

Photo Taking Paradox: Contrasting Effects of Photo Taking on Travel Satisfaction and Revisit Intention

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Abstract

The present research establishes that taking photos has a paradoxical dual effect on travelers' satisfaction and revisit intention. Across five empirical studies, we show that while taking photographs increases travelers' satisfaction with an experience, it simultaneously decreases travelers' intention to revisit the same experience. The increased psychological engagement induced by photo taking is the underlying mechanism behind this dual effect. Specifically, the greater engagement increases satisfaction with an experience, but it also makes it easier for travelers to remember the experience and, therefore, diminishes the perceived utility of revisiting the same experience. Hence, travelers are less likely to go back to a place if they have taken photographs of it during a visit. An intriguing implication arising from these findings is that while allowing photographs can be an effective policy to attract first-time travelers, prohibiting photography is more effective for encouraging revisits.

Keywords

photography, revisit intention, experiences, enjoyment, reengagement

Introduction

With the proliferation of smartphones, the number of photographs that people take each year has been growing at an unprecedented rate: it has increased from 660 billion photographs taken in 2013 to 1.2 trillion in 2017 (Richter 2017). The taking of photographs and tourism have a long and intimate relationship. Markwell (1997, p. 131), among others, notes that a “stereotypic[al] image of a tourist weighted down by cameras, lenses, tripods and other photographic paraphernalia, although cliché, nevertheless highlights the strong, almost inseparable connection between modern recreational travel and photography.” Indeed, because photographs transform an intangible travel experience into a more tangible form (Urry 1990), the importance of photo taking has been recognized as a quintessential component of the documenting, structuring, and sharing of travel experiences (e.g., Lo et al. 2011; Prideaux and Coghlan 2010; Urry 1990). Taking photographs enables travelers to acquire and “own” experiences (Osborne 2000); determine and shape what is to be acquired and, thereby, to create an “idealized” gaze (Schroeder 2002; Urry 1990); and, finally, to share this gaze with others (Franklin and Crang 2001; Lo et al. 2011). Consequently, several studies have advocated that travel providers should be mindful about providing good photo opportunities as a means of enhancing tourism satisfaction (Gillet, Schmitz, and Mitas 2016; Jansson 2007; Prideaux and Coghlan 2010).

The present study offers a more nuanced perspective of how travelers experience the taking of photographs, and whether offering photo opportunities is, in fact, a beneficial strategy for travel providers. Specifically, recent psychological studies on volitional photo taking (Barasch et al. 2017; Diehl, Zauberman, and Barasch 2016) identify two distinct experiential effects of photo taking. First, photo taking increases the enjoyment of an experience because it heightens engagement by immersing people more deeply in the experience (Diehl, Zauberman, and Barasch 2016). This line of reasoning is consistent with previous tourism studies that identify positive effects of photo taking on tourism satisfaction (Jansson 2007; Prideaux and Coghlan 2010). Second, other psychological studies show that photo taking heightens people's memory of an experience because it increases attention to the visual aspects of an experience

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(Barasch et al. 2017). This suggests that taking photographs can enhance the travelers' propensity to remember their visiting experiences.

Informed by this previous research, we establish novel insights about how taking photo influences travel behavior. Across five studies, we demonstrate that photo taking can have a paradoxical dual effect on travel satisfaction and revisit intention. On the one hand, photo taking increases satisfaction by heightening the engagement with a travel experience. On the other hand, photo taking decreases the intention to revisit the same experience again. The latter effect occurs because taking photographs heightens one's memory of the experience, and thus decreases the perceived utility of revisiting the same destination. As a result, and contrary to traditional approaches that view satisfaction as an important determinant of revisit intention (Huang and Hsu 2009; Um, Chon, and Ro 2006), we show that photo taking can have a paradoxical dual effect, whereby it increases satisfaction but decreases revisit intention. Important theoretical and practical implications arising from these findings are discussed in the General Discussion.

Literature Review and Main Predictions

Photo Taking and Tourism

Following the seminal work of Urry (1990) on "the tourist's gaze," the importance of photo taking has received extensive attention in tourism literature (Haldrup and Larsen 2003; Lo et al. 2011; Lyu 2016; Urry 1990). At the broadest level, photographs serve as a physical verification that travelers have visited a place and experienced some other "exotic" life (Chalfen 1979; Hillman 2007; Lo et al. 2011). That is, photographs allow travelers to claim ownership of their intangible experiences by giving them a more physical form (Osborne 2000). Furthermore, photo taking plays an important symbolic role in creating travel memories (Crawshaw and Urry 1997; Pan, Lee, and Tsai 2014). That is, taking photographs allows travelers to shape what is to be acquired from a travel experience and to create a "romanticized" (Urry 1995) or "idealized" (Schroeder 2002) gaze of travel. As Pan, Lee, and Tsai (2014, p. 60) note, "photographs are the product of selecting, shaping and structuring elements of the physical elements to reflect the photographer's own mental images. . . . They are a way of congealing [the] time when the encounters took place in order to give form to visitors' memory of places." Simply put, rather than being the actual representation of a destination visited, photo taking is a creative personalized process of meaning-making (Pan, Lee, and Tsai 2014). Finally, photographs enable travelers to share their experiences with others—a trend that has accelerated with the pervasiveness of social media (Lo et al. 2011). Consequently, photo taking becomes even more important for travelers as a means of achieving socialization (e.g., relationship building) and self-presentation (Lo et al. 2011; Lyu

2016). Several studies have highlighted that sharing photographs has become one of the fundamental motives for contemporarily travelers (e.g., Hur et al. 2017; Wang and Nicolau 2017).

Against the backdrop of this previous research, tourism literature has focused largely on the positive effects of photo taking in relation to travel experiences (Gillet, Schmitz, and Mitas 2016; Jansson 2007; Prideaux and Coghlan 2010). Gillet, Schmitz, and Mitas (2016) found that taking photographs during travel is correlated with happiness, although social interactions and cultural expectations moderate this relationship. In particular, tourists felt happier when they took photographs as a component of social interactions and less happy when they were by themselves, or felt that they were obliged to take photographs as part of their culturally expected role as tourists (Gillet, Schmitz, and Mitas 2016). In the same vein, Prideaux and Coghlan (2010) found some evidence that taking photographs increases travel satisfaction, advocating that "photo opportunities provide travel operators with a powerful and free marketing tool" (Prideaux and Coghlan 2010, p. 171).

