

## ABSTRACT

Title of Dissertation:                   DERIVING HAPPINESS FROM  
CONSUMPTION: TOWARDS AN  
UNDERSTANDING OF ENJOYMENT IN  
CONSUMER CONSUMPTION

Yuechen Wu  
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Dissertation Directed By:           Professor Rebecca K. Ratner  
Department of Marketing

This dissertation includes three essays that investigate factors that influence how much enjoyment consumers derive from their various daily consumption. The first essay examines whether and when shared experiences are more or less enjoyable than solo experiences. Whereas prior research has primarily focused on the social benefits of having an activity partner in leisure activities, we propose that sharing experiences requires coordination with others, which can take the consumer's attention away from the consumption activity, potentially reducing their enjoyment of the activity compared to those who engage in the experience solo. We demonstrate that lack of clarity about a partner's level of interests in the activity can make it difficult for consumers to coordinate and focus on a shared activity, and ultimately enjoy the experience, relative to solo experiences or shared experiences for which clarity is high. The second essay speaks to consumers' inhibition that prevents them from deriving happiness from rewarding solitary leisure experiences. Prior research shows that consumers are inhibited from engaging in

public leisure activities alone because of negative evaluations on social connectedness they anticipate from others. This essay examines how people actually evaluate consumers who engage in these activities solo versus accompanied. We demonstrate that though observers indeed perceive solo (vs. accompanied) consumers to be less socially connected, observers also make more positive inferences for solo consumers on the trait of openness, and overall view solo consumers as favorably as accompanied consumers. The third essay examines the effect of ownership status (i.e., whether a consumer owns the product or not) on consumers' adaptation to a product. We demonstrate that consuming a product for which consumers do not have ownership (vs. have ownership) prolongs happiness derived from the product. We propose that when consumers do not have ownership of a product, they experience an elevated arousal, which could help to slow down the otherwise natural process of hedonic adaptation.

DERIVING HAPPINESS FROM CONSUMPTION: TOWARDS AN  
UNDERSTANDING OF ENJOYMENT IN CONSUMER CONSUMPTION

by

Yuechen Wu

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Advisory Committee:

Professor Rebecca K. Ratner, Chair

Associate Professor Rosellina Ferraro

Professor Rebecca W. Hamilton

Associate Professor Edward Lemay, Dean's Representative

Assistant Professor Yajin Wang

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## Chapter I: Introduction

A central goal that individuals pursue is to maximize their happiness (Russell 1930). Consumers can derive happiness through their various daily consumption, such as to visit an art gallery with a friend, to play with a cool play station, or even to drink a cool beer or a bag of tasty chocolates. This dissertation includes three essays that investigate factors that influence how much enjoyment consumers derive from their various daily consumption.

Consumers frequently engage in leisure activities with others, such as visiting an art gallery with a friend or going to a sports match with a family member, and they tend to assume that sharing experiences with another person will make them more enjoyable (Caprariello and Reis 2013; Ratner and Hamilton 2015). The first essay (Chapter II) examines whether and when shared experiences are more or less enjoyable than solo experiences. Whereas prior research on shared experiences has primarily focused on the social benefits of having an activity partner in leisure activities (Raghunathan and Corfman 2006; Ramanathan and McGill 2007), we propose that sharing experiences requires coordination with others, which can take the consumer's attention away from the consumption activity, potentially reducing their enjoyment of the activity compared to those who engage in the experience solo. We demonstrate that lack of clarity about a partner's level of interests in the activity can make it difficult for consumers to coordinate and focus on a shared activity, and ultimately enjoy the experience, relative to solo experiences or shared experiences for which clarity is high. Notably, we show that simple interventions can increase clarity of a partner's interests and consumers' enjoyment of shared activities, providing tools for service providers who want to retain customers and benefit from positive word-of-mouth.

Continuing with the comparison between shared and solo experiences, the second essay (Chapter III) speaks to consumers' inhibition that prevents them from deriving happiness from rewarding solitary leisure experiences. Prior research shows that consumers are inhibited from engaging in public leisure activities, such as visiting an art museum or going to a movie theater alone because of negative evaluations on social connectedness they anticipate from others (Ratner and Hamilton 2015). This essay examines how people actually evaluate consumers who engage in these activities solo versus accompanied. We demonstrate that though observers indeed perceive solo (vs. accompanied) consumers to be less socially connected, observers also make more positive inferences for solo consumers on the trait of openness, and overall view solo consumers as favorably as accompanied consumers. We also identify several moderating factors of the more positive openness inference for solo (vs. accompanied) consumers, including accessibility of a situational constraint and the culture of the observers. We demonstrate a stronger attribution to a motive to seek aesthetic or intellectual stimulation as the mechanism underlying the openness inferences. Understanding that solo (vs. accompanied) consumers are actually perceived favorably in many ways by observers helps to alleviate consumers' concerns about venturing out alone in the future.

Though various consumption can bring people happiness and enjoyment, happiness may not persist. One reason for this is hedonic adaptation, defined as the attenuation of the intensity of affective responses towards a stimulus over time (Frederick and Loewenstein 1999; Helson 1964; Parducci 1995). The last essay (Chapter IV) examines the effect of ownership status (i.e., whether a consumer owns the product or not) on consumers' adaptation to a product. We demonstrate that consuming a product for which consumers do not have ownership (vs. have ownership) prolongs happiness derived from the product. We propose that when consumers do

not have ownership of a product, they experience an elevated arousal (Ardrey 1966; Dai and Hsee 2013; Furby 1978). Such arousal could help to sustain the intensity of one's affective reactions towards the product over time, slowing down the otherwise natural process of hedonic adaptation.

Together, these three essays examine distinct aspects of deriving enjoyment from various daily consumption. In the next three chapters I will describe my dissertation essays in greater depth. Each chapter will review relevant literature and offer predictions regarding how social context (Chapters II and III) and ownership status (Chapter IV) impact consumer enjoyment. I describe empirical support for these predictions and discuss implications for consumers and marketing practitioners.

## Chapter II: When Are Shared Experiences Less Enjoyable Than Solo Experiences?<sup>1</sup>

Consumers often share consumption experiences with others. Annually, nearly 70% of U.S. adults go to movies, sporting events and museums, and most attend these activities in the company of friends or family (National Endowment for the Arts, Survey of Public Participation in the Arts 2012). Given that these U.S. consumers spend, on average, \$562 per person per year on activities like these (U.S. Bureau of Labor Statistics 2017), it is important for service providers to understand when shared leisure activities are more enjoyable for consumers, and when they might be less enjoyable than solo experiences. Greater enjoyment makes consumers more likely to return and spread positive word-of-mouth, increasing their lifetime value to service providers (Gustafsson, Johnson and Roos 2005; Rust, Lemon and Zeithaml 2004).

Despite consumers' beliefs that sharing experiences with at least one other person will make these experiences more enjoyable (Caprariello and Reis 2013; Ratner and Hamilton 2015), evidence is mixed on whether shared experiences are actually more enjoyable than solo experiences. Caprariello and Reis (2013) show that consumers' retrospective self-reported happiness after engaging in shared experiences is higher than their self-reported happiness after engaging in solo experiences, but their methodology allows for differences in the types of experiences reported across conditions. Controlling for type of experience (e.g., spending time in an art gallery), Ratner and Hamilton (2015) found no difference in enjoyment of the experience between solo consumers and those who went with a partner. Raghunathan and Corfman (2006) also controlled for type of experience, and they found that although consumers enjoyed shared

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<sup>1</sup> This research is conducted with Nicole Y. Kim, Rebecca K. Ratner and Rebecca W. Hamilton

experiences more than solo experiences when they were exposed to congruent social information (i.e., when a confederate expressed positive evaluations of pleasant stimuli), they enjoyed shared experiences less when they were exposed to incongruent social information (i.e., when a confederate expressed negative evaluations of pleasant stimuli).

Mixed evidence might emerge because there are some factors that can make shared consumption experiences more enjoyable than solo experiences, and other factors that can make them less enjoyable than solo experiences. On the plus side, shared experiences allow consumers to compare their evaluations with those of others, and congruent evaluations of an experience can affirm one's reactions and increase enjoyment (Raghunathan and Corfman 2006). Sharing an experience with someone else rather than going alone can also increase felt status (McFerran and Argo 2014) and reduce concerns about not being perceived as socially connected (Ratner and Hamilton 2015).

However, on the negative side, sharing an experience can require coordination with another person, particularly for many activities outside of the lab where the pace and structure are determined by the activity participants. For example, one weekend afternoon, one of the authors and her friend decided to visit an art gallery featuring a new exhibit. She had been looking forward to learning about the exhibit and catching up with her friend. However, during the experience she found herself unable to absorb much of the art. She felt unsure about how much time to spend looking at and reading about each art piece, whether she should focus on the art or attend to her friend, and, more generally, how they should jointly navigate the exhibit. Her experience ended up being not very enjoyable because they spent most of the time standing in front of just a few paintings chatting, and she was not able to absorb the art as much as she had anticipated. She left the museum feeling dissatisfied with her experience. Should she have visited

the gallery alone, or could she and her friend have done something differently to improve their experience?

In this research, we identify conditions under which consumers enjoy shared experiences more than solo experiences, and when they enjoy them less. Specifically, when activities are highly interdependent in terms of deciding the pace and structure in which to navigate through the experience, like our coauthor's visit to the art gallery, we find that knowing their partner's level of interest in the activity influences the consumer's ability to coordinate with their partner. When consumers do not know their partner's level of interest in the activity, the difficulty of coordinating with their partner hurts their own ability to focus on and enjoy the experience. Under these conditions (highly interdependent activities and low clarity), consumers tend to enjoy shared activities less than engaging in the same activities alone. However, if consumers feel that they know their partner's level of interest in a shared activity (high clarity), they can more easily coordinate with their partner and enjoy a shared activity just as much as a solo activity, even if the activity is highly interdependent. Thus, if our coauthor and her friend had discussed their interests in the exhibits before entering the gallery, they might have found coordination easier and enjoyed the experience more. Alternatively, joining a guided tour to decrease the interdependence of the experience may have allowed our coauthor to focus more on the art and enjoy the experience even if she did not know how much the exhibits interested her friend.

Despite the importance of clarity and ease of coordination in influencing consumers' enjoyment of shared experiences, prior research has not examined how these factors impact enjoyment. In the next section, we draw from the literature on shared consumption as well as teamwork to develop our theorizing about the role of social coordination, and why clarity about a

partner's interests affects ease of coordination. Next, we describe a pilot study we conducted to examine the relationship between clarity about a partner's interest in an activity and the consumer's own enjoyment. Then, we propose a conceptual model (Figure 1) that we test in a series of three studies in which participants engage in real consumption experiences with others or alone. These studies examine the effects of clarity about a partner's interest in the activity on ease of coordination, ability to focus on the activity, and enjoyment of the activity, and they compare participants' ability to focus on and enjoyment of shared versus solo activities. Based on the results of our studies, we propose interventions that can help consumers get the most out of shared experiences as well as suggestions about when consumers may find it more enjoyable to engage in solo experiences.

