predicted, remembered positive emotion mediated this effect (Indirect B = .41; 95% CI: .18, .64) (see Figure 9). This was a complete mediation where the effect of photo cue presence on repurchase intention is transmitted through remembered positive emotion.

-- See Figure 9 --

In addition, the main effect of occasion on the remembered positive reaction was significant (Wilks' Lamda = 0.90, $F(3, 233) = 8.69$, $p < .001$). Specifically, participants had a greater positive emotion to their last vacation ($M = 6.01$, $SD = 1.26$) than to their last Christmas ($M = 5.72$, $SD = 1.21$; $p = .032$), birthday party ($M = 5.46$, $SD = 1.55$; $p < .001$), or college party ($M = 5.63$, $SD = 1.46$; $p = .002$). Furthermore, there was a significant main effect of occasion on how much participants miss the occasion (Wilks' Lamda = .66, $F(3, 233) = 40.30$, $p < .001$) such that Christmas party ($M = 4.56$, $SD = 1.86$) and birthday ($M = 4.37$, $SD = 2.05$) showed no difference in scores ($p = .24$), and these two occasions were reported as being significantly less missed than vacation ($M = 5.80$, $SD = 1.62$; both $ps < .001$) and college party ($M = 5.16$, $SD = 2.02$; both $ps < .001$). Vacation had a higher score than the other three occasions (all $ps < .001$). Similarly, the significant main effect of occasion on desire to go back and relive the experience (Wilks' Lamda = 0.68, $F(3, 233) = 37.34$, $p < .001$) revealed that Christmas party ($M = 4.66$, $SD = 1.90$) and birthday ($M = 4.54$, $SD = 2.13$) showed no difference in scores ($p = .43$) with scores lower than college party ($M = 5.19$, $SD = 1.92$; Christmas: $p = .001$; birthday: $p < .001$), and vacation was most highly rated ($M = 5.89$, $SD = 1.56$; all $ps < .001$). An ANOVA revealed that there is also a main effect of occasion on interest in doing a similar activity (Wilks' Lamda = 0.76, $F(3, 233) = 24.13$, $p < .001$). Specifically, birthday had the lowest score ($M = 4.79$, $SD = 2.05$; all $ps < .001$), Christmas ($M = 5.54$, $SD = 1.62$) and college party had a similar score ($M = 5.54$, $SD = 1.80$; $p = .97$) but higher than birthday (both $ps < .001$), and just like other measures, vacation had the highest score ($M = 6.06$, $SD = 1.50$; all $ps < .001$). Lastly, the main effect of occasion on how much participants are likely to share the experience with others (Wilks' Lamda

= 0.82, $F(3, 233) = 17.28, p < .001$) revealed that the vacation was reported as the experience participants are most likely to share ($M = 5.91, SD = 1.62$; all $ps < .001$), but there was no differences among the other occasions (all $ps > .12$).

The interaction effect between the occasion and the photo cue was not significant for any of the measures (remembered positive emotion: $p = .90$; miss: $p = .95$; go back and relive: $p = .88$; similar activity: $p = .77$; share: $p = .24$).

3.3.2.3. Discussion

Study 2B extends the findings of Study 2A by exploring how participants viewing of their own photos can trigger the memory of their emotions experienced during past occasions. Also, by showing the robustness of the photo cue effect across four different occasions, this study provides evidence that the photo cueing effect generalizes across various types of experiences.

Note that participants were not asked to upload photos of positive or peak moments. Instead, they were simply asked to upload a photo of the occasion. However, viewing their photos led to greater memory for positive reactions and repeat intentions. I speculate that this is because people usually take photos when they are enjoying the experience or when they have positive emotions, and these photos are more likely to be saved. Thus, it's likely that the photos which participants viewed and uploaded during the study were taken during the positive-peak moments of their experiences, which resulted in greater remembrance of positive emotions and repeat intentions.

Studies 3-5 explore whether specific moments of past experiences can be selectively triggered by photo cues to shape consumers' memories of their emotional responses and behavioral intentions.

3.4. STUDY 3: SELECTIVE CUEING OF EMOTIONALLY ENGAGING MOMENTS

In Studies 1 and 2, I found that photo cues can stimulate consumers' memory and positively impact behavioral intentions. Customer experiences are dynamic and vary in the levels of engagement and the types of emotional responses that occur over time. Some moments are more important to consumers than others because they are more engaging and memorable and have more emotional loadings (Kahneman 1999; Redelmeier, Katz, and Kahneman 2003). Extending the previous study's investigation of photo cues and emotional engagement, Study 3 explores which moments of the experience will be more or less effective cues to impact consumers' remembered enjoyment and behavioral intentions.

For many consumer experiences, there are a wide array of photographic images that could be used to trigger memories of a past activity. For example, while riding a theme park attraction, a consumer may attend to scenes that uniquely identify the attraction (such as the ride entrance or iconic, branded characters) and scenes that evoke intense emotional experiences (such as surprising images and events). Photos of both types of scenes could serve as effective memory cues, but those showing emotionally engaging (i.e., "peak") scenes are predicted to have the greatest impact on the remembered experience and behavioral intentions. Study 3 examines whether photos of emotionally engaging scenes (i.e., "peak experiences") have a greater impact on remembered emotions and behavioral intentions than photos of non-peak scenes or a no-photo control condition. In this study, images of scenes that are frequently photographed but not

emotional peaks are used as non-peak cues. This is potentially more interesting to marketers than non-peak scenes that attract little attention from customers.

In this study, I identify peak moments using a custom-developed keypress methodology. As stated in the theoretical background section, I define peak moments as the most emotionally engaging moments during the experience. A pretest was conducted with the same participant pool to identify peak and non-peak scenes from the video. Fifty-nine undergraduate students (42.0% female, $M_{\text{age}} = 20.27$, $SD = 1.13$) participated in this study and received partial course credit as compensation. Pretest participants were asked to press the “up arrow” key on their keyboards when feeling emotionally engaged while watching the video, and the computer tracked the percentage of people who pressed the key at each moment. The two scenes with the highest percentage of engaged people were selected as the peak cues for use in the main study.

A separate pretest used a similar procedure to measure how often and when people would “take photos” during the video experience. Forty-four undergraduate students (30.0% female, $M_{\text{age}} = 20.36$, $SD = .57$) participated in this study and received partial course credit as compensation. Participants were asked to press Enter key on their keyboards when they wanted to take a photo while watching the video. A camera shutter sound was added when participants press the Enter key to enhance the reality. Scenes that were photographed by high percentage of people (but not flagged as emotionally engaging) were selected as the non-peak cues for the main study (see Figure 10).

-- See Figure 10 --

3.4.1. Methods

Participants and Design. A total of 143 undergraduate students (45.7% female, $M_{\text{age}} = 20.51$, $SD = .92$) at Indiana University participated in this study in exchange for partial course credit. The participants were randomly assigned to one of three photo cue (peak-cue vs. non-peak cue vs. no cue) conditions in the between-subjects design.

Procedure. Respondents participated in a virtual experience of “Jurassic World – The Ride” by watching a 7.5-minute, first-person video on a computer screen followed by a 15-minute filler task. Next, they completed a questionnaire measuring the emotions they recalled experiencing during the video, repurchase intentions, and willingness to recommend the activity (7-point Likert Scale; 1: Not at all, 7: Very much) while being shown either (1) two photos of scenes with the highest measured levels of emotional engagement (peak-cue condition), (2) two photos of scenes that are less emotionally engaging, but still frequently photographed and unique to the experience (non-peak cue), or (3) no photos (no-cue control condition). They also completed a task to write an online review.

3.4.2. Results

A two-way ANOVA revealed a significant difference in the response to photo cues for people who had visited Universal Studios and rode the ride versus those who had not. The data were therefore split into two groups for analysis. With the first group of “experienced” participants, cue type had a significant impact on the memory of feeling surprise ($F(42, 45) = 4.01$, $p = .025$). The experienced participants remembered greater surprise when the peak cue was presented ($M = 5.19$, $SD = 1.68$) compared to when the non-peak cue was presented ($M = 3.31$, $SD = 1.84$, $p = .021$). However, there was no significant difference with the no-cue

condition ($M = 4.31$, $SD = 1.82$, $p > .51$) (see Figure 11). Moreover, there was a marginally significant effect of cue type with the “experienced” participants ($F(42, 45) = 3.13$, $p = .054$) on revisit intention. These participants indicated greater revisit intention when the peak cue was presented ($M = 6.31$, $SD = 1.06$) compared to when there was no cue ($M = 5.44$, $SD = .93$, $p = .077$). However, there was no difference with the non-peak cue ($M = 5.54$, $SD = 1.23$, $p > .10$). In contrast, the cuing manipulation was not significant for participants who had no real-life experience with the ride (see Figure 12). There was no significant effect of cue type on recommendation intention ($p > .14$).

-- See Figures 11 and 12 --

3.4.3. Discussion

This study examined the moderating role of emotionally peak versus non-peak moments as retrieval cues. Surprise is an emotion that consumers are likely to experience during Jurassic World – The Ride as it is a theme park ride where a boat floats through dark caves, a variety of dinosaurs suddenly emerge, and water splashes. Also, surprise may be the emotion that makes consumers enjoy this experience. The captured emotional peak scenes reflect these emotions, and when they are used as photo cues, participants remembered greater surprise compared to the non-peak cue condition which showed popular photo spots. Also, the results replicated the earlier finding that presenting photos can enhance repurchase intentions compared to the no-photo condition. The difference between the effect of emotional peaks and popular photo spots (non-peak cue) was not observed with revisit intention. I speculate that this is because remembered

“surprise” may not be a strong factor driving consumers to repeat an experience (compared, e.g., to remembered “enjoyment”).

Across all cueing conditions, the levels of remembered surprise are relatively low for the people who just watched the video (i.e., people with no real-world experience of Jurassic World ride). However, for people who have actually been on the ride, remembered surprise jumps substantially when they are exposed to the peak cue. The differential results between the two groups suggest that the findings are not just due to a “mere photo effect” (i.e., participants are not responding to questions simply based on the photos). Photos triggered the memory of participants’ past experiences. These findings suggest that peak cues are most effective for real-world rather than simulated experiences.

In addition, the results from the pretests show that people do not always take photos when they are emotionally engaged. They often take photos of other scenes, including those that uniquely identify the attraction such as the ride entrance or iconic, branded characters. Firms may be tempted to use the latter photos in their advertisements and other promotional materials. However, the results from this study suggest that using emotionally peak scenes as cues will evoke greater emotional response than using frequently photographed but non-peak scenes.

3.5. STUDY 4: SELECTIVE CUEING OF POSITIVE AND NEGATIVE MOMENTS

Extending the previous study, which examined different moments as cues, Study 4 explores whether photo cues can selectively trigger positive and negative memories of a past experience. In this study, I examine the moderating role of cue type to test which moment of the experience should be cued to evoke remembered enjoyment and encourage favorable behavioral responses. I expect that photo cues associated with positive moments will be more likely to

trigger enjoyable memories and enhance repeat consumption intentions, and recommendation intentions than those associated with negative moments.

In this study, participants were asked to watch two different types of videos. This task was selected as the customer experience because watching videos is a prevalent consumer pastime. In the U.S., there were 239 million video viewers in 2020, and digital video penetration in the U.S. is 83.8% (Statista 2021). Also, video streaming revenue in the U.S. reached 24 billion dollars (Statista 2020). Consumers experience different emotions to varying degrees as they watch a video. Based on Bower and Forgas (2001), I predict that consumers will remember greater positive emotions when they are cued with positive (vs. negative)-peak scenes and greater negative emotions when they are cued with negative (vs. positive)-peak scenes from the video. In addition, I predict that positive-peak scenes will increase repurchase intentions and recommendation likelihood.