While these studies are informative, we identify two areas that require further attention. First, the focus has been largely on how travelers experience photo taking and the meaning of this activity for evaluating the focal travel experience (i.e., the experience recorded by the photograph). With the exception of several studies that have explored photo sharing on social media (e.g., Lo et al. 2011), extant theory regarding the ways travel photography influences subsequent travel experiences, such as revisit intentions, is underdeveloped. Furthermore, although previous studies document various motives underpinning travel photography, the psychological consequences of photo taking, such as its effects on long-term memory, have received limited attention in tourism research. In the present study, we address this gap in the literature by adopting recent insights from psychological research on volitional photo taking (Barasch et al. 2017; Diehl, Zauberman, and Barasch 2016) and developing insights into the ways photo taking influences subsequent travel decisions, such as the intention to revisit a travel destination (Huang and Hsu 2009). In so doing, we offer novel insights into the ways travel photography influences travel behavior.

Photo Taking and Travel Satisfaction

Recent studies draw attention to the psychological process through which photo taking affects the evaluation of photographed experiences (Barasch et al. 2017; Diehl, Zauberman, and Barasch 2016). Diehl, Zauberman, and Barasch (2016) showed that photo taking increases satisfaction with experiences because the act of taking a photograph increases people's engagement in their own experience—defined as "the extent to which [a person] attends to and is immersed in the experience itself" (Diehl,

Zauberman, and Barasch 2016, p. 120). Diehl, Zauberman, and Barasch (2016) claimed that, because taking a photograph requires people's attention to be directed toward aspects of the experiences that are to be photographed, photo taking served as a boost to satisfaction with the experience rather than a distraction from it. This line of reasoning is consistent with previous studies in tourism that have highlighted the positive effects of photo taking on travel experiences (Gillet, Schmitz, and Mitas 2016; Jansson 2007; Prideaux and Coghlan 2010).

Further supporting the key role of engagement in boosting experiential satisfaction, several studies identify important moderating variables that qualify the effect of photo taking on the enjoyment of travel experiences. Specifically, contrary to the general positive effect of photo taking, Barasch, Zauberman, and Diehl (2018) showed that when the primary intention of photo taking is to share the images with others, perhaps through social media, consumers become less satisfied with their experiences. Notably, this reduction in satisfaction occurs because the self-presentation concerns associated with the pressure to share photographs with others *reduces* engagement with the experiences, themselves, thus decreasing the satisfaction with the photographed experiences (Barasch, Zauberman, and Diehl 2018). In other words, whereas volitional photo taking increases engagement and, thereby, has a positive effect on satisfaction, taking photos for others has an opposite effect on satisfaction because it *decreases* engagement. Using a similar theoretical approach, Nardini, Lutz, and LeBoeuf (2019) demonstrate that taking photos can actually decrease the enjoyment of highly enjoyable experiences that require high levels of engagement. This happens because, when consumers constantly strive to document such experiences, they unwittingly fail to engage and enjoy them to the fullest.

In summary, although there could be specific conditions under which taking photos can produce a negative effect on travel satisfaction (e.g., taking photos for others) because of reducing engagement with the experience, photo taking has been largely found to increase attention to the positive experience (Diehl, Zauberman, and Barasch 2016; Gillet, Schmitz, and Mitas 2016). As such, it is more likely to increase rather than decrease the enjoyment and travel satisfaction (Killingsworth and Gilbert 2010; Larsson, Västfjäll, and Kleiner 2001). Thus, we hypothesize:

Hypothesis 1: Photo taking increases satisfaction with a travel experience.

Photo Taking and Revisit Intention

To extend extant theory into the ways photo taking influences travelers' subsequent decisions, we make a novel prediction for the present research that photo taking decreases the intention to revisit the same travel destination. Our central argument is based around the propositions that (1)

photo taking heightens travelers' memories of an experience and (2) the heightened memory through photo taking diminishes the perceived utility of revisiting the same travel destination.

We first propose that photo taking heightens travelers' memories of an experience. Two streams of psychological research support this proposition. First, irrespective of whether or not people go back to look at their photographs later, the action of taking a photograph enhances memory. Barasch et al. (2017) showed that, because photo taking induces a shift in attention toward the visual aspects of an experience (Diehl, Zauberman, and Barasch 2016), volitional photo taking heightens people's memory for the visual aspects of an experience. Interestingly, Barasch et al. (2017) showed that even taking "mental photographs" (e.g., imagining taking photos or holding a camera) had similar positive effects on memory. Specifically, participants with a camera, even without taking photographs, were found to remember more visual information because they intended to take photographs.

Second, photo taking heightens memory because possessing photographs enables people to look at those photographs and remember the experiences they record more often. Various studies offer support for this effect. Zauberman, Ratner, and Kim (2008) suggested that people have lay beliefs about the difficulty of retrieving memories, and thus seek to obtain photographs to help them cue special memories at a later time, especially when they anticipate interference from subsequent events. Tully and Meyvis (2017) showed that possessing photographs made people recall past experiences more often. In the same vein, Goodman, Malkoc, and Stephenson (2016) argued that purchasing a photo of a special life event experience, such as a graduation, helped to preserve memories and made a stronger connection to the past special event than did purchasing a celebratory experience of the event.

We further propose that the heightened memory effect of taking a photograph diminishes the perceived utility of revisiting the same travel destination; thus, photo taking decreases the likelihood of attempting to recreate the same experience. When travelers decide on a travel destination to visit, they compare and contrast different options including a new destination as opposed to a destination that they have visited in the past. Through their photo taking activities in their previous visit, people can easily remember and relive a past experience without actually revisiting a place (Barasch et al. 2017; Tully and Meyvis 2017); thus, the comparative utility of revisiting the same destination (as opposed to visiting a new destination) is much lower. However, without taking photographs, people cannot easily remember and relive a past experience (Barasch et al. 2017; Tully and Meyvis 2017; Zauberman, Ratner, and Kim 2008), and would thus be much more likely to choose to revisit the same destination than they would have been if they had taken photographs. In sum, we hypothesize:

Hypothesis 2: Photo taking decreases revisit intention.