### **ENJOYMENT OF SOLO VERSUS SHARED EXPERIENCES**

Prior work demonstrates that various factors can lead shared experiences to be more enjoyable than solo experiences. Sharing experiences prompts consumers to engage in positive self-presentation (Dunn et al. 2007) and increases felt status (McFerran and Argo 2014). Sharing experiences also reduces concerns about not being perceived as socially connected (Ratner and Hamilton 2015), which might contribute to higher enjoyment of an experience. Further, sharing experiences can also boost enjoyment when individuals discover that others' share their evaluations of the experience. For example, Raghunathan and Corfman (2006) find that consumers enjoyed shared experiences more than solo experiences when they were exposed to congruent social information (a confederate who rated pleasant stimuli favorably or unpleasant stimuli unfavorably), but they enjoyed shared experiences less when they were exposed to incongruent social information. Similarly, Ramanathan and McGill (2007) find that consistency

in partners' moment-to-moment evaluations of an experience positively predicted their overall evaluations of a shared experience.

In addition to these factors that have been shown to impact shared versus solo experiences, a fundamental difference between shared and solo experiences not previously explored is that shared experiences can require coordination with other consumers. Although we usually associate coordination with the accomplishment of work or performance tasks, coordination also plays an important role in many shared leisure activities. Coordination is the process of orchestrating the sequence and timing of one's own actions with others' actions during an experience (Marks et al. 2001; Reis and Collins 2004; Thompson and Fine 1999). For example, a consumer who visits an art gallery with a companion may try to time her own viewing of the pieces to coincide with her partner's movement between the pieces, and engage in conversation when it seems appropriate; a consumer who visits the same gallery alone does not have to think about how to navigate an experience with a partner. Coordination with others during a task requires an investment of energy and attention beyond that required to perform the task itself (Finkel et al. 2006).

We argue that clarity about the other person's interest in the activity will affect consumers' ability to coordinate with their partners during a shared activity. Earlier research on teamwork suggests that clarity influences ease of coordination, influencing the ability to achieve group and team outcomes. For example, team members who lack clarity about the overall objectives for the team and each other's roles are less able to coordinate with each other and integrate their own tasks with those performed by others, reducing overall team effectiveness (Gladstein 1984; Marks et al. 2001; Sawyer 1992). In close relationships, lacking clarity about a partner's long-term objectives (e.g., to lose weight or save money) decreases one's ability to

anticipate the partner's needs (Fitzsimons et al. 2015; Köpetz et al. 2011) and makes coordination between partners more difficult. Notably, whereas prior work has examined the impact of clarity on group-level outcomes or a partner's outcomes, we examine the effect of clarity on a consumer's own outcomes, including the consumer's own enjoyment of an activity.

Building on these earlier findings, we propose that when consumers engage in shared leisure activities, low clarity about a partner's interest in the activity reduces ease of coordination and the consumers' ability to focus on the activity, reducing the consumer's enjoyment of the activity. For example, if a consumer knows that her friend is very interested in a new art exhibit, she may anticipate spending more time on each piece and engaging in deeper conversations about the art. Or, if she knows her friend is more interested in socializing than in the exhibit, she can expect to spend less time on each piece. Either way, clarity about her partner's interests allows the consumer to coordinate more easily with her partner, helping her focus on the activity. On the other hand, if she has low clarity, and is wondering about her friend's level of interest in the art and searching for cues in her friend's behavior, this will reduce the consumer's own ability to focus on the art. When the consumer is able to devote less attention to a shared activity, we should observe evidence in measures such as memory for details of the activity and subjective ability to focus.

It is important to note social coordination costs are distinct from conflicts of interest (Rusbult and Van Lange 2003). A conflict of interest may occur when two people do not want to do the same activity (Rusbult and Van Lange 2003), such as when one wants to go to an art museum and the other wants to attend a baseball game. In contrast, social coordination costs may arise when two people both agree to engage in the same activity (either going to the art museum or to the baseball game) and their actions as they engage in the activity depend, at least in part,

on their partner's actions. We propose that clarity about a partner's interests, whether the partner's interests are congruent with the consumer's own interests or not, will facilitate social coordination. For example, knowing that one person is less interested in an exhibit than the other might prompt a pair to decide they should navigate the exhibit individually and pick a place to meet afterwards.

Further, we propose that the degree to which consumers are able to focus on the activity, whether they are alone or with someone else, predicts how much they will enjoy the experience. Prior work supports this prediction; the ability to focus (or feel a 'flow') during a task such as browsing online, and high involvement of experiences has been shown to increase enjoyment (Barasch, Zauberan and Kristin 2018; Holbrook and Hirschman 1982; Novak, Hoffman, and Duhachek 2003). Conversely, incidental events that divert a person's attention away from a positive focal activity decrease enjoyment (Isikman et al. 2016). When a consumer feels that she is not able to focus on an activity because she is distracted by coordinating with her partner, her enjoyment of the experience will be dampened. Thus, when consumers have low (vs. high) clarity about a partner's interests, we should observe reduced ability to focus on the activity and lower enjoyment of the activity. We test this prediction in a pilot study.

### **PILOT STUDY: DOES CLARITY OF A PARTNER'S INTERESTS MATTER?**

Motivated by our coauthor's frustrating experience at the art gallery, the goal of our pilot study was to compare shared and solo experiences visiting the same art gallery. We predicted that participants who had a high level of clarity about their partner's interests and participants who went alone would enjoy the experience more than those who had a low level of clarity,

because low clarity would reduce participants' ability to focus on the art and their enjoyment of the experience.

## Participants and Design

We recruited pairs of participants ( $N = 84$  pairs) and solo participants ( $N = 79$ ) to visit an art gallery on a university campus and then respond to a series of questions about their experience. After their visit, each participant responded individually to a survey in which we asked them how much they had learned about the artwork, how much they had enjoyed their experience in the gallery, and how well they understood what their partner wanted to get out of the experience (on 7-point scales where 1 = not at all, 7 = very much). We also surprised them with a quiz measuring how much they remembered about the artwork. This quiz provided a somewhat objective measure of participants' ability to focus on the activity, complementing the more subjective measure of how much they felt they had learned. At the end of the survey, participants provided demographic information and rated their liking for art, expertise in art, and the strength of their relationship with their partner.

## Results

We analyzed the data using a random coefficient model ("RCM") to control for the non-independent nature of the data for pairs of participants who visited the gallery together. We found that having a clear understanding of their partner's interests was a critical predictor of both enjoyment and learning for participants who visited the gallery with a partner. First, we

examined enjoyment. Participants who lacked clarity about what their partner wanted to accomplish (1 SD below the mean) said they enjoyed the experience significantly less ( $M_s = 5.06$  vs.  $5.53$ ;  $t(78) = 3.38$ ,  $p = .001$ ) than solo visitors. In contrast, participants who had a clear understanding of what their partner wanted to accomplish (1 SD above the mean) said they enjoyed the experience as much ( $M_s = 5.58$  vs.  $5.53$ ;  $t(78) = 0.35$ ,  $p = .83$ ) as solo consumers.

Next, we examined participants' ability to focus on the activity, using both self-reported learning and more objective scores on the memory test about the artwork in the gallery. Participants who lacked clarity about what their partner wanted to accomplish (1 SD below the mean) said they learned significantly less ( $M_s = 4.12$  vs.  $4.73$ ;  $t(78) = 2.76$ ,  $p = .001$ ) and scored lower on the memory test ( $M_s = 6.88$  vs.  $7.43$ ;  $t(78) = 2.76$ ,  $p = .007$ ) than solo visitors. In contrast, participants who had a clear understanding of what their partner wanted to accomplish (1 SD above the mean) learned as much ( $M_s = 4.70$  vs.  $4.73$ ;  $t(78) = 0.20$ ,  $p = .84$ ) and performed as well on the memory test ( $M_s = 7.55$  vs.  $7.43$ ;  $t(78) = 0.6$ ,  $p = .55$ ) as solo consumers.

## Discussion

This study provides preliminary support for our prediction that clarity about a partner's interest in the activity affects the consumer's own ability to focus on the activity and enjoyment of the activity. Clarity about a partner's interest in the activity was a significant predictor of both a subjective measure of ability to focus (self-reported learning) and a more objective measure (scores on a memory test), and it also predicted enjoyment, suggesting that clarity plays a key role in shared experiences.

One limitation of this pilot study is that clarity about the partner's interests was

measured, leaving open the possibility that alternative mechanisms explain the results. For example, partners who have a closer relationship may enjoy a shared activity more and also feel they have a better understanding of their partner's interests. Indeed, we observed a high correlation between consumers' clarity about the partner's interest and our measure of relationship strength ( $r = .41$ ). In our next study, we manipulated clarity of the partner's interests to rule out this explanation. Another possibility is that participants who felt they understood their partner's interests were more likely to have similar interests (i.e., high congruence in interests). In our next study, we measured participants' a priori interest in the activity to test the role of interest congruence.

Another limitation of this study is that we tested a single activity. However, shared experiences may differ on level of interdependence and require more or less social coordination. In the next section, we discuss the level of social coordination required by different activities.

## **SOCIAL COORDINATION DURING SHARED EXPERIENCES**

Some shared experiences may be less interdependent and require less social coordination between participants than others. For example, if two friends go on a guided tour of an art gallery, rather than navigating the gallery on their own, they have less responsibility for jointly deciding on their path through the gallery, how long to spend looking at each piece, or whether to talk about other topics as they go. If they are following a guide, the guide will determine the sequence of pieces they see and how long they spend examining each, and social norms will deter them from talking while the guide is describing each piece. Similarly, if two people decide to join an exercise class, they will both follow the lead of the instructor as they work out, and

less coordination between the two is required. Other shared activities require a higher level of social coordination (Finkel et al. 2006). Shared experiences that are more interdependent, such as navigating an art gallery without a guide, cooking a meal together, or playing a game of tennis, demand more social coordination. Gallery visitors might wonder how much time to spend on each piece and whether to stay together as they view the art; those cooking a meal might debate whether to make each dish together or have one cook the entrée and the other the sides; tennis players might not be sure how competitively the other wants to play. When tasks are more interdependent, coordination is more essential for effective functioning (De Dreu and Weingart 2003).

Notably, most prior work examining enjoyment of shared experiences has focused on less interdependent activities that require little coordination between participants, such as watching a video during a lab session or tasting a drink (Raghunathan and Corfman 2006; Ramanathan and McGill 2007). These activities were orchestrated by the experimenters, leaving little latitude for participants to determine how to navigate through the experience with their partners.

When shared activities are more interdependent, working with a difficult partner can create inefficient social coordination, which requires attention and depletes mental resources (Finkel et al. 2006). For example, working with an error-prone confederate on a data entry task reduced participants' performance on a subsequent individual exam due to depletion of mental resources (Finkel et al. 2006). We propose that even when the activity partner is not trying to be difficult, coordination will be more difficult for highly interdependent shared experiences.