In this study, I identified positive and negative peaks using a keypress methodology as in Study 3. I conducted a pretest among 37 participants from the same pool to capture positive peak scenes and negative peak scenes from the videos. Participants watched a series of videos, pressing two keys on the computer keyboard to indicate their moment-by-moment emotional response. As they watched each video, they pressed the “up arrow” key when they experienced positive emotions and the “down arrow” key when experiencing negative emotions. The three scenes with the highest percent of up-arrow presses were selected as the positive peak cues, and those with the highest percent of down-arrow presses were chosen as negative peak cues for use in the main study (see Figure 13).

-- See Figure 13 --

Since I am examining the effect of emotionally engaging moments as cues, I compare consumers' responses to an emotionally engaging video and a video which evokes little emotional response. Furthermore, I measure various emotions in addition to enjoyment to test which emotions are triggered by the positive and negative peak cues. The set of emotions is adapted from Plutchik's Wheel of Emotions (Plutchik 1980): "joy," "trust," "fear," "surprise," "sadness," "disgust," "anger," and "anticipation." These primary emotions are based on the physiological reaction each emotion creates and are paired as polar opposites (joy-sadness; fear-anger; anticipation-surprise; disgust-trust). The goal is to measure the general emotions people experience in everyday life instead of a few selected emotions specific to the videos.

3.5.1. Methods

Participants and Design. A total of 317 undergraduate students (43.8% female; $M_{\text{age}} = 20.63$, $SD = .98$) participated in this study in return for partial course credit. Sixty-eight participants who reported having watched either video before study were removed from the analysis because this may impact their memory of emotions when responding to the survey questions. Thus, a total of 249 participants (41.8% female; $M_{\text{age}} = 20.58$, $SD = .95$) were included in the analysis. The experiment employed 2 (video type: emotional vs. non-emotional) \times 3 (cue: positive peak vs. negative peak vs. absent) mixed design. The video type is a within-subject factor and photo cue is a between-subject factor.

Procedure. Each participant watched two videos: one with strong emotional components and a second that evoked little emotion. The order was counterbalanced across respondents. In the first, emotional-video condition, participants watched an animation video featuring a personified dog receiving training, passing an exam, and becoming a working dog. This video

has a story, and different scenes in the video trigger different positive and negative emotions. In the second, low-emotion condition, participants watched a French-toast-cooking video. The video shows the preparation of French toast, from the initial ingredients and cooking to the completed dish.

After watching each video, participants completed a 15-minute distractor task. Next, they were asked to respond to questions about each video. In the “positive peak cue” condition, they were presented with images of the three most positively engaging scenes from the video based on the pretest results. In the “negative peak cue” condition, the three most negatively engaging scenes from the video were presented as cues. In the cue absent condition, no images were presented. The survey measured how much respondents recalled experiencing eight emotions while watching the video: “joy,” “trust,” “fear,” “surprise,” “sadness,” “disgust,” “anger,” and “anticipation” (Plutchik 1980). Next, they were asked to rate their overall evaluation of the video (“How much did you enjoy watching this video?”, “How much did you like this video?”). These two items were averaged to form an overall evaluation index ($\alpha = .95$). Then, they were asked to report their behavioral intentions such as how much they would recommend this video to others, how much they are interested in watching this video again, and how much they want to watch other videos from the same producer of this. The latter two items were averaged to form an index of repeat intentions ($\alpha = .82$) (all items in this study used 7-point Likert Scale; 1: Not at all, 7: Very much). At the end of the study, participants were asked to indicate if they had watched either of these videos prior to participating in this study.

3.5.2. Results

Emotions. The results revealed a significant or marginally significant interaction effect with joy, trust, disgust, and sadness. Specifically, with the emotional video, the negative peak cue ($M = 4.50$, $SD = 2.13$) reduced the remembered experience of joy compared to the positive peak cue ($M = 6.32$, $SD = 1.07$; $t(73.22) = -5.37$, $p < .001$) and no cue conditions ($M = 6.28$, $SD = .78$; $t(61.91) = -5.55$, $p < .001$). Similarly, the negative peak cue ($M = 3.92$, $SD = 1.93$) reduced the remembered experience of trust compared to the positive peak cue ($M = 4.66$, $SD = 1.90$; $t(95) = -1.90$, $p = .053$) and no cue conditions ($M = 4.92$, $SD = 1.61$; $t(98) = -2.81$, $p = .008$). On the contrary, the negative peak cue ($M = 5.42$, $SD = 1.34$) increased the remembered experience of sadness compared to the positive peak cue ($M = 4.72$, $SD = 1.72$; $t(86.91) = 2.23$, $p = .009$) and no cue conditions ($M = 4.72$, $SD = 1.59$; $t(98) = 2.38$, $p = .008$). Similarly, the negative peak cue ($M = 1.78$, $SD = 1.30$) increased the remembered experience of disgust compared to the positive peak cue ($M = 1.28$, $SD = .65$; $t(73.03) = 2.42$, $p = .023$) and no cue conditions ($M = 1.28$, $SD = .57$; $t(67.17) = 2.49$, $p = .022$). There were no differences between the cue conditions on any of the measures with the non-emotional video (all $ps > .62$) except for the disgust ($M_{\text{positive cue}} = 1.91$, $SD = 1.64$ vs. $M_{\text{no cue}} = 1.29$, $SD = .87$; $t(50.21) = 1.95$, $p = .020$). There was no difference on other emotion items with either emotional video or non-emotional video (all $ps > .27$).

Overall Evaluation. A marginally significant interaction revealed that participants evaluated the overall video differently based on the cue types that were presented after watching an emotional video, but not after watching a non-emotional video. A simple effect analysis revealed that when participants watched the emotional video, they evaluated the overall video as less positive with a negative peak cue ($M = 5.49$, $SD = 1.29$) compared to a positive peak cue (M

= 6.06, SD = 1.10; $t(95) = -2.34, p = .035$) and no cue ($M = 6.20, SD = .97; t(90.99) = -3.11, p = .008$). There were no differences between the cue conditions on any of the measures with the non-emotional video ($p > .81$).

Behavioral Measures. The results revealed a significant interaction effect with recommendation intentions. A simple effect analysis revealed that when participants watched the emotional video, they indicated a lower recommendation likelihood in response to a negative-peak cue ($M = 4.48, SD = 1.74$) compared to a positive peak cue ($M = 5.49, SD = 1.61; t(95) = -2.96, p = .004$) and no cue ($M = 5.50, SD = 1.56; t(98) = -3.09, p = .003$). In addition, there was a significant interaction on repeat intentions. Specifically, watching an emotional video and being presented with a negative cue ($M = 4.33, SD = 1.52$) led to reduced repeat intentions compared to a positive peak cue ($M = 5.06, SD = 1.60; t(95) = -2.30, p = .022$) and no cue ($M = 5.23, SD = 1.32; t(98) = -3.16, p = .004$). There were no differences between the cue conditions on any of the measures with non-emotional videos ($p > .43$) (see Figure 14).

-- See Figure 14 --

3.5.3. Discussion

This study examined how specific moments of a past experience can be triggered in memory to positively impact consumer emotions and market outcomes. As predicted, photo cues increased or decreased the remembered emotions with an emotional video, but this effect disappeared with a non-emotional video. In line with the literature, due to the part-set cueing effect (Alba and Chattopadhyay 1985; Rundus 1973), participants remembered greater negative emotions and less positive emotions when they were exposed to negative-peak cues (vs. positive-

peak or no cues). Furthermore, the presence of negative cues decreased positive evaluation of the overall video experience, recommendation likelihood, and repurchase intentions. This study also showed how to identify the most emotionally engaging or “peak” moments of an experience using a video pretest and up/down-arrow key-press methodology. The results emphasized the importance of cueing the “right” moment. If negative moments are cued, it is worse than presenting no cue at all in bringing positive outcomes.

3.6. STUDY 5: BIOMETRIC IDENTIFICATION OF PEAK CUES AND HMD IMMERSION

Study 5 replicates the earlier findings comparing the effect of different moments as cues (peak vs. non-peak). In the earlier studies, participants watched simulation videos projected on a wall-sized screen or displayed on a computer monitor. To enhance the realism of the experience and the feeling of immersion, this study used a head-mounted display for the virtual reality simulation. Additionally, biometric measures of galvanic skin response (GSR) and heartrate were recorded in addition to eye tracking and self-report measures to provide a more comprehensive assessment of respondents’ emotional engagement with the simulated experience (see Appendix B).

A pretest was conducted to measure the levels of emotional engagement felt during the 360-degree video experience and identify peak and non-peak scenes to be used as photo cues in the main study. Upon arrival to the lab, participants were asked to wear the HMD and take a virtual trip to Japan. The HMD captured visual attention by measuring eye fixations, gaze path, and pupil dilations. Concurrently, a Shimmer device attached to respondents’ hands recorded electrodermal activity (galvanic skin response or GSR) and heart rate variability (HRV), tracking respondents’ moment-by-moment emotional state and arousal level. Additionally, participants

were asked to trigger the button in the HTC controller when they are emotionally engaged. These biometric and behavioral measures were recorded while people viewed the VR simulation. Peak and non-peak scenes were identified based on the combination of these data (see Figure 15).

-- See Figure 15 --

3.6.1. Methods

Participants and Design. Thirty-four undergraduate students (29.4% female; $M_{\text{age}} = 21.06$, $SD = .92$) participated in this study in exchange for partial course credit. The participants were randomly assigned to one of two photo cue (peak vs. non-peak) conditions in the between-subjects design.

Procedure. Upon arrival to the lab, participants were asked to wear an HTC Vive Pro Eye head-mounted display (HMD) and take a virtual trip to the Sensoji Temple area in Japan. The simulation is a first-person 360-degree video converted to a format that is compatible with the HMD. After experiencing the simulation, participants watched two unrelated videos for 10 minutes as a filler task. Next, they were randomly assigned to either a (1) peak-cue condition, where they saw photos from the most emotionally engaging segments of the video, or (2) non-peak-cue condition with scenes from less engaging periods in the video. While viewing the photos, participants completed a questionnaire measuring the enjoyment they recalled experiencing during the VR simulation and their interest in visiting Japan (7-point Likert Scale; 1: Not at all, 7: Very much). Additionally, they were offered a choice of where to visit if they were making a trip to Asia (1: Japan, 2: South Korea, 3: Thailand; counterbalanced order).

3.6.2. Results

A one-way ANOVA revealed a significant main effect of cue type on remembered enjoyment and intention to visit a similar place. Participants who viewed the peak cues ($M = 6.06$, $SD = 1.03$) remembered greater enjoyment compared to participants who viewed non-peak cues ($M = 5.00$, $SD = 1.28$; $F(1, 32) = 7.10$, $p = .012$). Also, participants who viewed peak cues ($M = 6.06$, $SD = .97$) had greater interest in visiting somewhere similar to the Sensoji temple area in Japan compared to those who viewed non-peak cues ($M = 5.00$, $SD = 1.90$; $F(1,32) = 4.18$, $p = .049$). In a similar line, there was a marginally significant effect of cueing on people's preference for Japan as a location for a future visit. Specifically, participants who viewed peak cues were more likely to choose to visit Japan (76.5%) over Korea (0.0%) or Thailand (23.5%) if they were traveling to Asia compared to those who viewed non-peak cues (Japan: 41.2% vs. South Korea: 11.8%, Thailand 47.1%; $B = -1.312$, $SE = .771$, $\chi^2_{\text{Wald}} = 2.90$, $p = .089$) (see Figure 16).