Photo Policy: First Visit versus Revisit

Given our hypothesized, paradoxical dual effect of photo taking—it increases satisfaction but decreases revisit intention—we now discuss how travel operators and managers should employ their photography policy. For travel operators such as museums and galleries, the decision on photography policy—whether to ban photography or liberalize the policy—has long been an important yet difficult decision to make, because both positions have pros and cons (Berstein 2012; Miranda 2013).

In the present research, we argue that one answer to the question of whether to allow or ban photo taking at travel sites should depend upon the type of traveler—whether the travelers are visiting the travel site for the first time or whether they are revisiting it. We predict that, for a first-time traveler, photo taking allowance (vs. ban) will increase the intention to visit the travel sites. For the first-time travelers, permission to take photographs will serve as an opportunity to increase their enjoyment (Diehl, Zauberman, and Barasch 2016) and will enable them to preserve their memories and remember the experience better in the future (Goodman, Malkoc, and Stephenson 2016; Tully and Meyvis 2017; Zauberman, Ratner, and Kim 2008). Moreover, if photo taking is banned, first-time travelers may perceive the ban as a limitation of their freedom (Brehm 1966) and decide not to visit the site at all. Following this line of reasoning, assume that a first-time traveler must choose between the following two travel options:

First-time travel option A: Photo taking allowed

First-time travel option B: Photo taking banned

Based on our predictions, we predict that first-time travelers will prefer Option A over Option B, because photo taking allowance will offer greater satisfaction and opportunities to remember the experiences in the future (Diehl, Zauberman, and Barasch 2016; Goodman, Malkoc, and Stephenson 2016; Tully and Meyvis 2017; Zauberman, Ratner, and Kim 2008).

For revisiting travelers, on the other hand, we predict the opposite pattern. We predict that the ban of photography (vs. allowance) during travelers' previous visits will increase their intention to revisit the same site. Specifically, assume that a revisiting traveler faces with the same two options as in the previous example:

Revisiting travel option A: Photo taking allowed

Revisiting travel option B: Photo taking banned

When considering between these two options, a revisiting traveler (who have visited both Option A and Option B in the past) is more likely to choose Option B that banned

photography. This is because the experience of photo taking at the travel site in the past in Option A enables travelers to more easily recall and relive the past experience, and, thereby, diminishes the utility to revisit Option A. Thus, we predict that, for revisiting travelers, photo taking ban (vs. allowance) during their previous visit will increase their intention to revisit the site.

In sum, we predict that the effect of a photography policy will depend on traveler type (first-time vs. revisiting). We hypothesize:

Hypothesis 3: The effect of photography policy on travel site choice is moderated by a traveler type. Specifically, first-time travelers are more likely to choose travel attractions that allow photography than those that ban photography. On the other hand, revisiting travelers are more likely to choose travel attractions that ban photography than those that allow photography.

Summary of Studies

The results of five studies provide consistent support for our predictions. Study 1A was a field survey that tested the relationship between photo taking and revisit intention for an actual gallery. Study 1B was a large online survey on travelers' past experiences, which showed that taking photographs increases satisfaction but decreases revisit intention. Study 2 replicated these effects in an experiment, which manipulated the activity of taking photographs during the travel (i.e., taking photographs, not taking photographs, and taking photographs but losing them) to test the causal role of photo taking on revisit intention as well as satisfaction from the travel. In addition, study 2 provided procedural evidence that the reduction in revisit intention was mediated by the notion that photo taking serves as a memory token. Study 3 replicated the results of study 2 in a choice-making setting, involving museums with two different photography policies (photo taking allowance vs. photo taking ban). Finally, study 4 was an experiment that manipulated the type of travelers (first-time visit vs. revisit), which showed that the effectiveness of a permissive photography policy on destination choice depends on traveler type—whether the traveler is a first-time visitor or a revisitor to the travel sites.

Study 1A

Study 1A was a field study that tested the relationship between photo taking and revisit intention. Specifically, in this study, as visitors exited a popular art gallery, we asked them questions about their revisit intention and the extent of their photo taking at the attraction. We predicted that the extent of photo taking would have a negative effect on revisit intention.

Method

Eighty-five visitors (74.4% female) of an art gallery in a large cosmopolitan city responded to a survey. All participants responded to the survey as they were exiting the gallery. Visitors first indicated their revisit intention by answering, "How likely are you to revisit this gallery in the future?" (1 = not at all, 7 = very much). After participants indicated their revisit intention, participants indicated the objective extent of photo taking. Specifically, they indicated the estimated number of photos they have taken during their visit to the gallery. Then, participants indicated the subjective extent of photo taking by answering, "Do you wish you have taken more photographs?" (1 = not at all, 7 = very much). The responses to this question were reverse-coded so that the higher numbers indicated that the extent of photographs taken felt sufficient. Finally, participants indicated their usual photo taking tendency by answering, "Normally, to what extent do you take photographs during gallery visits" (1 = not at all, 7 = very much). We excluded the responses of four participants who normally do not take photos when they visit galleries (i.e., those who indicated "1 = not at all" to the question that assessed the usual photo taking tendency).

Results

To investigate the relationship between photo taking sufficiency and revisit intention, we regressed the participants' revisit intention to the gallery ($M = 6.07$, $SD = 0.83$) on their subjective photo taking sufficiency ($M = 4.25$, $SD = 1.77$). As anticipated, photo taking sufficiency negatively predicted the revisit intention, $\beta = -0.10$, $t(79) = -1.88$, $p = .063$. The more sufficient one felt about the extent of photo taking, the less likely they would revisit the gallery. Thus, hypothesis 2 was supported.

In addition, to examine the relationship between the objective extent of photo taking ($M = 15.59$, $SD = 30.87$) and revisit intention, we regressed revisit intention on the objective extent of photo taking (both raw and log-transformed). The results of these regression analyses were not significant, $ps > .70$.