Because social coordination will be more challenging for highly interdependent shared activities than for less interdependent activities, we expect the impact of clarity to be stronger for highly interdependent activities. When the activity requires less social coordination, we propose

that consumers will be less likely to experience social coordination difficulties, even when they lack clarity about their partner's level of interest in the activity. In contrast, when an activity is highly interdependent, each person must anticipate their partner's actions to coordinate successfully, making clarity particularly important.

To summarize, we propose that low (vs. high) clarity about a partner's level of interest in the activity will reduce ease of coordination, drawing more of the consumer's attention away, leaving less attention for focusing on the activity itself. Further, we suggest that clarity about the other person's interests will have a stronger effect for highly interdependent activities than for activities that are less interdependent. The degree to which consumers are able to attend to and enjoy the activity in shared experiences, then, will be a function of the clarity consumers have about their partners' interest in the activity and the degree to which the shared experience is interdependent.

## **CONCEPTUAL MODEL**

We capture these hypothesized relationships in our conceptual model (Figure 1A). One comparison is between shared experiences and solo experiences, and we propose that for both kinds of activities, the consumer's ability to focus on the activity will predict enjoyment of that activity. Further, within shared experiences, we propose that low clarity about a partner's interest in the activity will reduce the consumer's ability to focus on and enjoy the activity, compared to consumers with high clarity about their partner's interests, as we observed in our pilot study. These effects of clarity within shared experiences will be mediated by ease of coordination.

Finally, the effects of clarity about a partner's interests should be stronger when the shared activity is highly (vs. less) interdependent.

Although there are many differences between shared experiences and solo experiences that may influence relative enjoyment – such as the comfort of being with someone else and the potential for others to get on your nerves – that we do not include in our model, we propose that the degree to which activities require coordination and clarity of a partner's interests are two critical factors in predicting whether shared activities will be more or less enjoyable than the same activities done alone. We test our model in a series of three experiments.

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Insert Figure 1A about here  
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### **STUDY 1: MANIPULATING CLARITY ABOUT A PARTNER'S INTERESTS**

The primary objective of study 1 was to provide direct evidence that when engaging in a shared activity, low (vs. high) clarity about a partner's interests reduces ease of coordination with a partner, reducing consumers' ability to focus on and enjoy the experience. We compared shared activities with both high and low levels of clarity about a partner's interests to solo activities. To provide additional process evidence beyond our pilot study, we also measured ease of coordination. Further, in addition to measuring ability to focus on the activity, we measured participants' ability to socialize with others, which allowed us to test whether low clarity reduced consumers' abilities to enjoy other aspects of shared experiences or more specifically reduced consumers' ability to focus on the activity.

## Design, Stimuli, and Procedures

Two hundred and eighty-three participants (45.2% male) from a large university in North America were recruited and received credit in an introductory marketing course for their participation. Participants assigned to the shared experience conditions ( $N = 208$ ) were paired with the student sitting next to them to engage in a “movie festival tour.” These pairs were randomly assigned to either a high clarity or a low clarity shared experience condition. Those assigned to the solo experience condition ( $N = 75$ ) engaged in the same activity alone.

The movie festival tour activity involved exploring posters of movies being featured in a local film festival (“AFI DOCS”). To increase engagement, participants had the chance to win a free pass to see the movie of their choice at this festival. After individually reading a brief description of the movie festival, all participants indicated their level of interest in learning about the movies (“To what extent are you interested in learning about the movies to be featured in the festival?”) on a seven-point scale (1 = not at all, 7 = very interested) and answered an unrelated question (“How much do you enjoy taking marketing classes?”; 1 = not at all, 7 = very much).

Next, participants in the solo condition proceeded directly to the movie festival tour on their computer workstations. Participants in the two shared experience conditions moved their chairs to a single workstation to engage in the movie festival tour together. In the shared experience conditions, partners used a single computer to explore the posters, requiring them to coordinate the pace and order in which they viewed the posters. We manipulated clarity about the partner’s interests in the activity by asking half of the pairs to show each other their answers to the question about their level of interest in the film festival before they began the activity (high clarity condition), and the other half to show each other their responses to the question

about marketing classes (low clarity condition). Thus, participants in both the high and low clarity conditions exchanged information about themselves with their partners, but only those in the high clarity condition disclosed their level of interest in the activity.

Next, participants were given four minutes to explore posters and descriptions of five documentary movies featured in a local documentary movie festival. Participants could read detailed descriptions of each movie by hovering their mouse over a particular poster (see appendix B for the full stimuli). After exploring the movies, participants completed the remaining portion of the study individually.

## Measures

After completing the movie festival tour, participants in the two shared experience conditions responded to a check of the clarity manipulation (“During the movie festival tour, how clear was it to you how interested your partner was in learning about the movies to be featured in the movie festival?”; 1 = not clear at all, 7 = very clear). Next, all participants rated the need for social coordination (“To what extent did you perceive a need to coordinate in order to navigate through the experience of reading about the movie festival?”; 1 = not at all, 7 = very much).

All participants indicated how much they enjoyed the experience (“How much did you enjoy the experience?”), their level of satisfaction with the experience (“How satisfied were you with your movie festival tour?”), and how interested they would be in attending this AFI DOCS movie festival (7-point scales, 1 = not at all, 7 = very much). To measure the extent to which participants were able to focus on the activity during the experience, all participants responded to

two questions (“How much did you learn about the movies in the movie festival?” and “How much were you able to focus on the movie descriptions during the experience?”;  $r = .74$ ).

Participants in the shared experience conditions also rated their ability to socialize with their partner during the experience (“How well were you able to socialize with your partner during the experience?”). Next, participants in the shared experiences conditions responded to four questions measuring how easy it was for them to coordinate with their partner (“How natural versus awkward did you feel going through the movie festival with your partner?”; “How easy was it for you to know how long to spend on one movie?” “How easy was it for you to know when to talk with your partner during the movie festival tour?” “How easy was it to know what to talk about (e.g., movies in this festival; movies outside of this festival or related topics; personal topics) with your partner during the movie festival tour?”;  $\alpha = .80$ ). We collected demographic information at the end.

## Results

*Manipulation checks.* We used a random coefficient model (“RCM”) to control for the non-independent nature of the dyadic data<sup>2</sup>. We regressed perceived need for coordination during the experience on experience condition. As intended, participants in the high- and low-clarity experience conditions perceived a greater need to coordinate as they navigated through the experience than participants in the solo experience condition ( $M_{\text{high-clarity}} = 4.47$ ,  $SD = 1.53$  vs.  $M_{\text{solo}} = 3.37$ ,  $SD = 1.50$ ;  $F(1, 209.22) = 21.17$ ,  $p < .001$ ;  $M_{\text{low-clarity}} = 4.36$ ,  $SD = 1.51$  vs.  $M_{\text{solo}} = 3.37$ ;  $F(1, 216.69) = 18.28$ ,  $p < .001$ ). Perceived need for coordination did not differ across the

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<sup>2</sup> We used an RCM to control for dyadic influences in the analysis of all of our studies.

two shared experience conditions ( $M_{\text{high-clarity}} = 4.47$  vs.  $M_{\text{low-clarity}} = 4.36$ ;  $F(1, 124.75) = 0.25$ ,  $p = .620$ ).

The RCM analysis on perceived clarity about the partner's interests revealed a significant effect of experience ( $F(1, 104) = 7.95$ ,  $p = .006$ ). As intended, participants in the high (vs. low) clarity experience conditions felt they understood their partner's interests more clearly ( $M_{\text{high-clarity}} = 4.49$ ,  $SD = 1.69$  vs.  $M_{\text{low-clarity}} = 3.74$ ,  $SD = 1.68$ ), confirming the effectiveness of our clarity manipulation.

*Ease of coordination.* We used an RCM model to regress the index for ease of coordination on experience condition. As predicted, the RCM analysis on the index for ease of coordination revealed that participants who had high (vs. low) clarity about the partner's interests in a shared experience found coordinating with the partner easier ( $M_{\text{high-clarity}} = 4.09$ ,  $SD = 1.30$  vs.  $M_{\text{low-clarity}} = 3.61$ ,  $SD = 1.19$ ;  $F(1, 104) = 6.15$ ,  $p = .015$ ). In the high (vs. low) clarity condition, participants found it less awkward to navigate the movie festival with their partner, easier to know how long to spend on each movie, and easier to know when to talk with their partner and what to talk about.

*Ability to focus on the activity.* We used an RCM model to regress participants' ability to focus on experience condition. Consistent with our prediction, participants who had high (vs. low) clarity about their partner's interests were marginally better able to focus on the activity ( $M_{\text{high-clarity}} = 3.73$ ,  $SD = 1.21$  vs.  $M_{\text{low-clarity}} = 3.38$ ,  $SD = 1.25$ ;  $F(1, 133.65) = 3.19$ ,  $p = .077$ ). Participants who had a low clarity shared experience were less able to focus than solo participants ( $M_{\text{low-clarity}} = 3.38$  vs.  $M_{\text{solo}} = 3.97$ ,  $SD = 1.45$ ;  $F(1, 201.99) = 8.83$ ,  $p = .003$ ), while those who had a high clarity shared experience had just as much ability to focus as solo participants ( $M_{\text{high-clarity}} = 3.73$  vs.  $M_{\text{solo}} = 3.97$ ;  $F(1, 201.99) = 1.40$ ,  $p = .238$ ).

Insert Figure 2 about here

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*Enjoyment.* The RCM analysis on enjoyment of the experience revealed that, as predicted, participants who had high (vs. low) clarity about the partner's interests in a shared experience enjoyed the experience more ( $M_{\text{high-clarity}} = 4.28$ ,  $SD = 1.38$  vs.  $M_{\text{low-clarity}} = 3.54$ ,  $SD = 1.24$ ;  $F(1, 117.56) = 11.61$ ,  $p = .001$ ). Participants who had a low clarity shared experience enjoyed it less than solo participants ( $M_{\text{low-clarity}} = 3.54$  vs.  $M_{\text{solo}} = 4.01$ ,  $SD = 1.59$ ;  $F(1, 190.83) = 4.78$ ,  $p = .030$ ), while participants who had a high clarity shared experience enjoyed it just as much as solo participants ( $M_{\text{high-clarity}} = 4.28$  vs.  $M_{\text{solo}} = 4.01$ ;  $F(184.59) = 1.40$ ,  $p = .239$ ).

High (vs. low) clarity about a partner's interests also increased participants' satisfaction with shared experiences ( $M_{\text{high-clarity}} = 4.48$ ,  $SD = 1.45$  vs.  $M_{\text{low-clarity}} = 3.77$ ,  $SD = 1.32$ ;  $F(1, 122.37) = 9.59$ ,  $p = .002$ ). Participants who had a low clarity shared experience were less satisfied with the experience than solo participants ( $M_{\text{low-clarity}} = 3.77$  vs.  $M_{\text{solo}} = 4.27$ ,  $SD = 1.61$ ;  $F(1, 192.03) = 4.78$ ,  $p = .030$ ), while those who had a high clarity shared experience were just as satisfied as solo participants ( $M_{\text{high-clarity}} = 4.48$  vs.  $M_{\text{solo}} = 4.27$ ;  $F(1, 186.14) = 0.81$ ,  $p = .371$ ).