-- See Figure 16 --

3.6.3. Discussion

Study 5 created a more immersive environment for simulating customer experiences. By using a head-mounted display, participants were able to engage in 360-degree 4K virtual experiences that were more realistic than videos shown on conventional desktop or wall displays. This study also used a combination of advanced technology – heart rate, sweat gland activity, and eye tracking – to measure consumers' engagement level in a pretest. Hence, the peak and non-peak scenes are captured based on participants' biometric measures. This adds value to the

research program by providing another approach for measuring consumer reactions other than eye-tracking only (from Studies 1A and 1B) or self-report only (from Studies 3 and 4). Importantly, this study emphasizes the importance of presenting the photos of the “peak” (vs. non-peak) moments to positively impact behavioral intentions and market outcomes.

CHAPTER 4

GENERAL DISCUSSION

4.1. SUMMARY

Customer experiences are dynamic, taking place over time and space, with cognitive, emotional, behavioral, and multisensory elements. Both consumers and firms value the memories that are created through these experiences, as they provide enduring positive feelings, customer loyalty, and favorable word of mouth. Fortunately, photographs and other mementoes can help to capture and keep these experiences and extend enjoyment into the future, with potentially positive market outcomes. In this research, I investigate the influence of photo cues on customers’ memory of enjoyment, their ongoing engagement with these experiences through the viewing of photos, and the subsequent impact on word-of-mouth communication and purchase behavior. A combination of methodologies, including 180VR scenario simulations, head-mounted displays, mobile eye tracking, Galvanic Skin Response, digital image capture, and online surveys provides a comprehensive view of the impact of photo cues on customers’ experiences and their emotional and behavioral responses. I demonstrate the robustness of the

findings across various types of experiences and varying time intervals; from the moment an experience occurs until it is recalled and reported at a later time in response to survey questions.

Studies 1A and 1B created virtual experiences for consumers by showing videos using wall-sized 4K laser projected screens and tracking their visual attention with mobile eye tracking. Study 1A provides initial evidence that photo cues from a prior experience impact consumers' memory of their emotional response, specifically enjoyment. Study 1B extends this research by examining the effect of photo cues on consumers' subsequent behavioral intentions such as intention to repurchase and to share their experience with others. Studies 2A and 2B increase the external validity of the findings by having participants recall a variety of their real-world experiences. Studies 3-5 show the differential effects of cueing different moments of experiences, providing evidence that peak (vs. non-peak) moments are the most effective cues and that positive (negative) emotional moments can be used as cues to trigger the remembrance of positive (negative) emotions. Appendix C provides a summary of results from these studies.

As a supplemental analysis, I compared remembered enjoyment for photo cue present vs. absent conditions across five experiences investigated in the dissertation research (see Appendix D). One of these experiences involved simulating a tour of the Coca-Cola Museum in Atlanta. (It was not included in the body of the dissertation because the initial enjoyment of the experience was relatively low and the photo cueing manipulation was not significant. In other words, consumers have not experienced enjoyment enough to remember it later by viewing photos.) The graph suggests that the size of the cueing effect depends on consumers' initial enjoyment of the experience, with photo cues having the greatest positive impact on the most enjoyable experiences. These results tie back to the findings from previous literature arguing that emotional responses impact subsequent behaviors (Damasio 1994; Fazio and Zanna 1978; Hendersen

1985; Levine, 1997; Levine, Prohaska, Burgess, Rice, and Laulhere 2001; Levine and Safer 2002; Robinson 1980; Smith and Swinyard 1983). Cueing recall of positive experiences enhances positive evaluation and repurchase intentions while cueing recall of negative experiences reduces evaluation and make consumers avoid the experience in the future. The one exception is the campus festival simulation reported in Study 1B, where the cue had a slightly negative effect on remembered enjoyment. However, as noted in the results section, photo cues boosted several of the other dependent variables such as revisit intention and intention for sharing photos of the experience.

4.2. THEORETICAL CONTRIBUTION

This research builds on extant literature by examining the effects of viewing photos after the experience on consumers' retrieval of memories and associated emotions, such as enjoyment, and the consequent impact on future purchase intentions, loyalty towards the products and services, and word-of mouth intentions.

First, this research contributes to the growing literature on the customer experience by exploring how consumers can "capture and keep" their past experiences and the associated emotional reactions with photographic images. The findings suggest that photos can trigger people's memories of past activities, enhancing their remembered enjoyment and influencing future purchase intentions. This work extends prior research, which has focused on factors that increase customer enjoyment "during," but not after, the experience (e.g., Barasch, Zauberaman, and Diehl 2018; Diehl, Zauberaman, and Barasch 2016; Nardini, Lutz, LeBoeuf 2019). It also shines light on how consumers remember their emotional responses and identifies the specific

kinds of cues that will be most effective at evoking remembered enjoyment and encouraging positive recommendations and future purchase intentions.

Second, this research advances the memory literature by identifying a process to enhance consumers' memory of positive emotion experienced in the past. The previous literature has also tended to study memory of objective features such as products people saw and where they have visited (Henkel 2014; Barasch et al. 2017) rather than remembered emotions and their impact on subsequent decisions. This research shows that photos taken during the experience remind consumers of the moments captured in the photos and help them to remember the emotions they felt during their experience. This research examines the role of photo cues, not only on consumers' emotional responses, but also on behavioral responses which directly lead to market outcomes. In addition, this research provides new insights on both memory-encoding and retrieval stages. I examine whether certain emotions consumers had during the experience are retrieved after the experience when the photo of the moment is viewed. This means consumers engage in selective memory retrieval as a result of attentional and emotional factors in encoding influencing retrieval.

4.3. MANAGERIAL IMPLICATIONS

This is the era of experience. Experiences define people as individuals and can greatly affect their life satisfaction (Carter and Gilovich 2012; Van Boven and Gilovich 2003). As consumers put much value on experiences, firms invest substantial resources to create enjoyable customer experiences (Pine and Gilmore 1999; Schmitt 1999). They also benefit from understanding how to enhance the customer's future memory of such experiences and the memories they share with others through social communication. These retained memories affect

the perceived value of the experience to the consumer and its economic value to the firm in the form of customer loyalty and positive word-of-mouth. This research attempts to measure the impact of photo cues on consumer memory and identify the specific kinds of cues that will be most effective at evoking remembered enjoyment and encouraging favorable social messages.

New technologies, such as smartphones, play an important role in the retention and communication of these experiences. Given the growing importance of experiences to consumers and the widespread use of digital photography, it is critical for marketers to understand the influence of photo cues on consumer memory for previously experienced emotions. The number of smartphone users in the U.S. has grown to almost 240 million in 2018 (Statista DMO), and the number of digital photos taken worldwide is estimated to be over 1.2 trillion, with 85% of these photos taken using smartphones (InfoTrends). Over 350 million photos are posted every day, with 80 million photos per day shared on Instagram (Smith 2016). Companies can encourage customers to take photos of their most enjoyable experiences by setting up “photo zones” in locations where customers often have peak experiences, providing staff who can assist with photo taking, and holding photo contests where people can submit photos of their most enjoyable moments.

Customers also need to be prompted to view such photos after the experience to benefit from the cueing effect studied in this research. Companies can utilize social media to encourage customers to review photos of their own and others’ past experiences. Another way to reinforce positive memories is for firms to offer a printing service that provides a physical photo so that customers can later view the image easily, without having to search their digital photo gallery. Similarly, a physical souvenir, such as a customized mug or pouch with a photo on it, can provide a durable reminder of a prized moment. By encouraging consumers to take and share

company- and brand-related photos that capture their peak, positive experiences, firms can help customers to reflect on their positive experiences and enjoyment over time, thus improving brand reputations and customer loyalty (Brakus, Schmitt, and Zarantonello 2009).

4.4. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The findings suggest several future research opportunities. One might predict that photos taken by the consumer during an activity will be more effective memory triggers than “stock photos” because they are (1) taken from the consumer’s point of view and therefore more closely match the encoded memory, and (2) capture the experience during periods of high engagement, where relevance and emotional response are likely to be highest. The act of photo taking may also directly impact consumer attention to the experience (Henkel 2014, Barasch et al. 2017) and the enjoyment experienced during the event (Diehl, Zauberger, and Barash 2016; Nardini, Lutz, and LeBoef 2019). In addition, previous research has shown that self-generated cues are the result of an active process, so these cues distinctively and functionally speak for the important properties of the target memory (Mäntylä and Nilsson 1983) including idiosyncratic details (Hunt and Smith 1996). Also, self-generated stimuli are remembered more accurately than stimuli encoded passively (Wheeler and Gabbert 2017). Thus, it will be important to test whether photos taken by the consumer are more effective cues than ones taken by others or selected based on engagement measures (as was done in Studies 1A, 1B, 3, 4, and 5). To test this, participants would be asked to take photos during the experience and these photos would be presented as retrieval cues during the recollection task in the subsequent survey.

All the dissertation research was conducted in laboratory and online settings. Unfortunately, it was not possible to conduct a field experiment due to restrictions associated

with the Covid-19 pandemic. In the future, I hope to extend the findings to more real-world settings by conducting a field study to evaluate whether the laboratory findings can be replicated in a commercial context. This study may be conducted in cooperation with a company or an event organizer. For example, a theme park would be a rich, complex, and engaging environment to study the encoding and retrieval of customer experiences. I can recruit study participants at the exit gate and ask participants to upload their photos taken during the theme park visit to a secure cloud server. At a later time, one randomly selected group will be sent a questionnaire with the photos they uploaded and a second group will receive a questionnaire without photos. A follow-up survey will measure how many respondents subsequently visit the theme park and share their photos.

This research only focused on photo cues, but there are opportunities to explore the dynamic and multisensory elements of memory and identify the cues that are the most effective triggers of remembered enjoyment. In addition to static visual cues (e.g., photos), text, sound, video clips, touch, smell, and taste can all potentially work as memory cues to boost people's memory of an experience. For instance, for some experiences such as attending a music performance, an audio cue may be much more effective than a photo at boosting memories of the emotions experienced during the music performance. Future research can utilize different types of stimuli as memory cues and explore which are most effective in helping customers recall their enjoyment and relive their past experiences.