Discussion

Study 1A provided initial supporting evidence of our hypothesis in a field setting. Visitors to a city gallery indicated their revisit intention and the extent of photo taking sufficiency. As hypothesized, photo taking decreased revisit intention. The visitors who indicated that their extent of photo taking was sufficient showed significantly less intention to revisit the same attraction in the future than those who indicated that their photo taking was insufficient.

The strengths of study 1A are as follows. First, the survey responses were acquired at the attraction site as visitors were

exiting the gallery. Thus, these responses are likely to reflect the participants' true intentions at the time. Second, the data were collected at a city gallery, which is a popular attraction that is highly representative of typical galleries. Thus, the results could be generalized to other popular attractions. Third, in this survey, the participants' revisit intention was assessed *before* the questions about photo taking. Given this ordering, the participants' answers about photo taking did not influence revisit intention.

Notably, we found that the objective extent of photo taking (i.e., the exact number of photo taken during the visit) did not influence the revisit intention. We view that this is because the objective extent does not precisely capture the photo taking sufficiency. For example, the same number of photo taken can feel sufficient for some individuals (e.g., who tend to take a small number of photos during experiences), but it can also feel insufficient for other individuals (e.g., who tend to take a large number of photos during experiences). Thus, we view that using the subjective measure of photo sufficiency would be a more valid measure in capturing the individuals' psychology related to photo taking to predict revisit intention.

Study 1B

Study 1B was a large online survey that provided further support for our main predictions regarding the relationship between travelers' photo taking and their revisit intention. Participants recalled a trip that they had made recently and indicated their subjective extent of photo taking during the trip and their revisit intention to the same travel site. We predicted that, replicating the results of study 1A, the extent of photo taking will be negatively related to the intention to revisit the same place in the future.

Method

Two hundred six US residents (53.4% female) participated from Amazon MTurk. Participants first recalled and then described their most recent out-of-state trip. Next, they answered various descriptive questions about the trip, including the destination ("Where did you travel to?"), how many months had passed since the trip, distance (hours by car) from home, duration of travel ("How many days did you stay?"), and the number of companions for the trip ("How many people did you go with?").

To measure the extent of photo taking, participants indicated the extent to which they wished they would have taken more photographs (i.e., "Do you wish you had taken more photographs?"; 1 = not at all, 7 = very much). The responses to this question were reverse-coded so that the higher number indicated that the number of photographs taken felt sufficient.

Then, participants indicated their revisit intention by answering two questions: "How likely are you to revisit this

same place in the future?” and “How likely are you to revisit this same place within the next three years?” (1 = not at all, 7 = very much). The two revisit intention items were highly correlated ($r = .75, p < .001$), so they were averaged. Finally, participants responded to various demographic questions including income, education, and ethnicity.

Results

To test the relationship between photo taking and revisit intention, revisit intention ($M = 5.67, SD = 1.58$) was regressed on photo taking sufficiency ($M = 3.48, SD = 2.07$). As anticipated, photo taking sufficiency negatively predicted revisit intention, $\beta = -0.16, t(204) = -3.05, p = .003$. Using the log-transformed photo taking sufficiency in the regression analysis also provided the same results, $\beta = -0.13, t(204) = -3.05, p = .003$. The negative effect of photo taking sufficiency on revisit intention remained significant after controlling for participants' gender, age, income, and education, $\beta = -0.16, t(200) = -2.95, p = .004$. These results support hypothesis 2.

Discussion

The results of study 1B provided additional supporting evidence that photo taking decreases revisit intention. Using survey data on participants' recent out-of-state travel experiences, study 1B showed that the extent of photo taking decreases travelers' intention to revisit the same travel sites.

A strength of study 1B was the predicted relationship with participants' actual past travels that they self-generated. In addition, another strength of this design is the generalizability of our findings—that the hypothesized effect emerged across a large variety of attractions.

Study 2

Study 2 aimed to provide additional supporting evidence that photo taking decreases revisit intention. Using a scenario-based experiment involving participants' favorite destination, we manipulated the amount of photo taking to show causal evidence of photo taking on revisit intention. Specifically, participants imagined making a trip and either taking photographs, not taking photographs, and taking photographs but losing them. Consistent with our predictions, we expected that revisit intention would be lowest in the photo taking condition.

Further, to provide the process evidence of photo taking as a memory token mechanism, we measured the participants' motives for revisit intention associated with the motive to relive the experience. Consistent with our perceived utility account, we predicted that photo taking decreases revisit intention because photo taking lowers the motive to relive the experience by revisiting.

Method

Participants were 66 adults (50.0% female) who were recruited on a social media platform. The study used a between-subject design, and participants were randomly assigned to one of the three conditions. Participants were first asked to choose their favorite destination for a vacation. Specifically, they read, “Which of the following destinations do you want to go for a vacation?” They were given a list of five popular travel destinations (Hawaii, Bali, Maldives, Phuket, and Da Nang) and chose one place that they would like to visit. Next, participants were instructed to read one of the three scenarios. To eliminate unintended inferences between photo taking and travel quality, note that all scenarios described the trip as having highly positive attributes—great activities and delicious meals. Participants first read:

You just came back from a 6 day vacation to _____ [destination of participants' choice]. This destination was the one you had really wanted to visit. During the trip, the weather was clear and sunny. You relaxed on the beach in the sunshine and also joined various activities such as safari tours, skin scuba, and swimming in the resort. All of the meals were delicious, and you slept very well during the trip thanks to the comfortable and cozy beds.

Then, according to the assigned experimental condition, participants, in addition, read one of the following:

[Photo taking condition] During this trip, you took a great many photographs. You took wonderful photographs of the shining sea, a flaming sunset, superb natural scenery, and the food you loved. You also bought a magnet that was carved into the shape of the resort you stayed in.

[No Photo condition] You usually take photographs but you did not take photographs during this trip. Instead, you decided to fully enjoy and savor every moment without taking photographs. You also returned without any souvenirs.

[Photo lost condition] During this trip, you took a great many photographs. You took wonderful photographs of the shining sea, a flaming sunset, superb natural scenery and the food you loved. You also bought a magnet that was carved into the shape of the resort you stayed. However, when you checked the camera after you returned, you discovered that none of the photographs had been stored. You also realized that you had left the magnet at the resort.