Insert Figure 3 about here

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Finally, high (vs. low) clarity about a partner's interests during a shared experience significantly increased participants' interest in visiting the movie festival ( $M_{\text{high-clarity}} = 4.53$ ,  $SD = 1.60$  vs.  $M_{\text{low-clarity}} = 3.91$ ,  $SD = 1.74$ ;  $F(1, 126.29) = 6.00$ ,  $p = .016$ ). Notably, participants who had a solo experience were not significantly more interested in attending than participants who had a low clarity shared experience ( $M_{\text{solo}} = 4.19$ ,  $SD = 1.71$  vs.  $M_{\text{low-clarity}} = 3.91$ ;  $F(1, 204.70) = 1.65$ ,  $p = .200$ ), perhaps because consumers are reluctant to engage in public, hedonic activities alone (Ratner and Hamilton 2015). Interest in visiting did not differ between the solo and high

clarity experience conditions ( $M_{\text{solo}} = 4.19$  vs.  $M_{\text{high-clarity}} = 4.53$ ;  $F(1, 211.41) = 1.14, p = .288$ ).

*Mediation.* To test our conceptual model, we conducted two mediation analyses. First, focusing on shared experiences, we tested whether having high (vs. low) clarity about the partner's interests in a shared experience enhanced ability to focus on the activity and enjoyment by increasing the ease of coordination (see Figure 1B for the tested model and results of the mediation). A serial mediation analysis with clarity about the partner's interests as the independent variable, ease of coordination as the first mediator, ability to focus on the activity as the second mediator, and enjoyment as the dependent variable (Process Model 6; Hayes 2017) showed that the indirect effect of clarity on enjoyment through coordination and the ability to focus was significant ( $b = 0.05, 95\% \text{ CI} = [0.01, 0.09]$ ), confirming the proposed process.

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Insert Figure 1B about here  
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Second, for completeness, we tested whether ability to focus on the activity mediated the effect of experience on enjoyment for all three experience conditions (see Figure 1C for the tested model and the mediation results). Using low clarity experience as the reference group, we found that the relative indirect effect of having clarity in a shared experience on enjoyment through ability to focus was significant ( $b = 0.17, 95\% \text{ CI} = [0.003, 0.346]$ ), so was the relative indirect effect of solo experience ( $b = 0.29, 95\% \text{ CI} = [0.09, 0.487]$ ), confirming the proposed process.

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Insert Figure 1C about here  
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*Robustness checks.* We conducted several additional analyses to test the robustness of the proposed effects. First, we tested whether congruence (the difference between partners' a priori interests in the movie) moderates our effects. We regressed participants' enjoyment on level of

clarity, congruence in partners' interests, and the interaction between clarity and congruence. Following Edwards (1994), we also controlled for consumers' own level of interests in the model. The effect of clarity remained significant ( $p < .001$ ) and the effect of congruence was not significant ( $p = .337$ ). The interaction between congruence and clarity on enjoyment was not significant ( $p = .483$ ), suggesting that the effect of clarity does not depend on congruence in the partners' interests. To provide further evidence that the effects of clarity do not depend on congruence, we conducted a separate study in which we manipulated both clarity and congruence in partners' interests. We found similar results that the effects of clarity held regardless of the level of congruence in partners' interests (see appendix D for the detailed design and analysis). When we manipulated congruence, we also replicated prior findings that congruence in interest level increased enjoyment of a shared experience.

We also tested a model in which participants' own interests in the experience and their partners' interests were entered as covariates. Participants' interests in the experience did not differ across conditions ( $M_{\text{high-clarity}} = 4.40$  vs.  $M_{\text{low-clarity}} = 4.30$  vs.  $M_{\text{solo}} = 4.49$ ;  $F(2, 280) = 0.29$ ,  $p = .749$ ), and including participants' own interests as a covariate in the main model did not change the effects of experience on ability to focus on the activity or enjoyment (see appendix A for detailed analysis). For those in the shared experience conditions, we also conducted an analysis using both individual's own interests and their partner's interests as covariates; including these covariates did not change the effect of clarity on ease of coordination, ability to focus or enjoyment.

Second, one procedural difference between the solo and the shared experiences was that only half of the participants in the shared experience conditions had control over the mouse, while all participants in the solo experience condition had control over the mouse. The ability to

navigate may have positive effects on learning (Ariely 2000). Controlling for who held the mouse within the shared experience conditions showed that ability to focus on the activity and enjoyment did not differ between mouse-holders and non-mouse-holders ( $ps > .34$ ).

Finally, we tested whether participants compensated for lower ability to focus on the activity by socializing with their partner, which may have provided other benefits. However, the results show that those who had high (vs. low) clarity about their partner's interests were better able to socialize with the partner ( $M_{\text{high-clarity}} = 3.92$ ,  $SD = 1.61$  vs.  $M_{\text{low-clarity}} = 3.08$ ,  $SD = 1.58$ ;  $F(1, 104.08) = 10.39$ ,  $p = .002$ ). Thus, high clarity about a partner's interest in an activity seems to have multiple positive effects for the consumer him or herself, improving both ability to focus on the activity and ability to socialize with the partner.

## Discussion

The results of study 1 highlight the critical role of clarity about a partner's interests when predicting whether shared experiences will be more or less enjoyable than solo experiences. We find that having low (vs. high) clarity about a partner's interest in a shared activity reduces ease of coordination and the consumer's ability to focus on the activity. When participants shared their responses to a 7-point scale item about marketing classes (in the low clarity condition) rather than a similar question about their interest in the movie festival (in the high clarity condition), they felt more awkward navigating the movie festival with their partner and believed it was more difficult to know how long to spend on each movie, and more difficult to know when to talk with their partner and what to talk about. In turn, this lower perceived ease in coordination translated into lower ability to focus on the movie festival and lower enjoyment of the

experience. These effects of clarity on enjoyment further translate to lower satisfaction with the experience and lower interest in participating in a similar activity in the future.

Study 1 also addressed several limitations of the pilot study. Manipulating clarity and assigning participants to a partner in the lab allowed us to rule out the possibility that the beneficial effects of clarity are explained by a closer relationship between activity partners. Notably, we demonstrate that communication alone (sharing answers to a different question in the low clarity condition) is not sufficient to increase clarity about the partner's interests, ability to focus on the activity, or enjoyment of the activity. Further, because we measured each participant's interest in the activity at the beginning of the study, we were also able to demonstrate that participants' interests in the activity did not explain the effect, nor did congruence of interests moderate the effect.

## **STUDY 2: MANIPULATING INTERDEPENDENCE OF THE ACTIVITY**

We predicted that the more a shared activity requires partners to coordinate with one other to navigate through the experience, the more high (vs. low) clarity about a partner's interests in the activity will affect their ability to focus on the experience and their enjoyment. When a shared activity is less interdependent, requiring less coordination between participants, we expect that the effects of clarity on ability to focus on the activity and enjoyment will be attenuated. In this study, we manipulated the level of interdependence of the activities to test this prediction. As in study 1, we compared shared experiences with solo experiences to test whether and when clarity about the partner's interests will predict whether consumers will enjoy a shared experience more or less than a solo experience.

## Design, Stimuli, and Procedures

Two hundred and forty-four students ( $M_{\text{age}} = 20.07$ ; 54% male) from a large university in North America participated in the study as part of an introductory marketing course and received course credit. Participants in the shared experience conditions ( $N = 80$  pairs) were paired with the student sitting next to them to engage in the activity and participants in the solo experience conditions ( $N = 84$ ) engaged in the activity on their own. Participants were also randomly assigned to either the high interdependence or low interdependence activity.

All participants were informed that they would explore nine photos from the National Geographic Instagram account (see appendix B). After reading a brief description of the activity, each participant was asked to indicate their own interest in viewing the photos. Next, participants in the shared experience conditions moved their chairs next to each other to explore the photos together on one person's computer. All participants saw thumbnails of the nine photos they would explore.

In the low interdependence activity condition, each photo and its descriptions were shown on the screen for 40 seconds (a length pretested to be sufficient to both read the description and observe the photo) before the screen automatically advanced to the next photo. Therefore, the pace and flow of navigating through the experience was externally set. In the high interdependence activity condition, participants were free to navigate the photos at their own pace and in whatever sequence they wanted over the course of six minutes (the same total amount of time as in the low interdependence condition). Participants could select specific photos to view by clicking on the thumbnail they were interested in.

After exploring the photos, participants in the shared experience conditions moved back to their own seats. All participants then answered questions individually about their experiences.

## Measures

Participants first indicated how much they enjoyed the experience (1 = not at all, 7 = very much). To measure ability to focus on the activity, we asked participants how much they felt they had learned from the experience (1 = not at all, 7 = very much). To limit common method bias, we also included an objective measure of participants' ability to focus, as we did in the pilot study. Specifically, participants completed an 11-item memory test about the photos and descriptions they saw (see appendix C). After completing the memory test, participants rated their clarity about their partner's interests ("During the experience, how clear was it to you how interested your partner was in learning about the photos?"; 1 = not clear at all, 7 = very clear). As a manipulation check for interdependence of the activity, participants rated the extent to which they needed to coordinate with their partner about how to navigate through the experience as the experience unfolded (1 = not at all, 7 = a great deal). We collected demographic information at the end.

## Results

*Manipulation check.* As intended, participants in the high (vs. low) interdependence activity condition felt a greater need to coordinate with their partner about how to navigate through the experience ( $M_{\text{high-NFC}} = 4.08$ ,  $SD = 1.67$  vs.  $M_{\text{low-NFC}} = 2.45$ ,  $SD = 1.50$ ;  $F(1, 158) =$

41.24,  $p < .01$ ), confirming the effectiveness of our manipulation.

*Ability to focus on activity.* We observed similar effects for both the objective measure (i.e., memory of the activity content) and a subjective measure of ability to focus on the activity.

First, focusing on shared experiences, we regressed participants' objective memory (the number of questions that were answered correctly in the memory test) on clarity about the partner's interests, activity interdependence, and the interaction between interdependence and clarity using a random coefficient model. The analysis revealed a significant main effect of interdependence ( $b = -2.73$ ;  $F(1, 147.98) = 7.47$ ;  $p = .007$ ), such that participants in the high (vs. low) interdependence condition were less able to recall information from the photos. It also revealed a significant interaction between interdependence and clarity ( $b = 0.42$ ;  $F(1, 152.88) = 4.33$ ;  $p = .039$ ). As predicted, for the high interdependence activity, clarity about the partner's interests increased ability to focus on the activity (simple slope:  $b = 0.34$ ;  $p = .028$ ), replicating the findings of the pilot study. However, for the low interdependence activity, the effect of clarity on memory disappeared (simple slope:  $b = -0.06$ ;  $p = .60$ ). Spotlight analysis further showed that when clarity was low (1 SD below the mean), participants in the high (vs. low) interdependence condition recalled less content ( $b = -1.34$ ;  $p = .002$ ); when clarity was high (1 SD above the mean), participants in both interdependence conditions were equally able to remember the information about the photos ( $b = -.19$ ;  $p = .62$ ; see Figure 4).