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FIGURE 1

ENCODING AND RETRIEVAL OF THE CUSTOMER EXPERIENCE AND THE INFLUENCE OF PHOTOS TAKEN ON REMEMBERED ENJOYMENT AND MARKETPLACE OUTCOMES

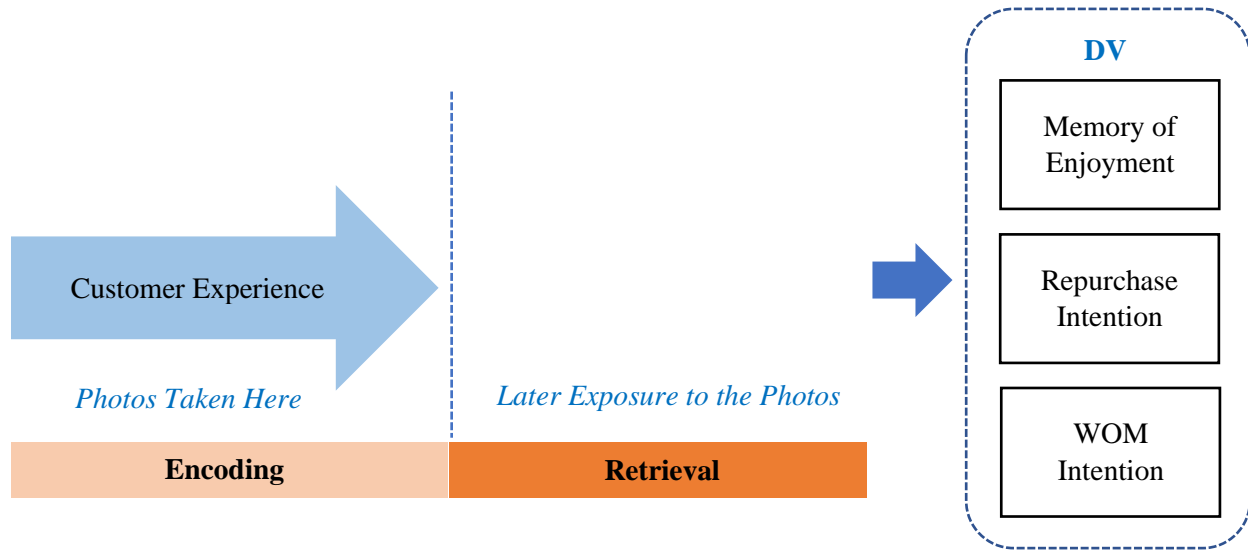


FIGURE 2

PEAK-END RULE

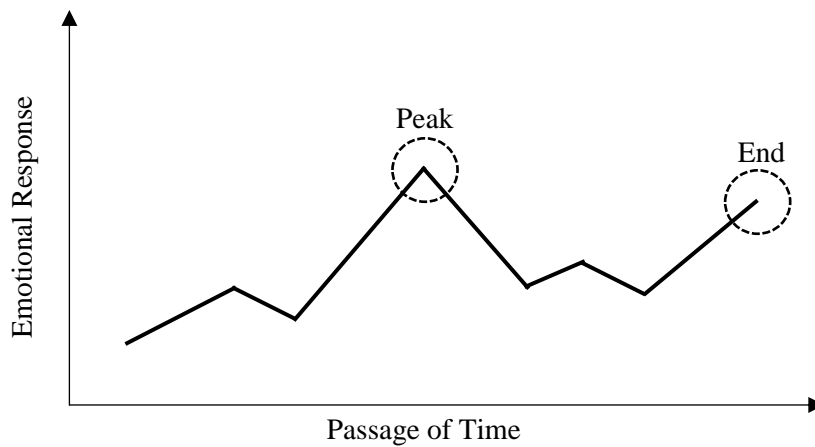


FIGURE 3
CONSUMER RECOLLECTION OF THE EXPERIENCE WITH AND WITHOUT
EXPOSURE TO PHOTOS

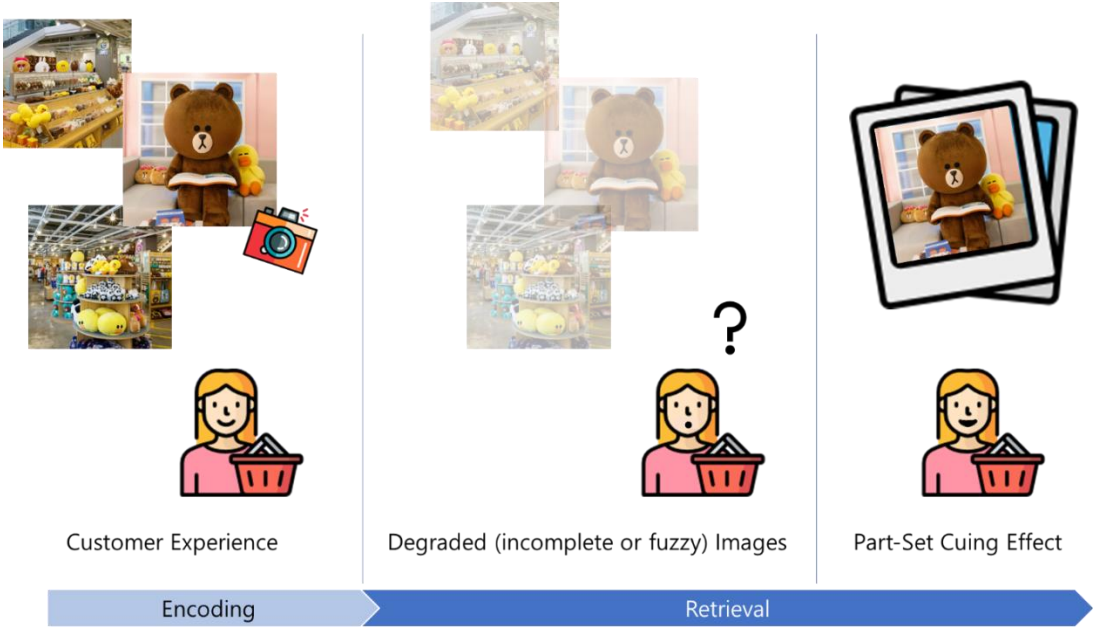


FIGURE 4
CONCEPTUAL FRAMEWORK

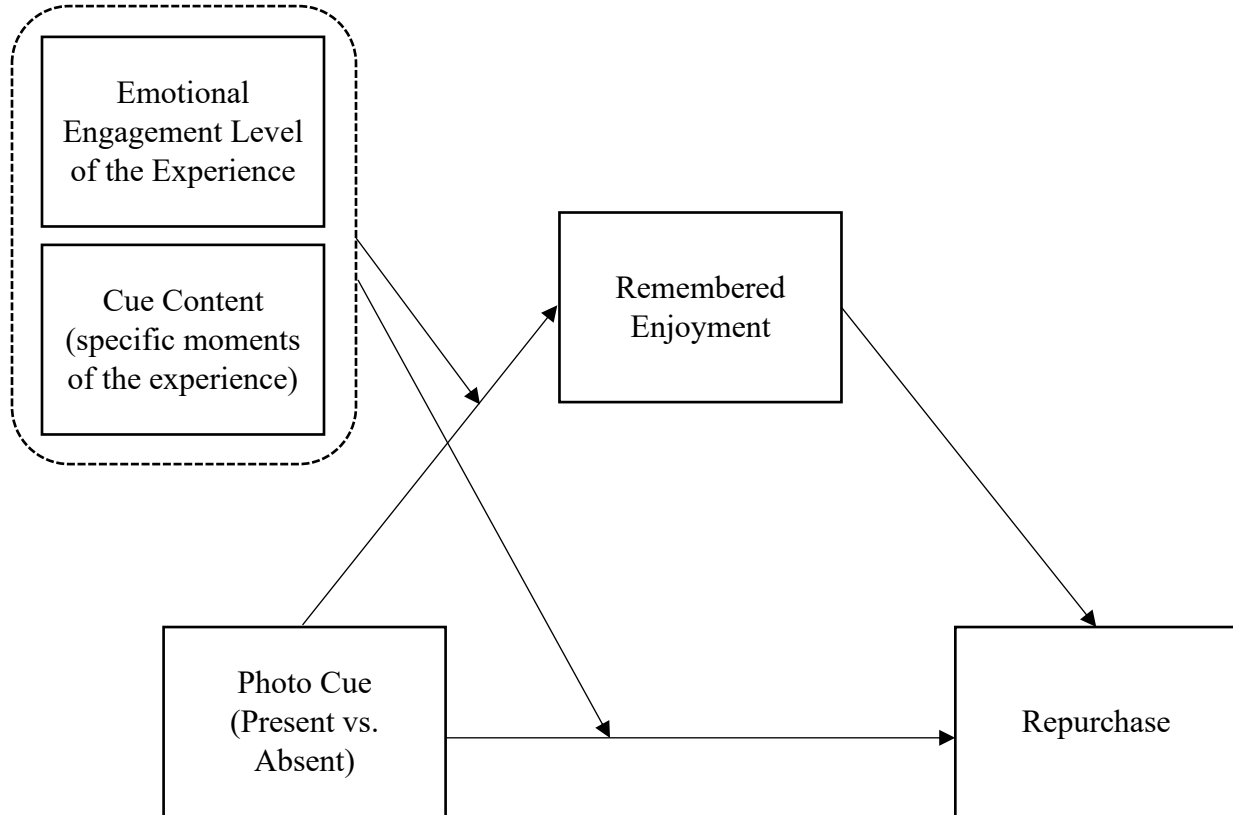


FIGURE 5

STUDIES 1A & 1B: VIRTUAL EXPERIENCE IN THE LAB

Wall-Sized 4K Laser-Projected Display Screen



Mobile Eye Tracking Glasses
(Product Model: Tobii Glasses 2)