After reading one of the scenarios, participants indicated satisfaction with the trip by answering, “How satisfied would you be with this trip?” (1 = not at all satisfied, 7 = very satisfied). Then, participants indicated revisit intention by answering, “If you were given the opportunity to travel abroad in three months, how much would you want to visit the same destination that you have just imagined visiting?” (1 = not at all, 7 = extremely).

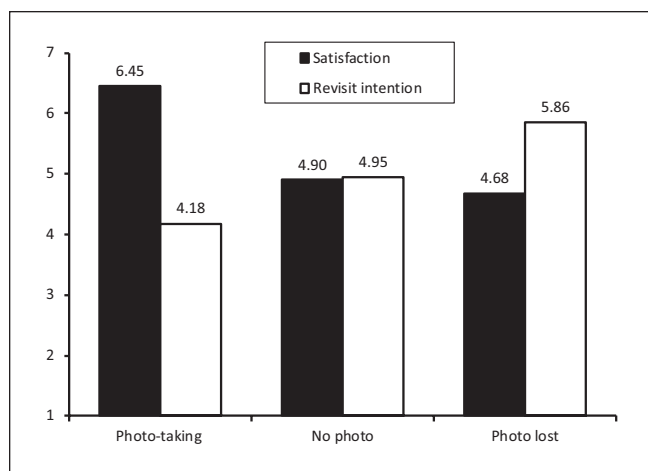


Figure 1. Results of study 2.

Note: Satisfaction/revisit intention of the trip by the experimental conditions of photo taking, no photo, and photo lost conditions.

To provide procedural evidence regarding memory, participants were asked the reason for their revisit intention, then indicated the extent to which they agreed with the following statement, “Because I want to feel the same emotions at this place” (1 = not at all, 7 = very much).

As an attention check of the scenario, participants chose between: “I took a lot of photographs during the trip”; “I did not take photographs during the trip”; “I took a lot of photographs during the trip but lost them”; “I don’t understand.” All participants correctly identified the attention check question.

Results

A one-way analysis of variance (ANOVA) revealed a significant effect of photo taking on travel satisfaction, $F(2, 63) = 10.07, p < .001$. Participants in the photo taking condition reported greater satisfaction with the trip ($M = 6.45, SD = 0.67$) than participants in the no photo condition ($M = 4.90, SD = 1.74$) or the photo lost condition ($M = 4.68, SD = 1.61$). Thus, photo taking increased satisfaction (hypothesis 1).

Next, a one-way ANOVA also revealed a significant effect of photo taking on revisit intention, $F(2, 63) = 6.03, p < .01$. Participants in the photo taking condition reported lower revisit intention ($M = 4.18, SD = 1.76$) than participants in the no photo condition ($M = 4.95, SD = 1.61$) and the photo lost condition ($M = 5.86, SD = 1.42$). Thus, photo taking decreased revisit intention (hypothesis 2). Figure 1 illustrates the results on satisfaction and revisit intention.

Finally, a one-way ANOVA also revealed a significant effect of photo taking on the motives for wishing to relive the same experience, $F(2, 63) = 3.79, p = .032$. Participants in the photo taking condition reported lower levels of wishing to relive the same experience by revisiting ($M = 2.27,$

$SD = 2.49$) than participants in the no photo condition ($M = 4.36, SD = 2.48$) or the photo lost condition ($M = 3.91, SD = 2.94$). To test the mediating role of photo taking as a memory token, we conducted a mediation analysis based on Hayes’s SPSS macro modules (with 5,000 bootstrapping with model 4; Hayes, Montoya, and Rockwood 2017). The mediator was the motivation to relive the same experience as the reason for revisit. The independent variable was a dummy variable with three conditions (photo taking: 0, 0; no photo: 1, 0, photo lost: 0, 1). As anticipated, the results of the mediation analysis indicated that the indirect effect of the mediator between the photo taking and the no photo conditions was significant (95% bootstrap confidence interval [CI]: 0.23, 1.34). Also, as anticipated, the results of the mediation analysis indicated that the indirect effect of the mediator between the photo taking and the photo lost conditions were significant (95% bootstrap CI: 0.04, 1.19).

Discussion

The results of study 2 replicated the results of studies 1A and 1B by using an experiment. All participants imagined a trip that had various positive attributes such as great activities and delicious meals, but read different scenarios regarding the extent of photo taking during the trip (i.e., taking photographs, not taking photographs, and taking photographs but losing them).

As predicted, photo taking increased satisfaction with the trip. Satisfaction was higher among those who imagined taking photographs than among those who imagined not taking photographs or those who imagined taking photographs but losing them. Although photo taking increased trip satisfaction, as hypothesized, it decreased revisit intention. Intention to revisit the same place was much lower among those who imagined taking photographs than among those who imagined not taking photographs or those who imagined taking photographs but losing them.

Study 2 also provided some supporting evidence for our memory token mechanism. Compared to other experimental conditions, participants who imagined taking photographs indicated lower levels of motivation to relive the same emotions by revisiting, which mediated to diminish revisit attention. These results suggest that, as predicted, photo taking allows people to relive the emotions felt during travel in the future (without physically revisiting the same location), thereby decreasing intention to revisit.

Study 3

In study 3, we replicate the results of study 2 in a choice paradigm between two museums (a museum with a policy of permission for photography vs. a museum with a photo-ban policy). As in study 2, we manipulated the degree of previous

photo taking experiences (i.e., photo taking vs. no photo vs. photo lost) at the attraction. We predicted that the greater the number of photographs the visitors took on their previous visit, the less likely they will revisit the museum that allows photography.

Further, we provide additional process evidence of our photos as a memory token mechanism. We anticipated that the revisit choice decisions were mediated by the importance that visitors placed on taking photographs on their previous visit.

Method

One hundred fifty-five participants (51.6% female) from Amazon MTurk participated in this study. Participants were assigned randomly to one of three (previous experience of photo taking: photo taking vs. no photo vs. photo lost) conditions in a between-subjects design experiment.

Participants imagined that they were visiting a city on vacation, and they had only one day left. They further imagined that they had decided to visit a museum and had narrowed their choices down to two museums (Museum A—with a photography allowed policy vs. Museum B—with a photography banned policy), both of which they had visited previously.