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Insert Figure 4 about here  
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We then compared the memory of participants who had a shared experience with that of participants who had a solo experience. Whether solo participants explored the photos at their own pace versus at a predetermined order did not influence how much they remembered.

Replicating the findings of the pilot study, for high interdependence activities, the memory of

solo participants was significantly higher than that of low clarity shared experience participants (1 SD below the mean;  $M_{\text{solo}} = 8.43$  vs.  $M_{\text{low clarity}} = 6.98$ ;  $p < .001$ ). Solo participants remembered marginally more than high clarity shared experience participants (1 SD above the mean;  $M_{\text{solo}} = 8.43$  vs.  $M_{\text{high clarity}} = 7.97$ ;  $p = .08$ ). For low interdependence activities, however, participants in the shared conditions remembered as much as solo participants regardless of clarity about the partner's interests ( $M_{\text{solo}} = 8.66$  vs.  $M_{\text{low clarity}} = 8.36$  vs.  $M_{\text{high clarity}} = 8.14$ ;  $ps > .05$ ).

We conducted a similar set of analyses on subjective measure of the ability to focus, which revealed a marginally significant main effect of activity interdependence ( $b = -1.28$ ;  $F(1, 144.89) = 3.02$ ;  $p = .084$ ). Though the interaction was weaker ( $b = 0.20$ ;  $F(1, 149.92) = 1.66$ ,  $p = .199$ ), simple slopes analyses suggested that for participants in the shared experience conditions, increasing clarity about the partner's interests increased subjective learning for high interdependence activities ( $b = 0.27$ ;  $p = .04$ ). However, for low interdependence activities, clarity did not affect subjective learning ( $b = .09$ ;  $p = .29$ ). Further, for high interdependence activities, solo participants felt that they learned more than low clarity shared experience participants ( $M_{\text{solo}} = 4.74$  vs.  $M_{\text{low clarity}} = 4.13$ ;  $p < .001$ ), but the same amount as high clarity share experience participants ( $M_{\text{solo}} = 4.74$  vs.  $M_{\text{high clarity}} = 4.93$ ;  $p = .20$ ), replicating our prior findings. For low interdependence activities, participants in the shared experience conditions felt that they learned as much as solo participants regardless of level of clarity ( $M_{\text{solo}} = 5.17$  vs.  $M_{\text{low clarity}} = 4.80$  vs.  $M_{\text{high clarity}} = 5.01$ ;  $ps > .05$ ).

*Enjoyment.* We conducted a similar RCM analysis on enjoyment of shared experiences and observed a significant main effect of interdependence ( $b = -1.90$ ;  $F(143.24) = 4.88$ ,  $p = .029$ ) and a significant interaction between interdependence and clarity ( $b = 0.39$ ;  $F(1, 148.11) = 4.85$ ,

$p = .029$ ). As predicted, clarity about the partner's interests increased enjoyment for high interdependence activities ( $b = 0.48$ ;  $p = .001$ ), while for low interdependence activities, the effect of clarity was not significant ( $b = 0.07$ ;  $p = .47$ ). Spotlight analysis showed that at low levels of clarity (1 SD below the mean), accompanied participants in the high (vs. low) interdependence condition enjoyed the experience marginally less ( $b = -0.69$ ;  $p = .06$ ); at high levels of clarity (1 SD above the mean), participants in both interdependence conditions enjoyed the experience equally ( $b = 0.43$ ;  $p = .22$ ; see Figure 5).

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Insert Figure 5 about here  
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We then compared solo experiences with shared experiences. For high interdependence activities, low clarity shared experience participants (1 SD below the mean) enjoyed the experience less than solo participants ( $M_{\text{solo}} = 4.50$  vs.  $M_{\text{low clarity}} = 3.80$ ;  $p < .001$ ). Notably, different from our prior studies, we found that for high interdependence activities, high clarity shared experience participants (1 SD above the mean) enjoyed the experience significantly more than solo participants ( $M_{\text{solo}} = 4.50$  vs.  $M_{\text{high clarity}} = 5.18$ ;  $p = .001$ ). This result suggested that consumers may be deriving enjoyment in a shared experience in part from its social aspects (Epley and Schroeder 2014), even those related to coordination. In contrast, for low interdependence activities, solo participants enjoyed the experience as much as high clarity shared experience participants ( $M_{\text{solo}} = 4.92$  vs.  $M_{\text{high clarity}} = 4.75$ ;  $p = .37$ ), and more than low clarity shared experience participants ( $M_{\text{solo}} = 4.92$  vs.  $M_{\text{low clarity}} = 4.49$ ;  $p = .03$ ).

*Mediation.* To test our conceptual model (see Figure 1D for the tested model and the mediation results), we conducted a moderated mediation analysis using clarity about the partner's interests as the independent variable, ability to focus on content as the mediator, interdependence as the moderator, and enjoyment as the dependent variable (Process Model 8;

Hayes 2017). As predicted, the ability to focus on the activity mediated the relationship between clarity and enjoyment for high interdependence activities ( $b = 0.20$ ; 95%  $CI = [.22, .41]$ ), but not for low interdependence activities ( $b = .06$ ; 95%  $CI = [-.08, .22]$ ).

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Insert Figure 1D about here  
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*Robustness checks.* As in study 1, we conducted several additional analyses to test the robustness of the proposed effects. First, to test whether congruence in the partners' interests in the activity moderated our effects, we regressed participants' enjoyment on level of clarity, congruence in partners' interests, interdependence of the activity, the interaction between interdependence and clarity, the interaction between interdependence and congruence, the interaction between clarity and congruence, and the interaction between the three factors. We also controlled for one's own interest, following Edwards (1994). The main effect of interdependence ( $p = .059$ ) and the interaction effect between clarity and interdependence remained significant ( $p = .023$ ). The effect of congruence was not significant ( $p = .337$ ). The main effect of congruence was not significant ( $p = .921$ ). The interaction between congruence and clarity, as well as the three-way interaction were not significant ( $ps > .37$ ), suggesting that the effect of clarity did not depend on congruence in the partners' interests.

We also tested another model in which participants' own interests in the experience and their partners' interests were entered as covariates (see appendix A). The effects of clarity about the partners' interest emerged even controlling for both individuals' own interest and their partners' actual interest, confirming the robustness of the effects.

## Discussion

The results of study 2 show that the interdependence of the activity moderates the effect of clarity about a partner's interests on the consumer's ability to focus on the activity and enjoyment. For high interdependence activities, requiring a lot of social coordination, low clarity about a partner's interests hurt the consumer's ability to focus on the activity and enjoy the activity. In contrast, for low interdependence activities, which require less social coordination, the effect of clarity on consumers' ability to focus and enjoyment is attenuated. For service providers who wish to improve consumers' enjoyment of shared experiences, this finding suggests that they might implement strategies to make shared activities less interdependent, such as offering a guided tour to visitors who are accompanied instead of encouraging them to explore on their own.

Because engaging in an activity alone eliminates the need to coordinate with a partner, including a solo condition allowed us to further test the effects of social coordination costs during a shared experience. Participants who were alone were able to focus more on the activity and enjoyed the activity more than those who engaged in a highly interdependent shared activity when they had low clarity about the partner's interests. Service providers can leverage this result by encouraging consumers to go solo if they are not clear about their partner's interests.

### **STUDY 3: ENCOURAGING CONSUMERS TO GAIN CLARITY**

In this study, we tested a more naturalistic manipulation of clarity, in which we simply prompted participants to engage in discussion with their partners before beginning the activity. We collaborated with an art gallery and manipulated clarity by asking some participants to discuss what they wanted to accomplish with their partner before entering the gallery, giving

some participants a choice about whether to have this discussion, and not mentioning the opportunity for discussion to others. Thus, we were able to test consumers' lay beliefs about the effects of clarity by examining whether consumers would take simple steps to increase clarity about their partner's interests when they were given an opportunity to do so.

### Design, Stimuli, and Procedures

The study was conducted at an art gallery located at a hotel and conference center. One hundred and seventy-six participants (38.7% male,  $M_{\text{age}} = 39.98$ ) walking through the conference center were recruited to participate in the study. For 60% of the participants in the shared experience conditions, we manipulated clarity by either asking participants to discuss their interests with their partners before their visit to the gallery (high clarity condition; 20 pairs) or not asking them to do so (low clarity condition; 20 pairs); we allowed the other 40% of the participants in the shared experience conditions to choose whether they wanted to engage in such a discussion (26 pairs). We also recruited solo participants to compare the experiences of solo consumers with those of accompanied consumers with either high or low clarity about their partner's interests.

Interns were instructed to recruit participants walking alone for the solo experience condition ( $N = 44$ ) and pairs of participants walking together for the shared experience conditions ( $N = 132$ ). Among the 66 pairs recruited, 31.8%, 23.5%, 17.4% and 23.5% of them were friends, colleagues, family and significant others, respectively. Note that in studies 1-2, pairs were strangers; study 3 extends our findings to pairs in closer relationships. All participants were given a \$5 voucher redeemable at the hotel café for their participation.

After participants had agreed to take part in the study, they were escorted to a set of tables where they were greeted by the experimenters and filled out an informed consent form. They were told that as part of the study, they would visit an art gallery hosting a special exhibit, and then fill out a survey regarding their experience in the gallery. Prior to their visit, each participant read a brief description of the exhibit and indicated their level of interest in the exhibit.

Next, the experimenters escorted participants to the entrance of the gallery and gave them a brochure of the exhibit. Before entering the gallery, accompanied participants assigned to the high clarity condition were instructed to take a few minutes to discuss what they wanted to accomplish during the visit, whereas accompanied participants assigned to the low clarity condition were asked to enter the gallery directly. Pairs in the choice condition were asked to choose between going directly into the gallery and discussing what they wanted to accomplish before entering the gallery. Solo participants were instructed to enter the gallery directly.

Sixteen objects were displayed in the portion of the gallery participants toured. The brochure contained a short description about the exhibited artwork and background information about the artist for each piece. After visiting the gallery, participants returned to the experimenter tables to fill out a survey. Finally, participants were compensated for their participation.

## Measures

Participants rated how much they had enjoyed their experience at the art gallery (1 = not at all, 7 = very much). Participants then reported their ability to focus on the artwork, whether they had as much time to read the brochures as they wanted to, and how much they felt they had

learned from the experience on separate seven-point scales (1 = not at all, 7 = very much). These three items were averaged to form a subjective measure of participants' ability to focus on the activity ( $\alpha = .65$ ). As in study 2, we also included an objective measure of a consumer's ability to focus on the activity by having them take a 12-item memory quiz about the artwork in the gallery (see appendix C). Participants in the shared experience conditions also rated their ability to coordinate with their partner ("To what extent were you and your partner able to coordinate and figure out how you would navigate the gallery?"; 1 = not at all, 7 = very much), and as a manipulation check, their clarity about the partner's interests in the exhibit ("How clear was it to you what your companion wanted to do in the gallery?"; 1 = not clear at all, 7 = very clear). Finally, we collected demographic information.