Participant

Eye Tracking Recorder

FIGURE 6
STUDY 1A: EYE TRACKING DATA – FRANKFURT TOUR
PEAK MOMENT



FIGURE 7

**STUDY 1B: EYE TRACKING DATA - CAMPUS FESTIVAL
PEAK SCENE (UPPER) AND NON-PEAK SCENE (LOWER)**

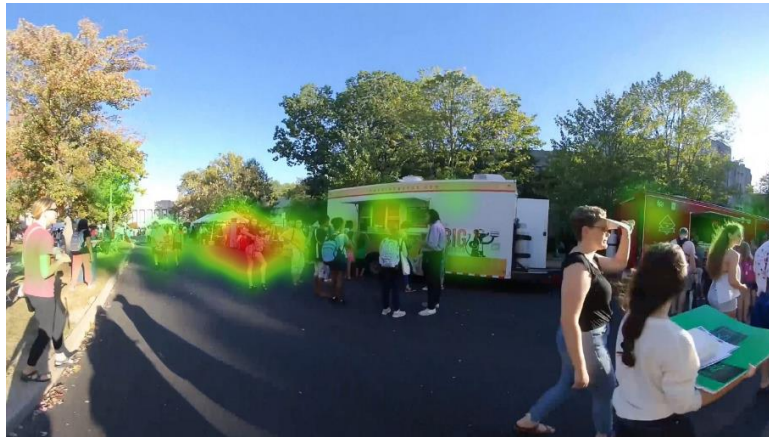


FIGURE 8

STUDY 2B: THE EFFECT OF PHOTO CUES ON REMEMBERED POSITIVE EMOTION ACROSS FOUR OCCASIONS

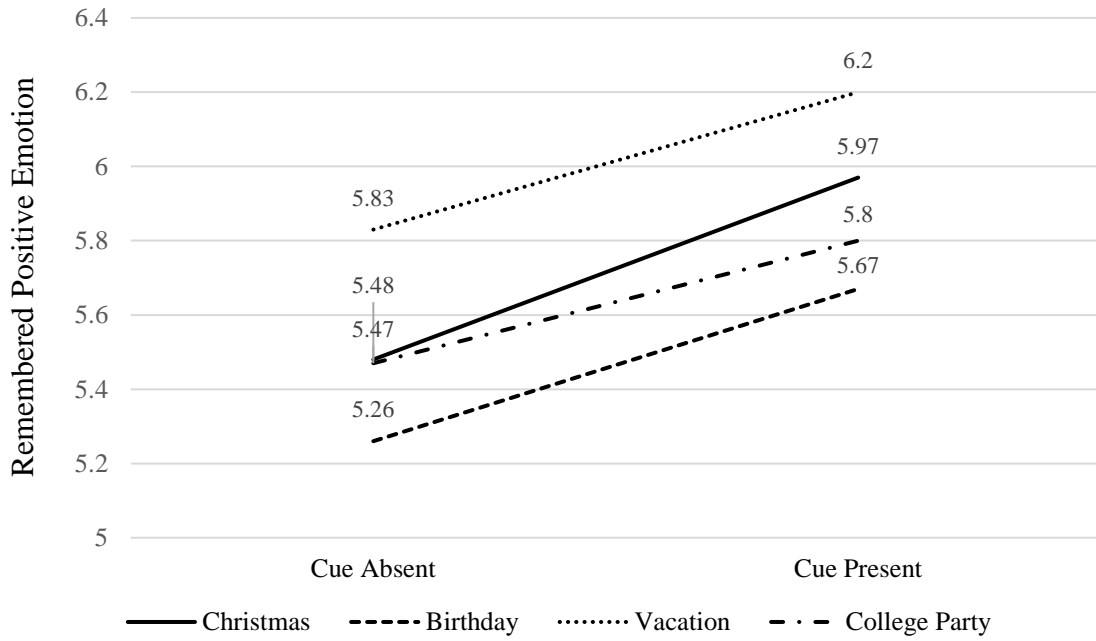
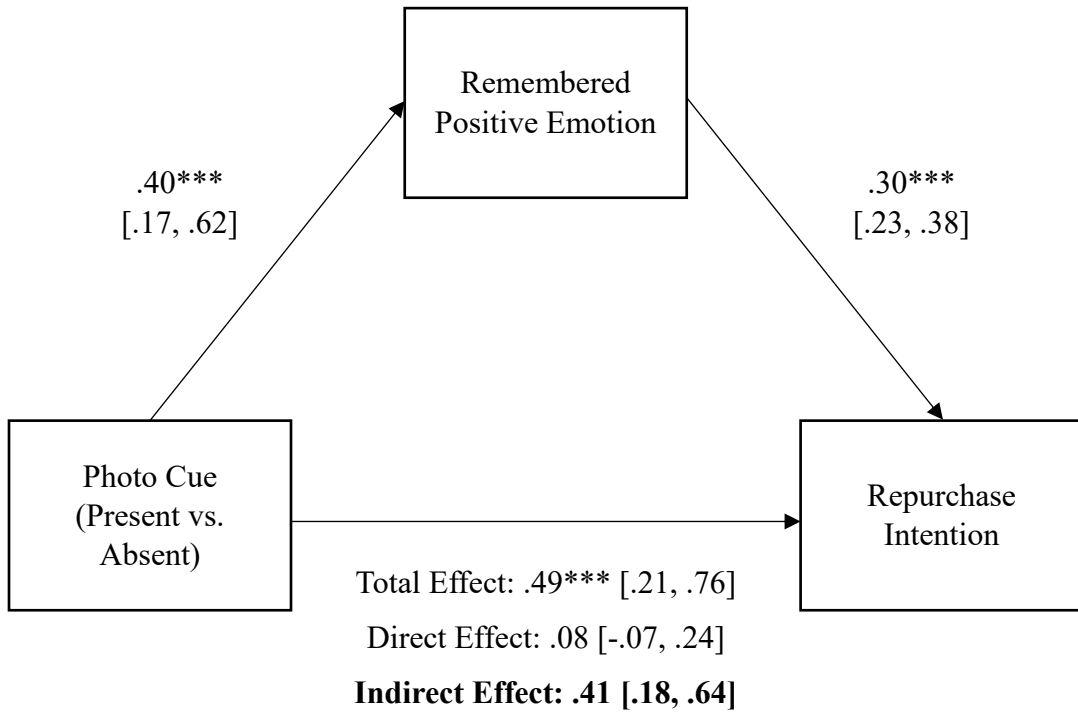


FIGURE 9

STUDY 2B: REMEMBERED POSITIVE EMOTION MEDIATES THE EFFECT OF PHOTO CUE PRESENCE ON REPURCHASE INTENTIONS



***: $p < .001$

(Hayes 2017, Model 4)

FIGURE 10

STUDY 3: PEAK ENGAGEMENT AND PHOTO TAKING MOMENTS

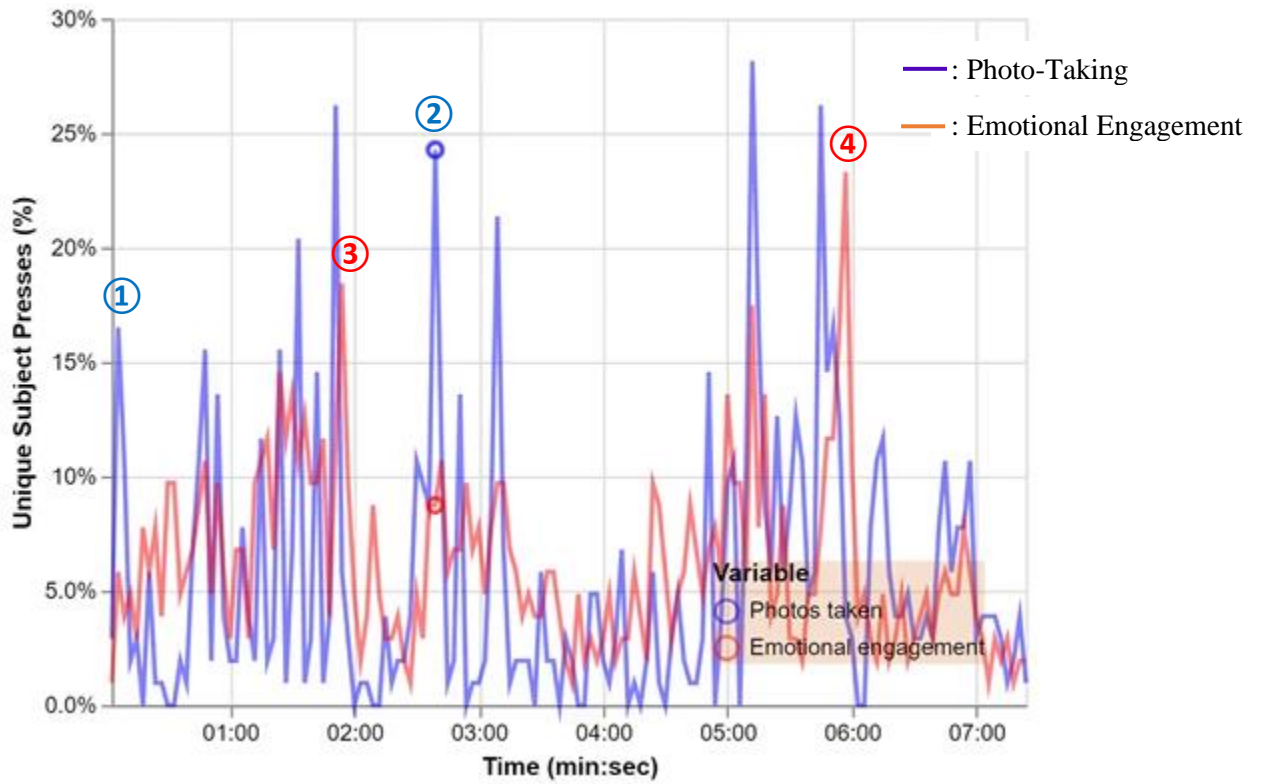
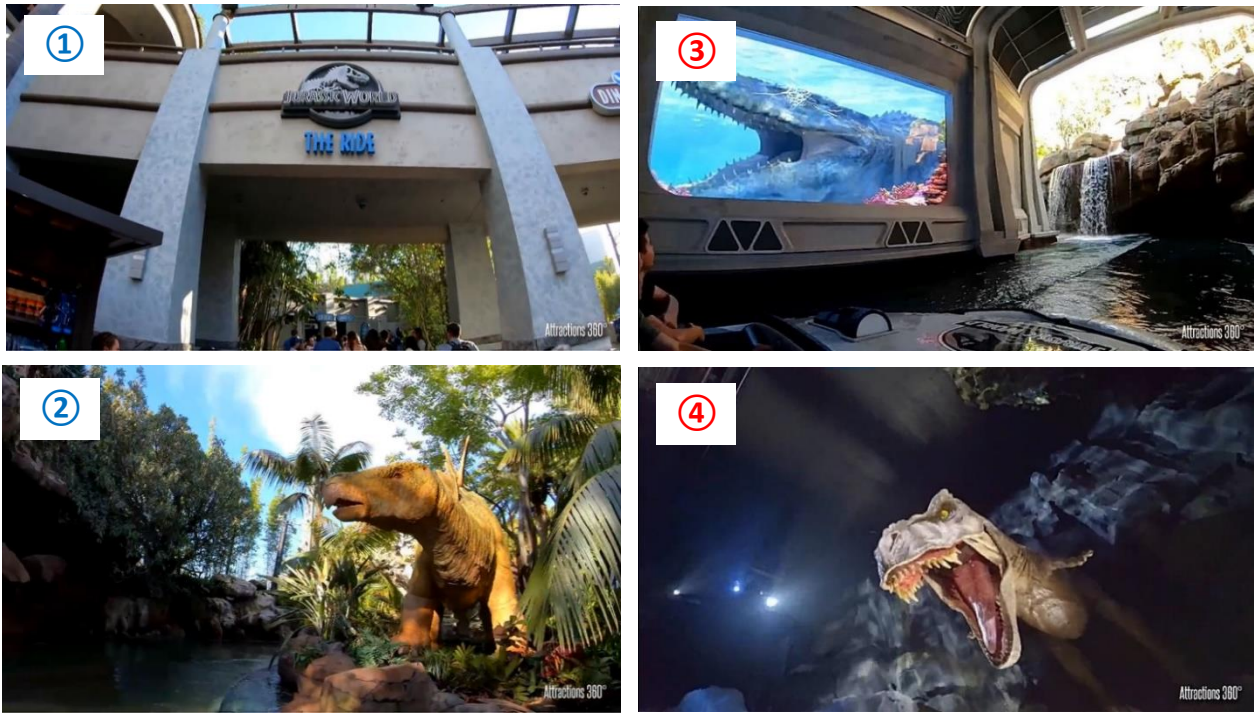