Then, participants read about their previous visit to the city. Depending on which experimental condition they had been assigned to, participants read different scenario regarding their previous experience at Museum A. Participants in the photo taking condition further read that, during their previous visit, they had taken many photographs in Museum A. Participants in the no photo condition read that they had not taken any photograph in Museum A during a previous visit because they had forgotten to bring their camera or smartphone. Finally, in the photo lost condition, participants imagined that they had taken many photographs at Museum A during a previous visit, but they had accidentally deleted all of the photographs.

After reading the scenario, participants chose between the two museums (Museum A—photography allowed policy vs. Museum B—photography banned policy) for their revisit. Then, to access process evidence, participants were asked the reason for making their choice, and then responded to “How important is photo taking activity in your previous selection of museum?” (1 = not at all important, 7 = very important).

Results

First, we identified the significant main effect of the previous photo taking experience on the preference for museum choices, $\chi^2(2) = 10.08$, $p < .01$, as shown in Figure 2. Consistent with hypothesis 2, photo taking during the past experience decreased revisit choice. The museum that allowed photography (Museum A) was preferred only by

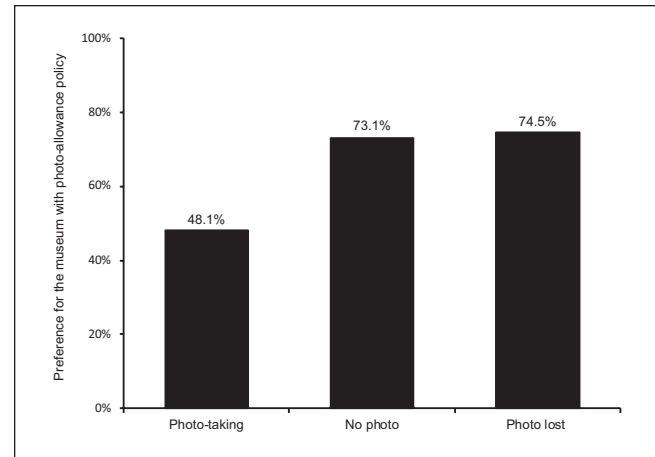


Figure 2. Results of Study 3.

Note: Museum revisit preference for the museum with photo-allowance policy by the experimental conditions of photo taking during the initial visit (photo taking, no photo, and photo lost).

48.1% (=25/52) participants in the photo taking condition, whereas it was preferred by 73.1% (=38/52) participants in the no photo condition and 74.5% (=38/51) for participants in the photo lost condition. Further analysis indicated that there was significant difference between the photo taking and the no photo conditions, 48.1% versus 73.1%, $\chi^2(1) = 6.80$, $p < .01$, and between the photo taking and the photo lost conditions, 48.1% versus 74.5%, $\chi^2(1) = 7.57$, $p < .01$. However, there was no difference between the no photo condition and the photo lost condition, 73.1% versus 74.5%, $\chi^2(1) = 0.03$, $p = .87$. These results show that the past experience of photo taking at Museum A decreases revisit intention to the same attraction.

In addition, there was a significant main effect of the previous photo taking experience on participants' perceptions regarding the importance of taking photographs in making the revisit choice, $F(2, 152) = 2.96$, $p = .055$. As shown in Figure 3, the perceived importance of photo taking in decision making was higher for participants in the no photo condition ($M = 5.25$, $SD = 1.65$) and for participants in the photo lost conditions ($M = 5.27$, $SD = 1.88$) than those in the photo taking condition ($M = 4.48$, $SD = 2.11$). In order to test the mediating role of the perceived importance of photography on the revisit decision making, we conducted a mediation analysis based on Hayes's SPSS macro modules (with 5,000 bootstrapping with model 4; Hayes 2017; Hayes, Montoya, and Rockwood 2017). The mediator was the perceived importance of photos in revisit decision making. The IV was two conditions (−1: photo taking, 1: no photo and photo lost). The results of the mediation analysis indicated that the indirect effect of the mediator (95% bootstrap CI: 0.05, 0.59) was significant. However, the direct effect of previous photo taking experience on the preference was also significant (95% CI: 0.04, 0.89) indicating a partial mediation.

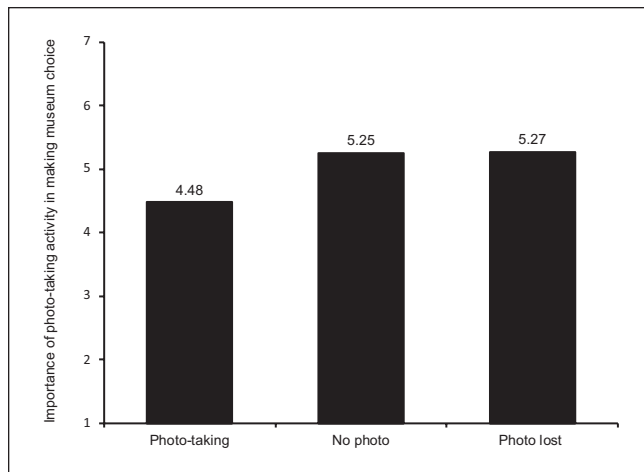


Figure 3. Results of study 3.

Note: Importance of photo taking activity in making museum revisit choice by the experiential conditions of photo taking during the initial visit (photo taking, no photo, and photo lost).

Discussion

In study 3, we provided further evidence that photo taking influences the choice of travel attraction. As in study 2, we manipulated the extent of photo taking (i.e., photo taking vs. no photo vs. photo lost). We tested the effect of photo taking in the past using a choice-setting paradigm between two museums (i.e., a choice between a museum that allows photography vs. a museum that bans photography) and showed that the extent of photo taking in the past visits significantly reduced revisit intentions. In addition, the decreased revisit intention was mediated by the importance of photo taking activity. These results complement the results of previous studies.

Study 4

In study 4, we investigated whether the impact of photography policy on visit intention differs by traveler type—whether the traveler is a first-time visitor or a returning visitor. We used an experimental method in which we manipulated whether the traveler is a first-time visitor or a returning visitor. Between the museums with different photography policy, we predicted that the first-time visitors would prefer the museum with a policy of allowing photography, whereas those revisiting would prefer the museum that banned photography.