## Results

Solo visitors did not differ from accompanied visitors in their interest in the exhibit ( $p = .63$ ), their frequency of visiting art galleries or their knowledge about art ( $ps > .85$ ). Visitors in the shared experience conditions also did not differ on these measures ( $ps > .20$ ).

*Manipulation check.* As intended, an RCM analysis suggested that participants who had a shared experience and were assigned to the high (vs. low) clarity condition reported higher clarity about their partner's interests ( $M_{\text{high clarity}} = 5.90$ ,  $SD = 1.19$  vs.  $M_{\text{low clarity}} = 4.80$ ,  $SD = 1.62$ ;  $F(1, 40) = 10.76$ ,  $p = .001$ ).

*Ease of coordination.* An RCM analysis revealed a significant main effect of clarity on ease of coordinating with the partner ( $F(1, 38.40) = 7.36$ ,  $p = .01$ ). As predicted, participants in the high (vs. low) clarity condition felt better able to coordinate with their partner during the

experience ( $M_{\text{high clarity}} = 5.63$ ,  $SD = 1.61$  vs.  $M_{\text{low clarity}} = 4.46$ ,  $SD = 1.94$ ).

*Ability to focus on the activity.* We regressed participants' ability to focus on the experience on clarity. Focusing on shared experiences, we found that consistent with our predictions, participants who had a shared experience with high (vs. low) clarity about their partner's interests scored higher on the memory test ( $M_{\text{high clarity}} = 7.83$ ,  $SD = 2.23$  vs.  $M_{\text{low clarity}} = 5.65$ ,  $SD = 2.49$ ;  $F(1, 68.38) = 11.51$ ,  $p = .001$ ). Further, replicating the findings of prior studies, compared to solo participants, accompanied participants in the low clarity condition had worse memory for the artwork ( $M_{\text{solo}} = 7.64$  vs.  $M_{\text{low clarity}} = 5.65$ ;  $\beta = -1.99$ ,  $F(1, 80.54) = 12.23$ ,  $p = .001$ ; see Figure 6). The memory of solo participants and high clarity participants did not differ ( $M_{\text{solo}} = 7.64$ ,  $SD = 2.20$  vs.  $M_{\text{high clarity}} = 7.83$ ,  $SD = 2.23$ ;  $\beta = -0.19$ ,  $F(1, 80.54) = 0.11$ ,  $p = .741$ ).

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Insert Figure 6 about here  
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A similar analysis on the subjective measure of participants' ability to focus on the activity likewise revealed that participants in the high (vs. low) clarity condition felt that they were better able to focus on the activity ( $M_{\text{high clarity}} = 5.80$ ,  $SD = 0.85$  vs.  $M_{\text{low clarity}} = 4.73$ ,  $SD = 1.27$ ;  $F(1, 63.21) = 16.04$ ,  $p < .001$ ). Furthermore, solo participants felt better able to focus on the activity than low clarity shared experience participants ( $M_{\text{solo}} = 5.60$ ,  $SD = 0.92$  vs.  $M_{\text{low clarity}} = 4.73$ ,  $SD = 1.27$ ;  $F(1, 82.56) = 12.45$ ,  $p < .001$ ), and as much as high clarity share experience participants ( $M_{\text{solo}} = 5.60$  vs.  $M_{\text{high clarity}} = 5.80$ ;  $\beta = -1.07$ ,  $F(1, 82.56) = 0.70$ ,  $p = .404$ ).

*Enjoyment.* Although participants' enjoyment of the experience did not differ across condition, high clarity share experience and solo participants enjoyed the experience directionally more than low clarity shared experience participants ( $M_{\text{high clarity}} = 6.13$  vs.  $M_{\text{solo}} = 6.14$  vs.  $M_{\text{low clarity}} = 5.85$ ). We acknowledge that in addition to clarity, other factors, such as the

quality of the content, can influence enjoyment of an experience. Given that the quality of art in this gallery was very high, and enjoyment was quite high across conditions, it appears we might have encountered a ceiling effect in this study.

*Mediation.* We conducted two mediation analyses to test our conceptual model. First, for the shared experience conditions, we conducted a serial mediation analysis with clarity about the partner's interests as the independent variable, ease of coordination and ability to focus on the activity as the first and the second mediators, respectively, and enjoyment as the dependent variable (Process Model 6; Hayes 2017). At the confidence interval of 95%, the indirect effect of clarity on enjoyment through coordination and the ability to focus was significant ( $b = 0.22$ , 95% CI = [0.06, 0.30]), confirming the proposed process (see Figure 1E for the tested model and the mediation results).

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Insert Figure 1E about here  
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Second, we tested whether ability to focus on the activity mediated the effects of experience on enjoyment. Using low clarity shared experience as the baseline group, we found that the relative indirect effect of high clarity on enjoyment through ability to focus was significant ( $b = 0.60$ , 95% CI = [0.30, 0.93]), so was the relative indirect effect of solo experience ( $b = 0.48$ , 95% CI = [0.19, 0.86]), confirming the proposed process (see Figure 1F for the tested model and the mediation results).

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Insert Figure 1F about here  
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*Robustness checks.* As in studies 1-2, we conducted several additional analyses to test the robustness of the proposed effects. We first included congruence in the model to test whether congruence in the partners' interests in the activity changed the effects of clarity on enjoyment.

We regressed participants' enjoyment on level of clarity, congruence in partners' interests, and the interaction between clarity and congruence. We also controlled for one's own interest, following Edwards (1994). The effect of clarity remained nonsignificant ( $p = .775$ ). The effect of congruence as well as the interaction between congruence and clarity was not significant ( $ps > .12$ ), suggesting that the effect of clarity does not depend on congruence in the partners' interests.

We also tested participants' own interests in the experience and their partners' interests as covariates (see appendix A). The effects of clarity about the partners' interest emerged even controlling for both individuals' own interest and their partners' actual interest, confirming the robustness of the effects.

*Choosing to increase clarity.* Given the benefits that accrue from clarity about a partner's interests, the shared experience/choice condition allowed us to test whether consumers spontaneously choose to engage in behaviors that increase their clarity about their partner's interests. Notably, 92% participants in the choice condition (24 out of 26 pairs) chose not to discuss what they each wanted to accomplish in the gallery before going into gallery. Most pairs replied with a response such as "we are good" or "we can just go," and only a small percentage (8%) chose to have such a discussion, supporting our prediction that consumers opt out of simple steps to increase clarity, even when given an opportunity to do so.

To examine whether those in the choice condition who opted-out of discussing their interests could have been better off if they had discussed what they wanted to accomplish, we conducted analyses comparing opt-out choosers' ability to focus on the activity with that of those in the high and low clarity conditions. In line with our theorizing, opt-out choosers were less able to focus on the artwork compared to those in the high clarity condition (memory:  $M_{\text{chooser}} = 6.69$

vs.  $M_{\text{high clarity}} = 7.83$ ;  $t(125) = 2.23$ ,  $p = .024$ ; subjective measure:  $M_{\text{opt-out chooser}} = 5.34$  vs.  $M_{\text{high clarity}} = 5.80$ ;  $t(125) = 2.07$ ,  $p = .04$ ). Notably, opt-out choosers' ability to focus on the activity was better than that of low clarity participants (memory:  $M_{\text{opt-out chooser}} = 6.69$  vs.  $M_{\text{low clarity}} = 5.65$ ;  $t(125) = 2.03$ ,  $p = .044$ ; subjective measure:  $M_{\text{opt-out chooser}} = 5.34$  vs.  $M_{\text{low clarity}} = 4.73$ ;  $t(125) = 2.73$ ,  $p = .01$ ). Asking people whether they would like to discuss their interests might have started an informal conversation within some pairs to talk about what they wanted to accomplish, which in turn improved their ability to focus on the activity.

## Discussion

As in prior studies, this study showed that having high (versus low) clarity about a partner's interests increased ease of coordination during a shared experience, increasing the consumer's own ability to focus on the activity.

Study 3 provides clear implications for service providers who want to improve customer satisfaction during shared consumption experiences: they may be able to improve consumers' shared experiences by simply nudging them to engage in a short discussion with their partner about what they each want to accomplish before engaging in the activity. How difficult a nudge will this be? After visiting the gallery, we asked participants in the high clarity condition to indicate how comfortable it was to discuss their interests with their partner, and we asked participants in the low clarity condition to indicate how comfortable they expected this discussion to be. Low clarity participants expected that discussing their interests would be less comfortable than high clarity participants said it actually was ( $M_{\text{low clarity}} = 4.64$  vs.  $M_{\text{high clarity}} = 5.95$ ;  $t(122) = 3.05$ ,  $p = .003$ ), suggesting that discussing interests with an activity partner is more

comfortable than people expect.

## **GENERAL DISCUSSION**

Across a pilot study and three studies examining real shared experiences, we demonstrate that when consumers have low (vs. high) clarity about a partner's interests, social coordination becomes more difficult, which in turn reduces the consumer's own ability to focus on the activity, as measured by both objective memory for the content (pilot study, studies 2-3) and subjective feelings about how much one has learned (pilot study, studies 1-3). Ease of coordination mediated the effect of clarity on ability to focus on the activity in shared experiences (studies 1 and 3), and the interdependence of the activity moderated the effect of clarity on ability to focus on the activity and enjoyment (study 2). These negative effects on ability to focus on the activity and enjoy the experience emerge even when the activity content is free and consumers have not paid any entrance fee or incurred other costs to obtain the content (pilot study, studies 1-3). Moreover, we find that consumers underestimate how comfortable it would be to attain clarity about their partners' interests and the benefits of doing so (study 3). For example, consumers chose to opt out of discussing their interests with their partners, even when explicitly given the opportunity to increase clarity.

The current research makes several theoretical contributions. First, it adds to our understanding of how the presence of another person influences a consumer's own experiences. Whereas prior literature has focused on how sharing experiences with others increases enjoyment (Caprariello and Reis 2013; Epley and Schroeder 2014; Ramanathan and McGill 2007), this paper shows that shared experiences are not always more enjoyable than solo experiences.

Further, for the activities we study, enjoyment seems to be driven to a large degree by the consumer's ability to focus on the activity content. We believe there are many shared activities like those we study in which consumers care about the activity content, such as sports matches, museum exhibits, garden tours, aquariums, and cultural activities.