FIGURE 11

STUDY 3: THE EFFECT OF CUE TYPE ON REMEMBERED SURPRISE

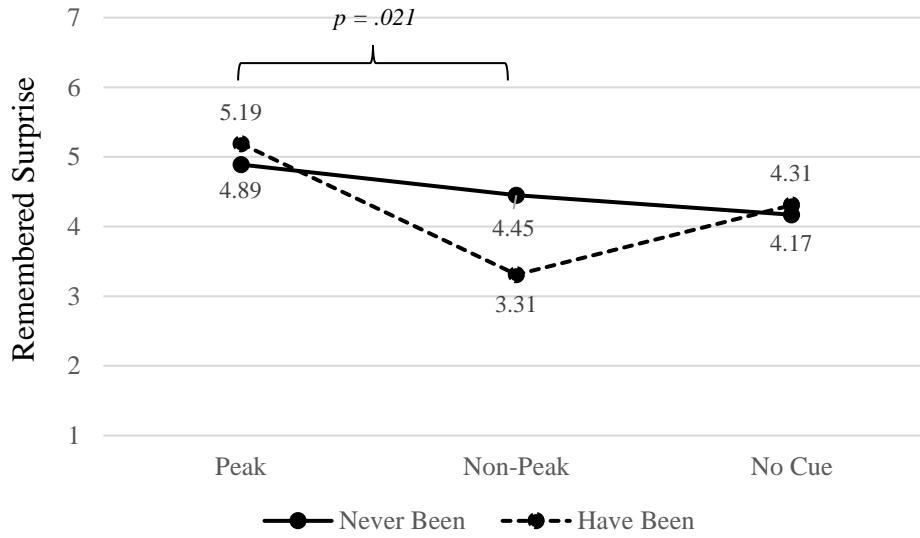


FIGURE 12

STUDY 3: THE EFFECT OF CUE TYPE ON REVISIT INTENTION

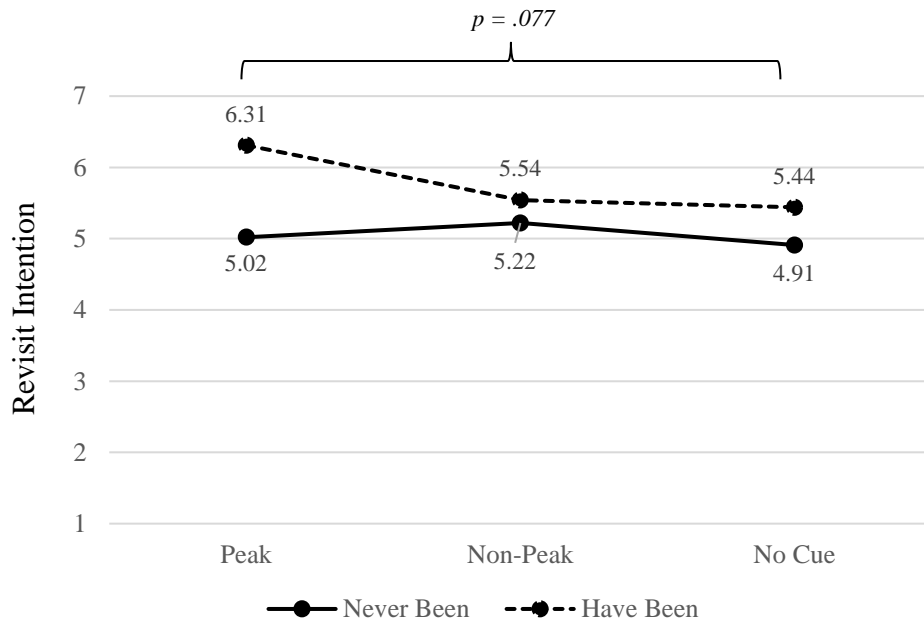


FIGURE 13

STUDY 4: POSITIVE- (UPPER) AND NEGATIVE- (LOWER) PEAK SCENES

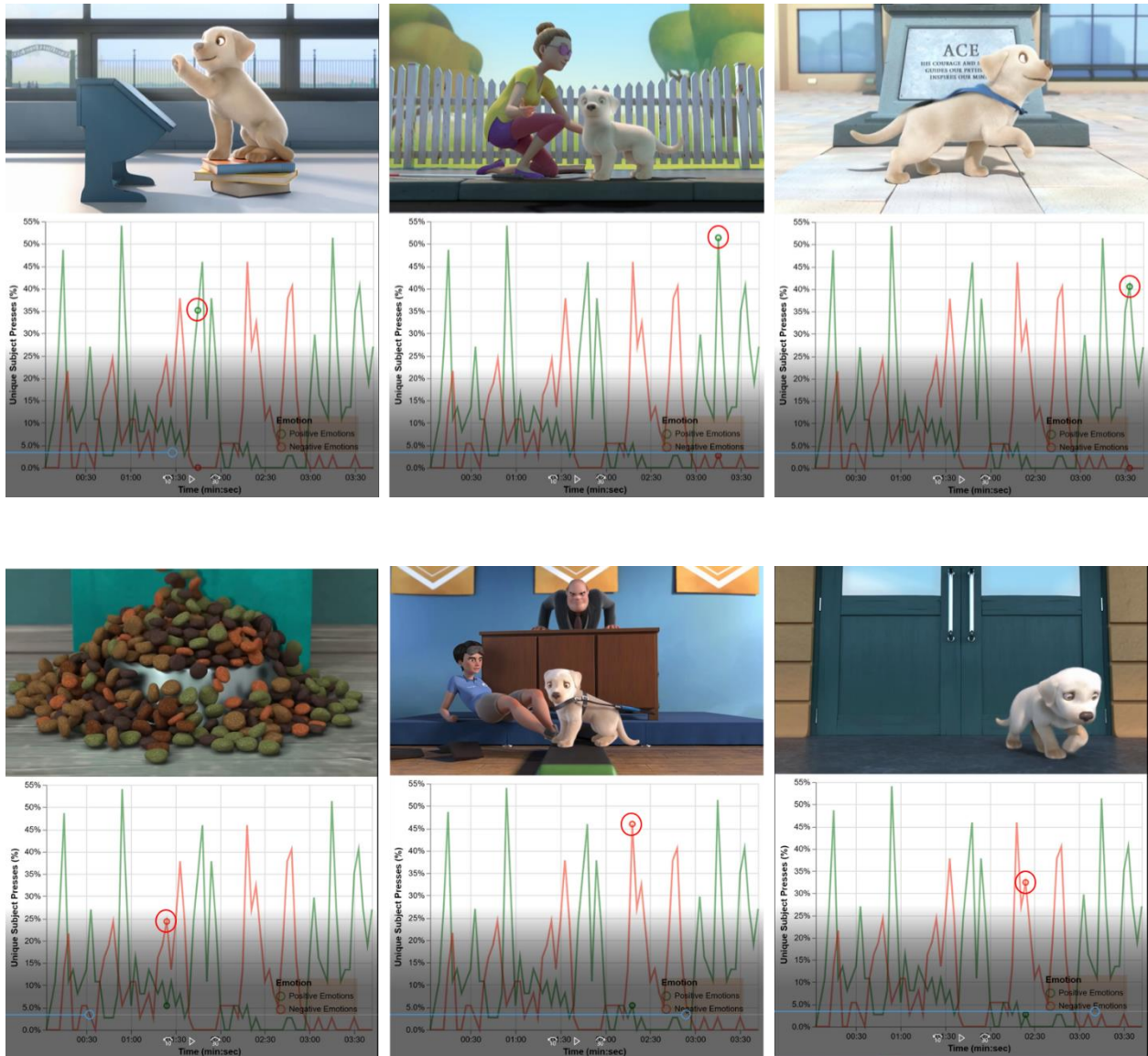


FIGURE 14

STUDY 4: THE EFFECT OF CUE TYPE ON REPEAT INTENTION AS A FUNCTION OF THE EMOTION LEVEL OF THE VIDEO

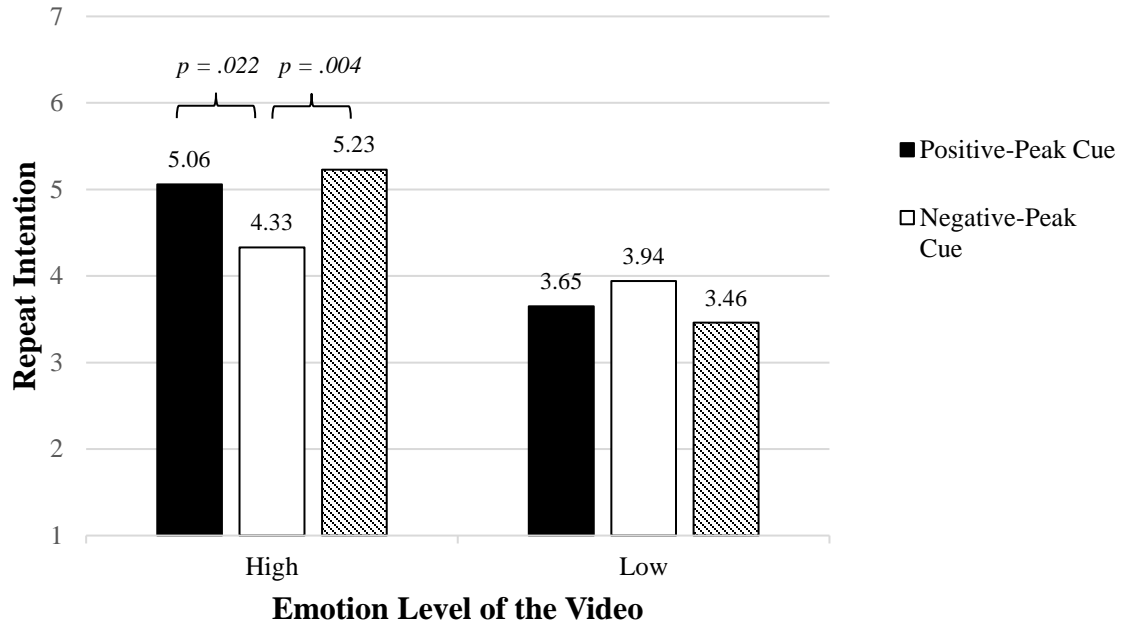


FIGURE 15

STUDY 5: PEAK AND NON-PEAK CUES IDENTIFIED FROM PARTICIPANTS' GSR AND HEART RATE DATA

Peak Cue

Non-Peak Cue



Continued on the next page

Japan Tour

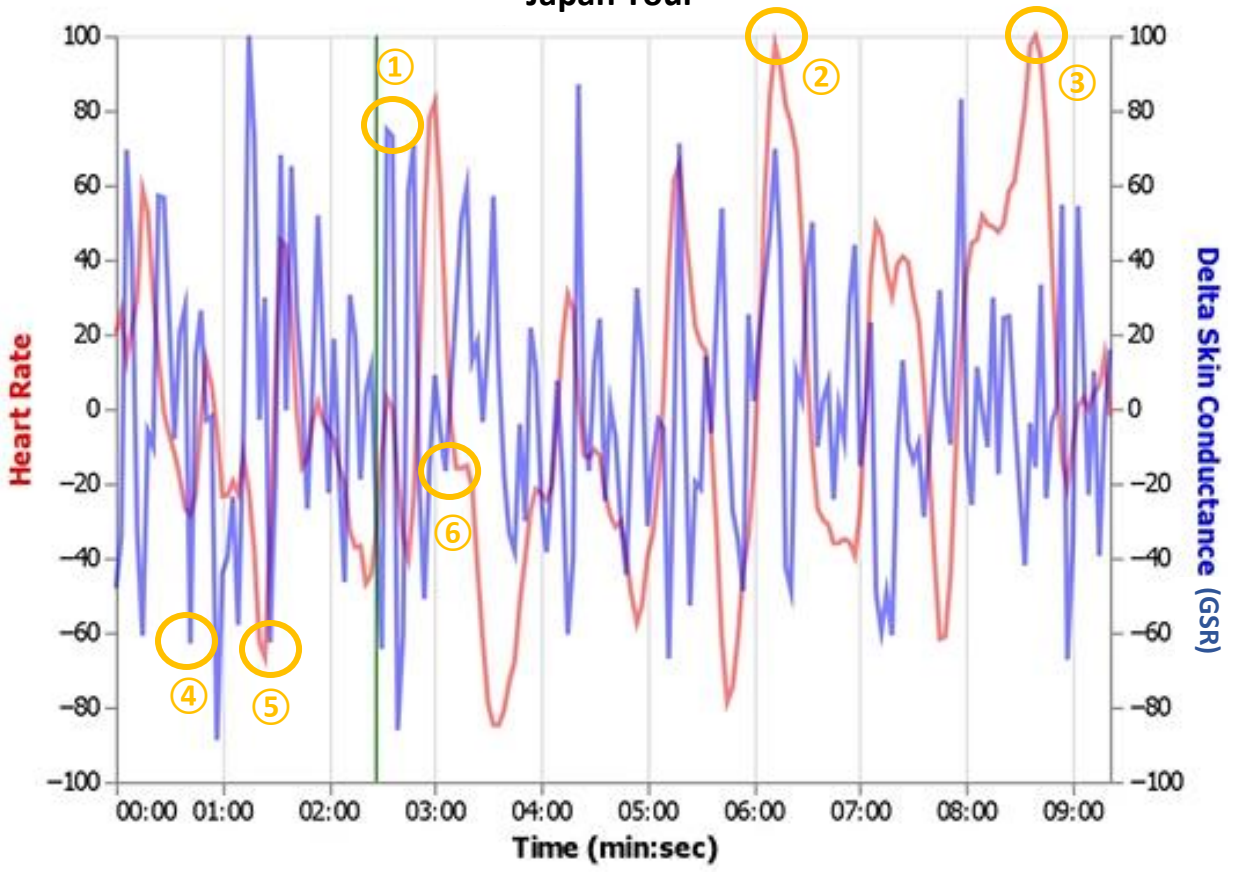


FIGURE 16

STUDY 5: EFFECT OF CUEING ON CHOICE OF ASIAN COUNTRY TO VISIT

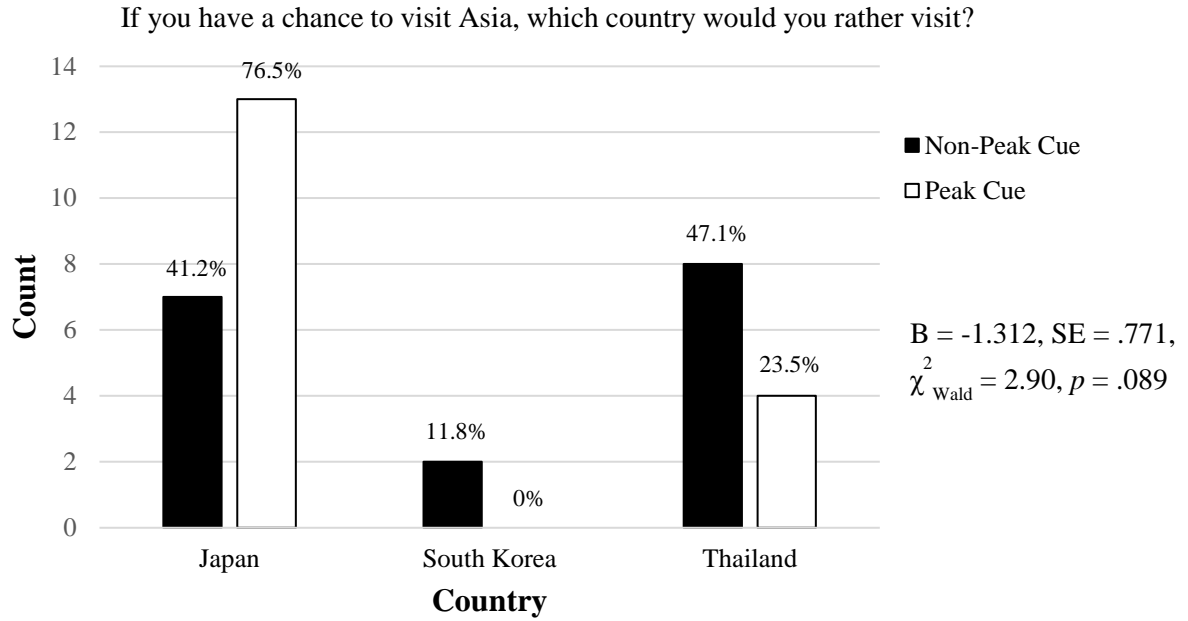


TABLE 1
OVERVIEW OF STUDIES

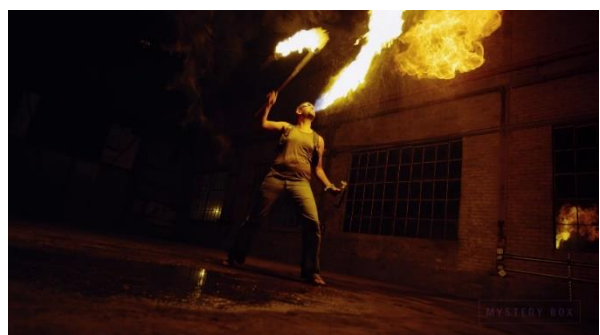
Hypothesis	Study	IV	DV	Experience	Setting	Peak Captured
H1a	1A	Photo cue presence, 2 experiences	Remembered enjoyment	Frankfurt tour & fire show	Lab, VR with wall-sized screen	Eye tracking
H1b, c	1B	Photo cue presence	Repeat a similar activity, amount of time to spend, share photos	Campus festival	Lab, VR with wall-sized screen	Eye tracking
H1a	2A	Photo cue presence	Remembered enjoyment	College life before pandemic	Online, recall one's own experience	
H1a, b, c	2B	Photo cue presence, 4 occasions	Remembered enjoyment, excitement, and happiness, miss the occasion, engage in similar activities, share	Christmas, birthday, vacation, college party	Online, recall one's own experiences, own photo as a cue	
H2	3	Peak cue vs. non-peak (popular photo spot) cue vs. no cue	Remembered surprise, revisit intention, recommendation likelihood	Jurassic World – The Ride	Online, VR on computer screen	Pressing up arrow or Enter key on a keyboard
H3, H4	4	Positive vs. negative cue, Emotional vs. control videos	Remembered joy, trust, fear, surprise, sadness, disgust, anger, and anticipation, overall enjoyment and liking, recommendation likelihood, repeat intention	Working dog animation & French toast cooking videos	Online, video watching	Pressing up and down arrow keys on a keyboard
H2	5	Peak vs. non-peak cue	Remembered enjoyment, revisit intention	Japan tour	Lab, VR with HMD	GSR, eye tracking