Method

Three hundred seventeen participants (50.8% female) from Amazon MTurk participated in this study and were randomly assigned to one of the three (situation of visiting museums: first visit vs. revisit I—2nd time vs. revisit II—nth time) between-subjects design.

Participants in the first visit condition were first asked to imagine that they were visiting a city on vacation and that they had only one day left. They were further instructed to imagine that they had decided to visit a museum and had narrowed their choices down to two museums (Museum A—photo taking is allowed vs. Museum B—photo taking is banned).

Participants in the revisit I and II conditions were exposed to a similar experimental scenario that differed in the number of previous visit(s). In order to control the specific effect that may arise because of the number of previous visits, we used two different experience levels for this study. Participants in the revisit I condition were asked to imagine that they had previously visited the city once, visited both museums, and that they had taken many photographs at Museum A. Thus, for participants in the revisit I condition, the present visit to the city would be their second visit.

Participants in the revisit II condition were exposed to similar stimuli but with a few modifications—they imagined that they had previously visited frequently and had taken many photographs at Museum A. Thus, for participants in the revisit I condition, this would be their nth time revisiting ($n > 2$). We expect a similar effect in respect of revisiting intention, regardless of the different numbers of previous visits. After reading one of the three scenarios, participants chose which museum to visit during the current trip. All participants made a choice between the two museums (Museum A—photo taking is allowed vs. Museum B—photo taking is banned).

Results

We found a significant main effect of travel type (i.e., first visit vs. revisit I—2nd time vs. revisit II—nth time) on museum choice between the museum that allowed photography (Museum A) and the museum that banned photography (i.e., Museum B), $\chi^2(2) = 16.48$, $p < .001$ (see Figure 4). The museum that allowed photography (i.e., Museum A) was preferred by 72.4% ($=76/105$) of participants in the first visit condition, whereas it was preferred by 50.5% ($=53/105$) of participants in the revisit I conditions and 46.7% ($=50/107$) of participants in the revisit II conditions. Further analysis indicated that there was significant difference between the first visit and the revisit I conditions, 72.4% versus 50.5%, $\chi^2(1) = 10.63$, $p < .01$, and between the first visit and the revisit II conditions, 72.4% versus 46.7%, $\chi^2(1) = 14.46$, $p < .001$. However, there was no difference between the two revisiting conditions, 50.5% versus 46.7%, $\chi^2(1) = 0.30$, $p = .59$. These results support hypothesis 3.

Discussion

The results of study 4 showed that visitors' preference for the travel attractions with distinct photo allowance depends on the type of visitor—whether the current visit was a first-time

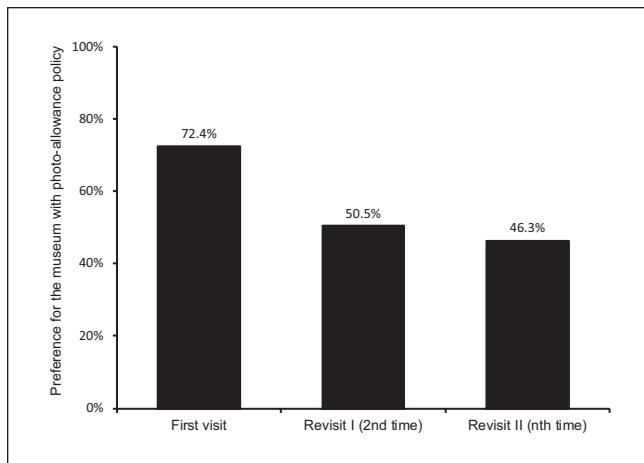


Figure 4. Results of study 4.

Note: Museum preference for the museum with a policy of allowing photography by traveler type (First-time visitor vs. 2nd-time visitor vs. nth-time visitor).

or a returning visit. As anticipated, the first-time visitors preferred the museum that allowed photography to the museum that banned photography, but the relative preference for the museum with the photography allowed policy decreased among the revisiting visitors. Thus, revisiting visitors who have taken photographs in their previous visits (at Museum A) were more likely than the first-time visitors to choose the museum with photography ban policy (Museum B). These results are consistent with our theory that photo taking decreases revisit intention due to photographs serving as a memory token that enables reliving the experience without revisiting physically.

Note that the inclusion of the revisit II condition (i.e., nth visit) excludes an alternative explanation: that travelers wanted to visit the museum where they had not been allowed to take photographs simply because they wanted to see the exhibitions again after their first visit. In this situation, if they visited the museum with the photography allowed policy, they might use the photographs they had taken as reminders of the previous visit. On the other hand, if they visited the museum with the photography banned policy, they have one option to visit the museum again. We argue that the revisit II condition excluded this alternative explanation in that the motivation to see the exhibition again would drop significantly based on their previous visit.

General Discussion

Summary of Empirical Studies

In this article, we introduce a novel, paradoxical dual effect on travel satisfaction and revisit intention. We have suggested that in contrast to the generally acknowledged positive effect of photo taking in the context of travel, decisions about revisiting travel attractions are significantly influenced

by photo taking activities in a previous visit, and the photography policy of the attractions. We predicted that whereas photo taking increases satisfaction, it also decreases revisiting intention among travelers.

Five empirical studies have provided supporting evidence for this hypothesis. Study 1A was a survey conducted in the field settings (i.e., gallery) showed initial evidence that photo taking decreases the revisit intention. The gallery visitors who have taken a sufficient amount of photos showed lower intention to revisit the attraction. Study 1B was an online survey about various recent travel experiences, which showed that travelers who felt satisfied with the amount of photographs from a trip had significantly lower revisit intentions. Study 2 replicated the negative effect of photo taking on revisit intention in an experiment that manipulated the extent of photo taking.

Study 2 also found that photo taking increased trip satisfaction. Further, study 2 tested the photographs as a memory token mechanism using a mediation analysis. As expected, the motive of wishing to relive an experience was significant. Participants who imagined that they did not take photos or took photos but lost them were more likely to express the intention to revisit, which was mediated by the motive of reliving the emotions of the past experience.