Second, this research adds to our understanding of the importance of social coordination during leisure activities. Prior work on coordination has shown that a partner's inefficient behaviors (e.g., a partner makes a lot of mistakes while cooking) can increase difficulties in coordination (Finkel et al. 2006). We add to this literature by showing that one's lack of clarity about the partner's interests serves as an important and novel antecedent of coordination difficulty. In addition, whereas prior literature suggested that coordination challenges undermine one's performance in subsequent tasks, our results show that coordination difficulties induced by a lack of clarity have immediate negative effects on ability to focus on and enjoy a shared leisure experience.

Notably, prior experiments examining enjoyment of shared experiences have typically used less interdependent experiences with limited need for individuals to navigate with a partner through an experience. For example, research examined accompanied experiences in a video watching context where participants were asked to watch the video separately and no verbal communication was allowed during the experience (Ramanathan and McGill 2007), or accompanied (vs. solo) consumers were presented with stimuli in a set sequence (Bhargave and Montgomery 2013). In such settings, the effect of clarity about the partner's interests on one's own experiences is likely to be attenuated (as in the current study 2). In contrast, we examine more highly interdependent experiences that require moment-to-moment interdependent decisions. We believe these highly interdependent experiences mimic many real-life experiences,

making it critical to examine the effects of clarity in these more naturalistic contexts.

To what range of leisure activities do our predictions apply? For example, what about activities for which learning is not an important objective? We conducted a study on MTurk to examine consumers' self-selected shared experiences in which they believed they had low vs. high clarity about their partners' interests in the activity. Across various activity contexts, including attending concerts, shows, and sports games, and going to museums, aquariums and theme parks, we replicated the proposed effects and found that consumers who had low (vs. high) clarity about a partner's interests reduced ease of coordination, lowering one's own ability to focus on activity, and enjoy the experience. This study also shows that the effects of clarity have several downstream effects: consumers who had low (vs. high) clarity about their partner's interests were also less willing to recommend the activity to friends and regretted paying for the activity (please find detailed description of this study and analysis in appendix E).

We acknowledge that not all high interdependence activities will benefit from clarity about the person's interest. In the Finkel et al. studies, there was interdependence in terms of reliance on each other to do the tasks, but people may not need to make decisions about how to navigate that would be informed by knowing how interested the person is in the task. Further, there may be more extreme situations in which clarity about truly incongruent interests could have a negative impact, perhaps when the incongruity has negative implications for the viability of the relationship itself (i.e., strongly-held, highly incongruent interests that are central to each person's identity and that make the relationship itself seem fundamentally incompatible; e.g., finding out on a first date at an art gallery that one's partner does not like art, when this is an important part of one's own self-identity).

From a managerial perspective, our results are relevant to both for-profit (e.g., sports

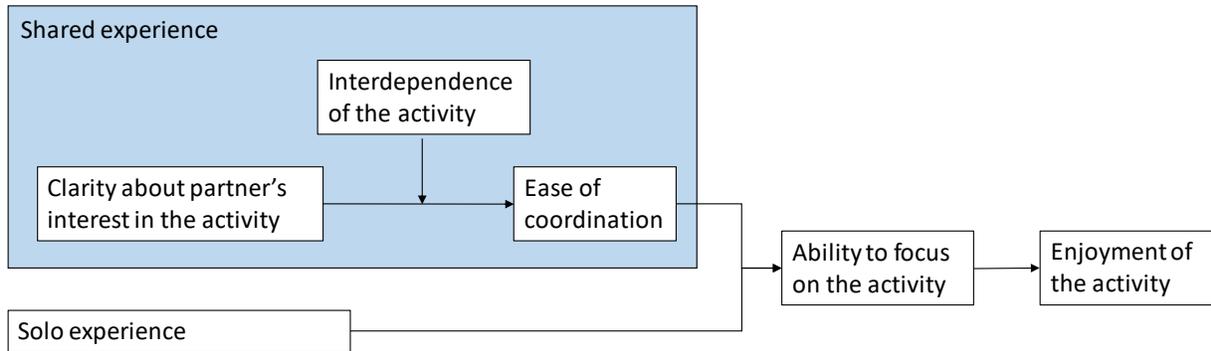
teams) and non-profit service providers (e.g., museums). The results of our studies identify three interventions for consumers and service providers can leverage to increase enjoyment of shared experiences. As shown in studies 1 and 3, sharing responses to a survey question about interest in an activity (study 1), or engaging in a simple discussion about what each wants to accomplish prior to engaging in the activity (study 3) is powerful enough to increase consumers' clarity about their partner's interests and attenuate coordination difficulties. Service providers can encourage accompanied consumers to exchange information about their interests before participating in the experience. Service providers such as art museums can also increase the structure of their activities such as by offering guided tours or other structural cues to increase ease of coordination during shared experiences, as shown in study 2.

If obtaining information about the partner's interests is difficult, the results of our studies suggest that venturing out alone may be a good option as well, especially when the activity, if shared, is highly interdependent. Although solo consumption does not offer the social benefits of having company, removing the coordination challenges introduced by a lack of clarity about another person's interests allowed solo consumers to better focus on the activity than accompanied consumers with low clarity about their partner's interests, which tend to increase their enjoyment of the experience. Being deliberate about whether and how an experience is shared can increase enjoyment, particularly when people care about the content they encounter during the experience. In this regard, service providers can encourage consumers to engage in solo experiences by educating them about the benefits of going alone, making solo consumers feel comfortable and welcomed, and/or making the activities seem more like learning experiences (Ratner and Hamilton 2015). Such outreach can benefit not only consumers, by preventing them from missing out on rewarding solitary experiences, but also service providers,

who seek to capture revenue that is otherwise being unspent.