APPENDIX A
PHOTO CUES USED IN EACH STUDY

Study 1A (Frankfurt Tour)



Study 1A (Fire Show)



Study 1B (Campus Festival)



Study 2A (College Life Before Pandemic)



APPENDIX B
TECHNOLOGY DEVICES USED IN STUDY 5



Head-Mounted Display (HMD):
Used for VR simulation and eye-tracking
Product Model: HTC VIVE Pro

Galvanic Skin Response (GSR):
Measures sweat gland activity and heart rate
Product Model: Shimmer 3

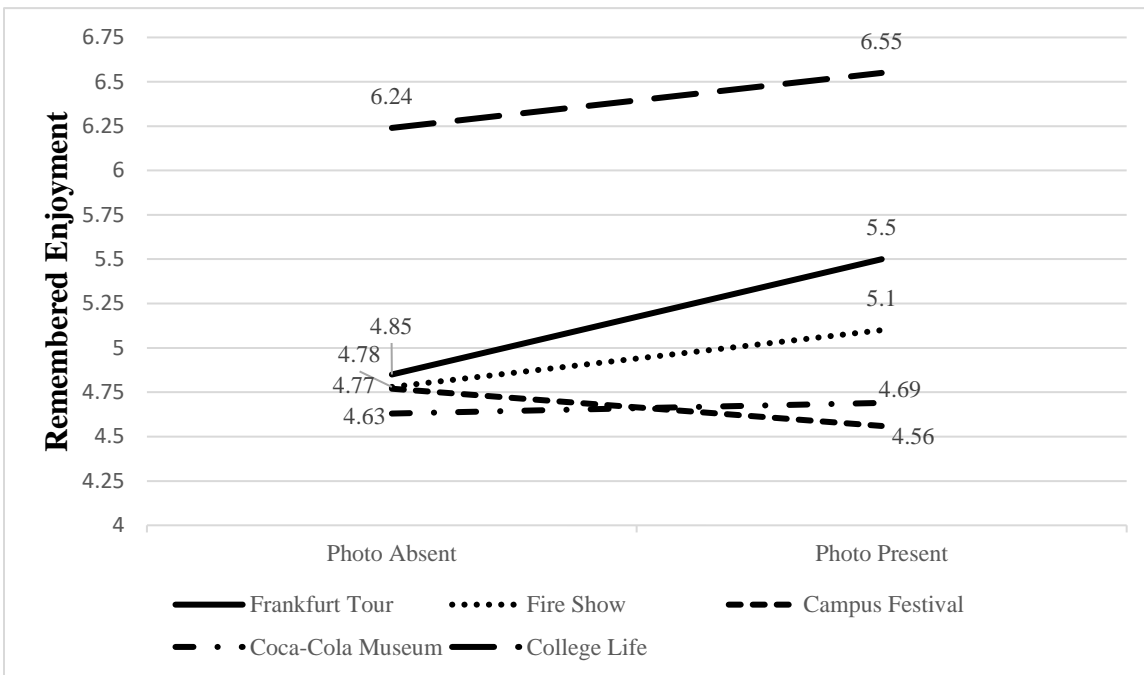


Participant wearing an HMD in the Customer Interface Lab

APPENDIX C
SUMMARY OF RESULTS

Photo Cue						
	Present		Absent			
	<i>M</i>		<i>M</i>		<i>p</i>	
Study 1A						
Remembered enjoyment	5.30		4.81		.070	
Study 1B						
Repurchase	4.15		3.35		.058	
Spend Time	32.93		24.00		.070	
Share Photos	3.33		2.50		.090	
Study 2B						
Positive emotions	5.91		5.51		.001	
Desire to go back and relive the experience	5.33		4.82		.002	
Do similar activities	5.73		5.25		.001	
Share experience with others	5.59		5.17		.009	
Study 3						
	Peak		Non-Peak		No Cue	
	<i>M</i>	<i>p</i>	<i>M</i>	<i>p</i>	<i>M</i>	<i>p</i>
<i>People who had experienced the actual Jurassic World Ride</i>						
Remembered surprise	5.19		3.31	.021	4.31	.52
<i>People who had NOT experienced the Jurassic World Ride</i>						
Remembered surprise	4.89		4.45	.70	4.17	.17
Study 4						
	Positive Peak Cue		Negative Peak Cue		No Cue	
	<i>M</i>	<i>p</i>	<i>M</i>	<i>p</i>	<i>M</i>	<i>p</i>
<i>Emotional Video</i>						
Remembered joy	6.32	< .001	4.50		6.28	< .001
Remembered sadness	4.72	.009	5.42		4.72	.008
Overall evaluation	6.06	.035	5.49		6.20	.008
Recommendation likel.	5.49	.004	4.48		5.50	.003
Repurchase intention	5.06	.022	4.33		5.23	.004

APPENDIX D
SUPPLEMENTAL ANALYSIS
ENJOYMENT ACROSS VARIOUS EXPERIENCES



NARI YOON

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EDUCATION

Kelley School of Business, Indiana University, Bloomington, IN June 2022

Ph.D. in Business (Concentration in Marketing, Minor in Psychology)

- Dissertation: “Capturing and Keeping the Customer Experience: The Effect of Photo Cues on Remembered Enjoyment and Future Intentions”
- Committee: Raymond R. Burke, H. Shanker Krishnan, Jenny G. Olson, and Edward Hirt