The results of study 3 compared the museums with different photo policies (allowance vs. ban) and replicated the findings of previous studies. The participants' choice of museum was compared between the extent of participants' photo taking in their previous visits (photo taking vs. no photo vs. photo lost). The museums where photography was allowed were selected less frequently for another visit, in the many photo-taken conditions (vs. experimental conditions in which participants imagined not taking photos or losing the photos). Moreover, the mediation analysis indicated that the importance of taking photographs was significant in the relationship between previous photography and participants' revisit intentions. When participants were engaged in the no photographs taken and many photographs taken but lost conditions, they perceived the taking of photographs to be more important than did those in the many photographs taken condition.

Finally, study 4 was conducted to further examine the effects of previous experiences of museum visiting on the participants' preferences for different museums. An experimental approach was used to establish causal relationships between the variables of interest. Congruent with our predictions, the findings suggested that museums where photography was allowed were preferred in the first-visit condition, whereas the preference dropped significantly for revisit conditions (revisit conditions I and II).

Theoretical Implications

The findings of this paper have important theoretical implications. First, the present research integrates the recent and

growing theories of photo taking in the tourism and psychology literatures and made novel findings about the paradoxical dual effects of photo taking: photo taking (vs. no photo taking) increases travelers' satisfaction with a travel experience, but decreases their intention to revisit the same experience site in the future. To the best of our knowledge, this is the first research to show that photo taking can have negative effects on travel intentions.

Second, the present research has also attempted to test whether policies of allowing or banning photography helps to encourage travelers to revisit travel attractions. The positive effect of photo taking in the travel experience that has been considered by other researchers (e.g., Diehl, Zauberman, and Barasch 2016; Killingsworth and Gilbert 2010; Larsson, Västfjäll, and Kleiner 2001) was amplified only for the first-time visitors. For potentially returning visitors, the existence of photographs from a previous visit counterintuitively reduced their intention to revisit.

Third, this research could extend our understanding regarding different types of travelers. Previous literature focused on a range of considerations such as different levels of satisfaction (Lai and Hitchcock 2017), the different factors influencing the first-time as opposed to returned visitors (e.g., Huang and Hsu 2009; Matzler et al. 2019), differences in orientation such as travel or recreation (e.g., Li et al. 2008), or the differences between exploring and consuming (e.g., Lau and McKercher 2004). This current research contributes to the theoretical understanding of the way first-time visitors (vs. returned visitors) experience travel attractions.

Finally, the results of this research are related to the concept of "nudging" in the travel domains (e.g., Kim et al. 2019), showing the power of simple and small cues to effect significant behavioral change. For example, Kim and his colleagues (2019) provided empirical evidence that the decision mode (i.e., choosing option vs. removing option) could influence the selection of travel options significantly, in the context of the compromise and attraction effect. The results of this paper also indicate that a simple policy change regarding a travel attraction's photography policy could have behavioral implications, especially for revisiting travelers.

Managerial Implications

First, the results of this paper offer practical implications for the tourism industry. If most visitors for a travel attraction are the first-time visitors, then allowing visitors to take photographs will maximize their satisfaction and to entice new visitors by allowing them to engage in the experience more deeply (Diehl et al. 2016). This will also increase the first-time travelers' choice because they can anticipate a greater satisfaction from photo taking and the ability to remember and save their memories (Barasch et al. 2017; Goodman, Malkoc, and Stephenson 2016; Tully and Meyvis 2017). On the other hand, if the majority of visitors are returning visi-

tors, then not allowing photo taking will increase the likelihood of returning to the same attraction.

Second, considering that photographs serve as memory tokens, if travel attractions decide to ban photo taking for reasons such as security or safety (e.g., banning photography of famous paintings; Berstein 2012; Miranda 2013), they should provide other offerings, such as museum guide books, as the replacement for photographs to serve as a memory token. If photo taking is not to be allowed inside a building, for example, then managers could consider providing and marketing the opportunity to take photographs outside the building by establishing an attractive photography zone.

Third, knowing the paradoxical dual effects of photo taking on revisit intention, we suggest that the managers of travel sites should constantly revamp them and promote these changes. When travel sites are revamped and changed, photographs from previous visits will no longer diminish the perceived utility of revisiting. Because the travel sites are changed and upgraded, travelers would need to physically revisit to enjoy the experiences.

Finally, some travel attractions may consider selectively banning photography only for some aspects of travel experience. For instance, a museum may allow visitors to take photos only of the selected artworks. In this way, visitors may retain some photographs as memory tokens. Yet, given that they would be missing at least some aspects of the experience, they would be more likely to revisit the attraction. For the purposes of such policy, it would be instrumental to limit photo taking of the most engaging aspects of a travel attraction (e.g., the most famous paintings in the museum). This is because the photographs of less engaging experiences could remind visitors of other more engaging experiences that they were not able to photograph, thereby increasing the visitors' willingness to revisit the attraction.

Limitation and Future Studies

As with any research, the present research has weaknesses and limitations, which suggest the direction of future research. First, some of our studies used scenario-based experiments. Scenario-based methods are used frequently in the travel literature (Kim et al. 2019), yet the actual behavioral data would increase the external validity of this research. Our use of survey data collected in the field settings (study 1A) and online survey about past travel experiences (study 1B) helped to ease this concern, however. Second, even though we distinguished two different types of travelers (i.e., first-time vs. revisitors) based on their previous visiting experiences, all analyses are based on cross-sectional one. Future studies may use a longitudinal design in order to capture the dynamics of travel activities. Third, although we provided empirical evidence of the mediation analysis, future research could provide additional evidence of the mediation, such as by directly manipulating the mediator (e.g., Kim et al. 2018). Fourth, future research can

investigate other factors that can influence photo taking, such as exploring individual differences in appreciating and engaging in experiences (Lee, Hall, and Wood 2018). Fifth, in the present article, we mainly focus on the impact of photo-taking policy on the revisit intention. However, various factors such as museum types, visitors' personal interests, and different levels of museum exposition could influence the revisit intention as well. Future studies could investigate the interaction effects of these factors and photo taking policy.

Declaration of Conflicting Interests

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