Seoul National University, Seoul, Republic of Korea February 2015

M.S. in Business Administration (Concentration in Marketing)

- Thesis: The Effect of Inferred Chances for Reaffiliation on Socially Excluded Consumers’ Response to Scarcity Appeals

Hankuk University of Foreign Studies, Seoul, Republic of Korea February 2013

B.B.A. in Business Administration

- Thesis: Storytelling as a Means for Marketing Communications

RESEARCH INTERESTS

Emotions, Consumer-Brand Relationship, Social Media, Social Influence

Methodology: Virtual Reality Simulations, Eye Tracking, Biometric Measures

WORKING PAPERS

Yoon, Nari and Raymond R. Burke, “Capturing and Keeping the Customer Experience: The Effect of Photo Cues on Remembered Enjoyment and Future Intentions,” manuscript in preparation for submission to *Journal of Marketing* (Dissertation, Job market paper)

Yoon, Nari, Jenny G. Olson, and Adam Duhachek, “When Our Companies Have Eyes for Other Consumers: New Customer Promotions Enhance Switching Intentions Among Existing Customers,” manuscript in preparation for submission to *Journal of Consumer Research*

Yoon, Nari and H. Shanker Krishnan, “Feeling Pride or Feeling Envy: Differential Inspiration from Others’ Achievement,” manuscript in preparation for submission to *Journal of Consumer Research*

RESEARCH IN PROGRESS

Yoon, Nari and Mansur Khamitov, “When Being Irrelevant is Relevant: How Relative Relevance of Brands’ Social Media Posts Impacts Brand Perception,” final stage in data collection

Yoon, Nari, Mansur Khamitov, and Aaron Barnes, “Hands Off My Brand: Strong Self-Brand Connection and Psychological Threat,” data collection in progress

Yoon, Nari and Rom Y. Schrift, “The Dislikes of Likes: When Getting Many ‘Likes’ Backfires,” data collection in progress

Yoon, Nari and Rom Y. Schrift, “No Reward for Writing Reviews: The Effect of Reward for Positive Reviews on Consumers’ Repurchase Intentions,” data collection in progress

CONFERENCE PRESENTATIONS (* denotes presenter)

***Yoon, Nari** and Raymond R. Burke, “Capturing and Keeping the Customer Experience: The Effect of Photos on Remembered Enjoyment,” *Society for Consumer Psychology Conference (Poster)*, Virtual (March, 2021)

***Yoon, Nari** and Mansur Khamitov, “Hands Off My Brand: Strong Self-Brand Connection and Psychological Threat,” *Association for Consumer Research Conference*, Paris, France – Moved to Virtual (October, 2020)

***Yoon, Nari** and Raymond R. Burke, “Capturing and Keeping the Customer Experience: The Effect of Photos on Remembered Enjoyment,” *50th Haring Symposium*, Indiana University, Bloomington, IN (April, 2020)

***Yoon, Nari**, Jenny G. Olson, and Adam Duhachek, “Should I Stay or Should I Go: When Our Companies Have Eyes for Other Consumers,” *Association for Consumer Research Conference*, Atlanta, GA (October, 2019)

***Yoon, Nari** and H. Shanker Krishnan, “I Am So Proud of You! The Effect of Vicarious Pride on Preferences for Self-Improvement Product,” *Association for Consumer Research Conference (Poster)*, Atlanta, GA (October, 2019)

***Yoon, Nari**, Discussant for “Behavioral Norms in Consumer’s World of Power: When and Why Shame and Guilt Increase Compliance,” 28th Annual Robert Mittelstaedt Doctoral Symposium, University of Nebraska, Lincoln, NE (March, 2019)

***Yoon, Na Ri**, Jenny G. Olson, and Adam Duhachek, “Should I Stay or Should I Go: When Our Companies Have Eyes for Other Consumers,” *Society for Consumer Psychology Conference (Poster)*, Savannah, GA (March, 2019)

***Yoon, Na Ri**, Jenny G. Olson, and Adam Duhachek, “Should I Stay or Should I Go: When Our Companies Have Eyes for Other Consumers,” *Association for Consumer Research Conference (Poster)*,

Dallas, TX (October, 2018)

***Yoon, Na Ri** and H. Shanker Krishnan, “I Am So Proud of You! The Effect of Vicarious Pride on Preferences for Self-Improvement Product,” *Society for Consumer Psychology Conference (Poster)*, Dallas, TX (February, 2018)

***Yoon, Na Ri**, “The Effect of Inferred Chances for Reaffiliation on Socially Excluded Consumers’ Response to Scarcity Appeals,” *Society for Consumer Psychology Conference (Poster)*, St. Pete Beach, FL (February, 2016)

CHAired SYMPOSIA

Yoon, Nari and Jenny G. Olson, Special Session Co-Chairs, “How Could You Do That?! Consumers’ Differential Reactions to Companies Treating Others Badly...or Better,” *Association for Consumer Research Conference*; Atlanta, GA (October, 2019)

TEACHING EXPERIENCE

Instructor, **[M300] Introduction to Marketing**, Kelley School of Business, Indiana University, Spring 2022

- Class size: 104 students (online)

Instructor, **[M300] Introduction to Marketing**, Kelley School of Business, Indiana University, Spring 2020

- Class size: 84 students (in person & online)

Instructor, **[M300] Introduction to Marketing**, Kelley School of Business, Indiana University, Spring 2019

- Class size: 92 students (in person)

Teaching Assistant / Guest Lecturer, **[M405] Consumer Behavior** (*Instructor: Jenny G. Olson*), Kelley School of Business, Indiana University, Spring 2021

- Class size: 45 students (online)

Teaching Assistant (Tutor), **Writing Center in College English Program**, Seoul National University, Republic of Korea, March 2014 – February 2015

TEACHING INTERESTS

Brand Management, Digital/Social Media Marketing, Marketing Research, Marketing Communications

GRANTS, HONORS, AND AWARDS

Data Funding Grant, Kelley School of Business, Indiana University (\$5,600), 2021

- Target Project Applied: “When Our Companies Have Eyes for Other Consumers: New Customer Promotions Enhance Switching Intentions Among Existing Customers”

Doctoral Fellow (Presenter), *50th Haring Symposium*, Indiana University, Bloomington, IN, 2020

Winner, Shark Tank Idea Competition, Doctoral Symposium, *Association for Consumer Research Conference*, Atlanta, GA, 2019

Winner, Marketing Science Institute (MSI) 2018-2020 Research Priorities Research Grant Competition (\$10,000), 2019

- Target Project Applied: “Capturing and Keeping the Customer Experience: The Effect of Photo Cues on Remembered Enjoyment and Future Intentions”

Doctoral Fellow (Discussant), *28th Annual Robert Mittelstaedt Doctoral Symposium*, University of Nebraska, Lincoln, NE, 2019

Winner, Idea Contest, *Consumer Behavior CLIK Conference*, University of Louisville, Louisville, KY, 2018

Doctoral Fellowship, Kelley School of Business, Indiana University, 2016 – 2022

Research Funds (\$3,000), Kelley School of Business, Indiana University, 2016

Dean’s Fellowship (\$2,000), Kelley School of Business, Indiana University, 2016

Teaching Assistant Scholarship, Seoul National University, 2014

Model UN Conference Award, United Nations Association of the Republic of Korea, 2011

Academic Excellence Scholarship, Hankuk University of Foreign Studies, 2009 – 2010

English Excellence Scholarship, Hankuk University of Foreign Studies, 2009

SERVICE ACTIVITIES

Trainee Reviewer for *Journal of Consumer Research*, 2021

Reviewer for American Marketing Association Conference, 2020, 2021, 2022

Competitive Paper Reviewer for Society for Consumer Psychology, 2018, 2019, 2020, 2021

Chair, Korean Doctoral Students Association, Kelley School of Business, Indiana University, 2019 – 2021

Doctoral Student Organizer, Haring Symposium, Kelley School of Business, Indiana University, 2018

PROFESSIONAL AFFILIATIONS

Association for Consumer Research
Society for Consumer Psychology
American Marketing Association Doctoral Special Interest Group (DocSIG)

OTHER EXPERIENCES

Secretariat, Public Relations Team, Hankuk University of Foreign Studies International Model United Nations, March 2011 – February 2012

Secretariat, 2011 Model UN Conference, United Nations Association of the Republic of Korea, July 2011

TRAININGS

Research

Research Communications Bootcamp for Graduate Students, October 2019
Indiana University

Special Training in Statistics Analysis, June 2014
Wise Research, Republic of Korea

- SPSS/ Structural Equation Model Analysis with AMOS

Special Training in Research Methodology, August 2013
Research Institute of Education, Korea University, Seoul, Republic of Korea

- Multivariate Analysis/ Factor Analysis and Validity Test

Special Training for Graduate Students in Statistics for Writing Thesis, July 2013
Statistical Training Institute, Republic of Korea

Teaching

Teaching Excellence and Best Practices, March 2022
Department of Marketing, Kelley School of Business, Indiana University

Keep Teaching: Zoom for Instructors, March 2020
Center for Innovative Teaching and Learning, Indiana University

How to Teach an Online Class Using Zoom, March 2020
Kelley School of Business Learning Technologies, Indiana University

Course Development Institute, June 2018
Center for Innovative Teaching and Learning, Indiana University

Associate Instructor (AI) Workshop on Classroom Climate Training, August 2016
Indiana University

Diversity, Equity, and Inclusion

2nd Annual ISMS Webinar on Diversity, Equity, and Inclusion: What are the challenges? What are the most common concerns against DEI? (4 Sessions), June 2021

INFORMS Society for Marketing Science (Co-sponsored by USC Marshall School of Business, Academy of Marketing Science, Association for Consumer Research, American Marketing Association, Marketing Science Institute)

Diversity, Equality, Inclusion (DEI) Workshop #1: Leading Like an Ally

Diversity, Equality, Inclusion (DEI) Workshop #2: Building DEI into the Marketing Curriculum, May 2021

Department of Marketing, Kelley School of Business, Indiana University

OTHER SKILLS

Software: SPSS, AMOS, STATA, Illustrator, Photoshop

Language: Korean (native), English (fluent), French (basic), Spanish (basic), Japanese (basic)

DOCTORAL COURSEWORK

Marketing

Consumer Behavior

H. Shanker Krishnan

Special Topics in Marketing (Consumer Behavior)

H. Shanker Krishnan

Special Topics in Marketing (Cultural Difference)

Ashok K. Lalwani

Special Topics in Marketing (Social Influence)

Elanor Williams

Special Topics in Marketing (Marketing and Firm Performance)

Lopo Rego

Special Topics in Marketing (Advanced Shopper Research)

Raymond R. Burke

Managerial Research in Marketing I

Girish Mallapragada

Managerial Research in Marketing II

Neil Morgan

Marketing Models

Shibo Li

Psychology (minor)

Decision Making Under Uncertainty

Edward Hirt

Attitude and Attitude Change

Robert Rydell

Social Perception

Edward Hirt

Research (Independent Study)

Edward Hirt

Group and Intergroup Processes (Audit)

Eliot Smith

Research Methods

Statistics for Research I

Statistics for Research II

Research Methods in Marketing

Advanced Research Techniques

Christopher Berry

Lopo Rego

Scott MacKenzie

Jane McLeod

Other

Doctoral Teaching Seminar

Alan Dennis