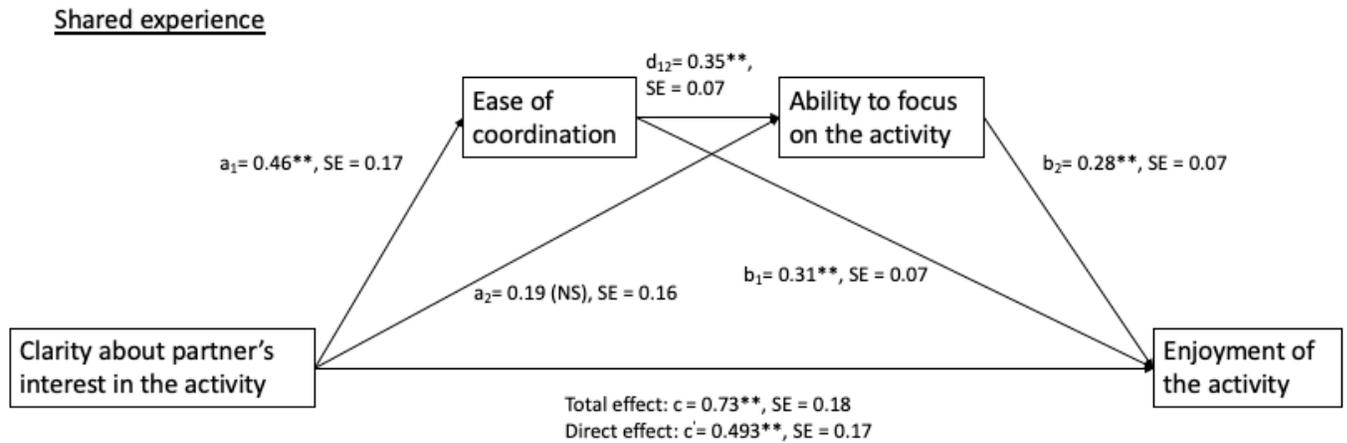
**FIGURE 1A**

**CONCEPTUAL MODEL**



**FIGURE 1B**

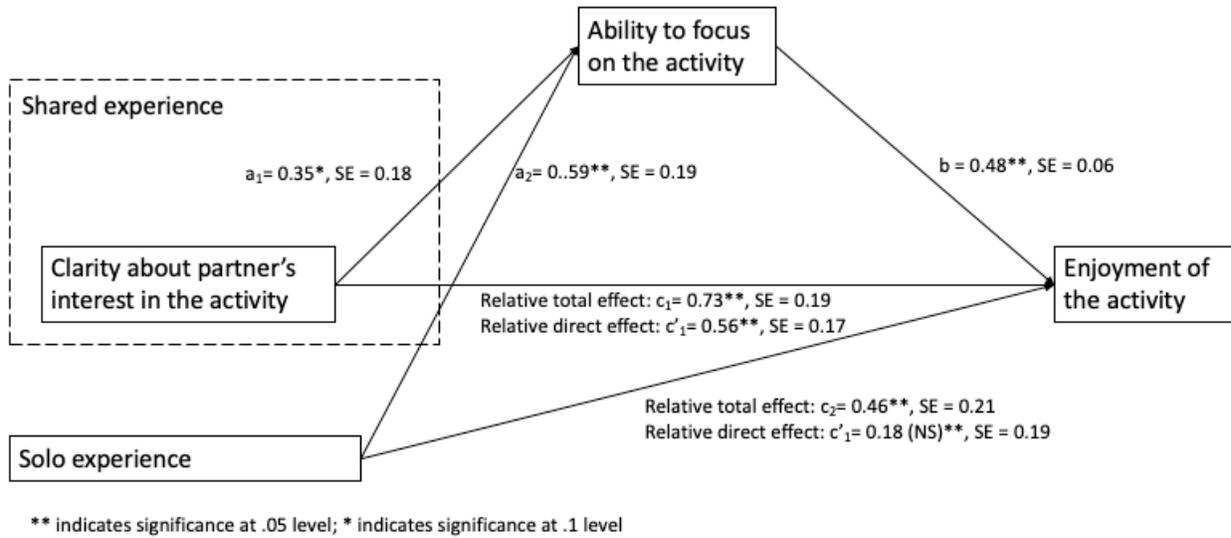
**SERIAL MEDIATION WITHIN SHARED EXPERIENCE (STUDY 1)**



\*\* indicates significance at .05 level; \* indicates significance at .1 level

**FIGURE 1C**

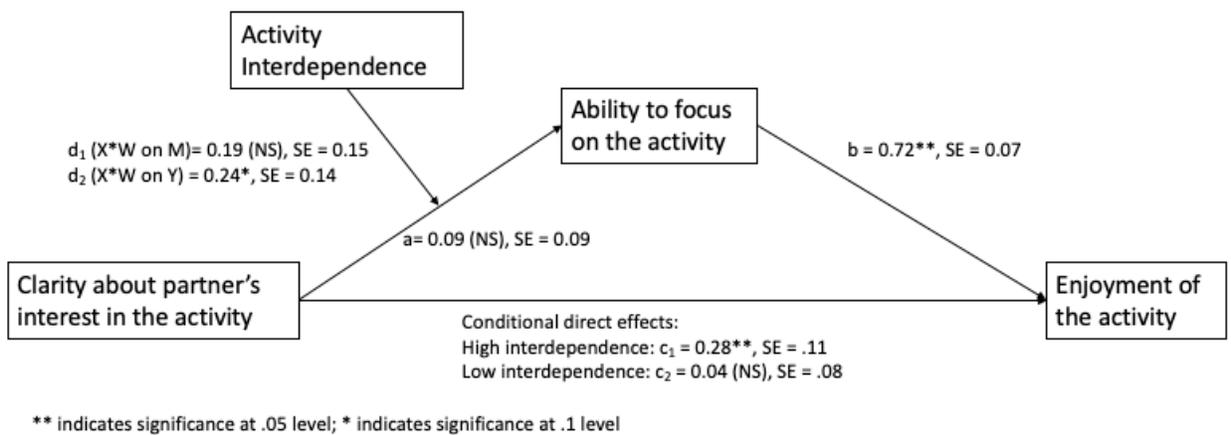
**MEDIATION BY ABILITY TO FOCUS (STUDY 1)**



**FIGURE 1D**

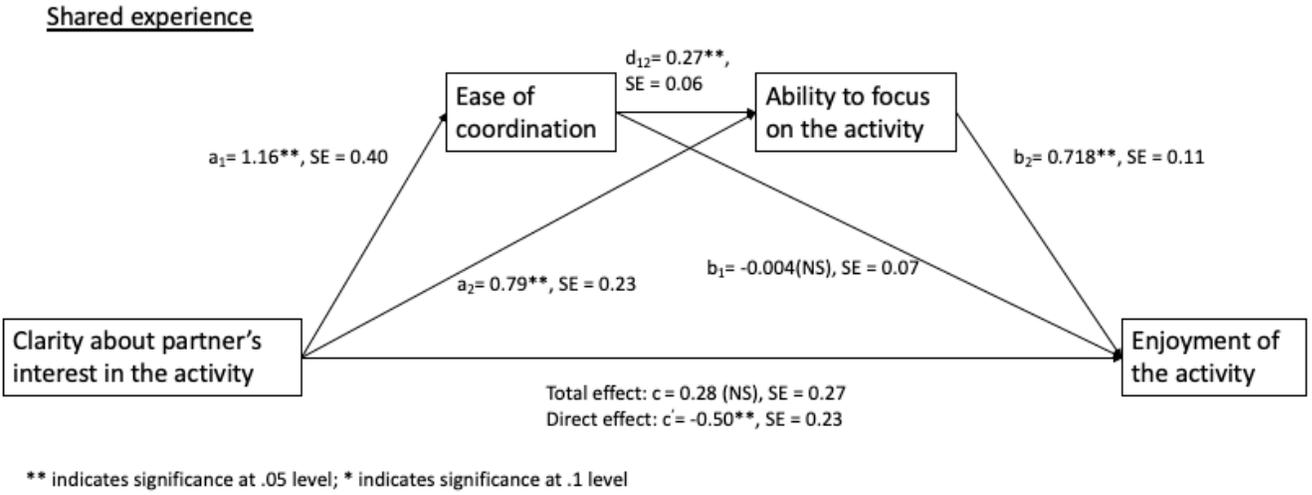
**MODERATION BY INTERDEPENDENCE WITHIN SHARED EXPERIENCE (STUDY 2)**

Shared experience



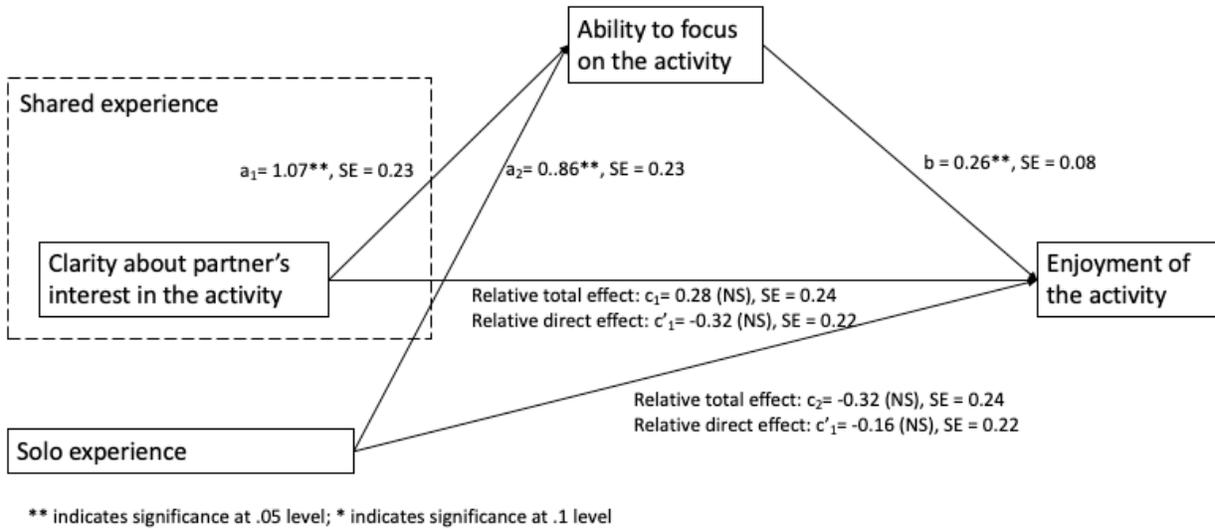
**FIGURE 1E**

**SERIAL MEDIATION WITHIN SHARED EXPERIENCE (STUDY 3)**



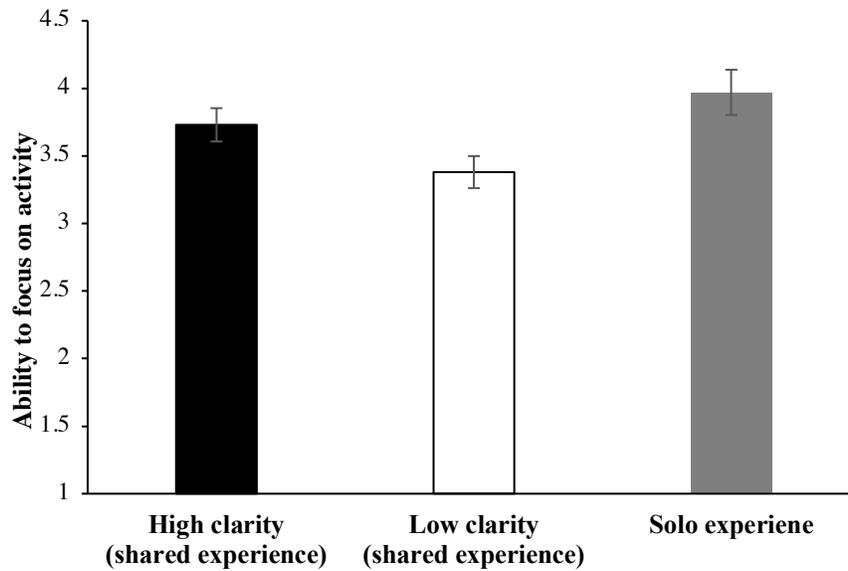
**FIGURE 1F**

**MEDIATION BY ABILITY TO FOCUS (STUDY 3)**



**FIGURE 2**

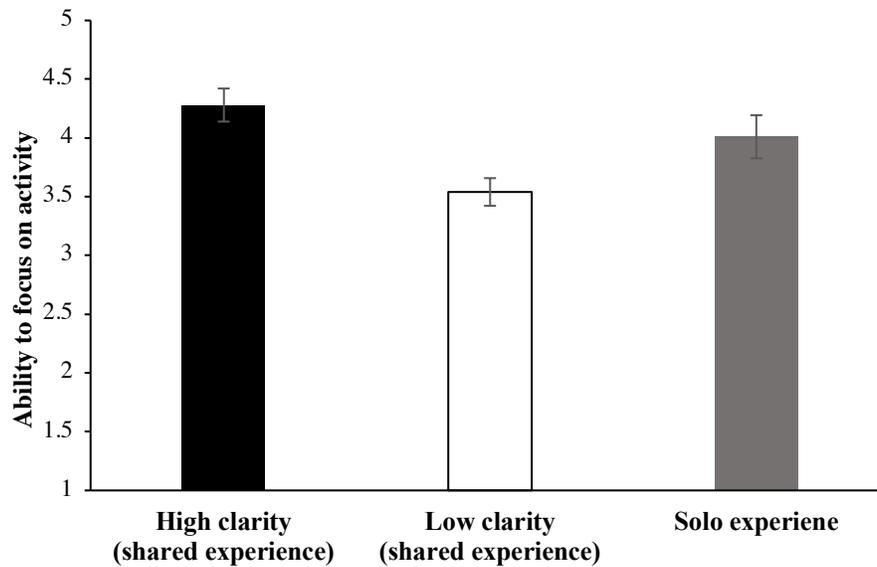
EFFECTS OF EXPERIENCE CONDITION ON ABILITY TO FOCUS (STUDY 1)



NOTE. Error bars represent standard errors of the mean.

**FIGURE 3**

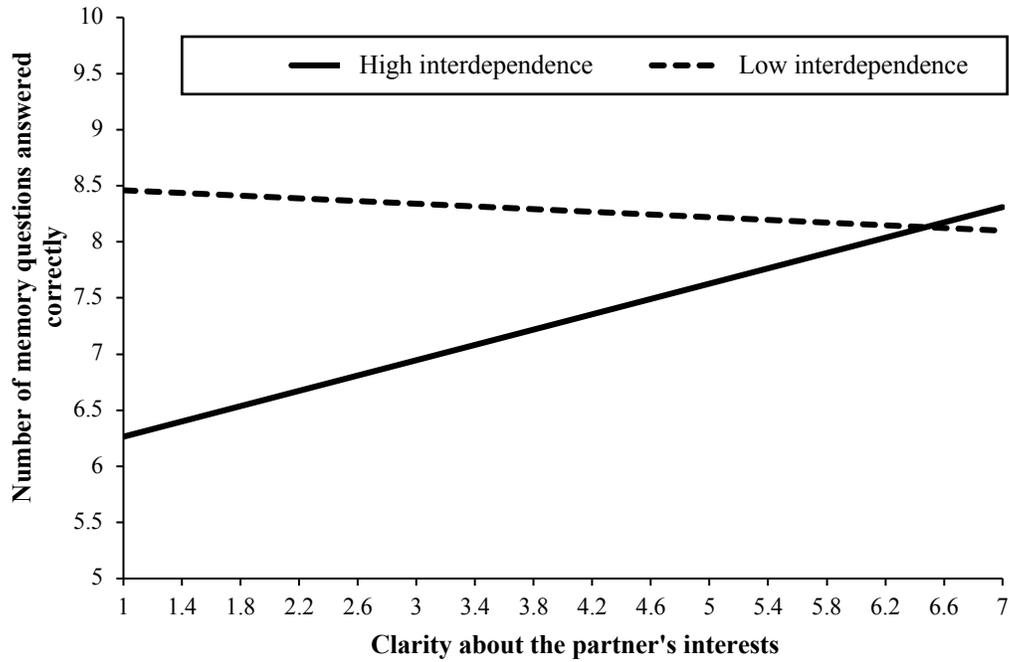
EFFECTS OF EXPERIENCE CONDITION ON ENJOYMENT (STUDY 1)



NOTE. Error bars represent standard errors of the mean.

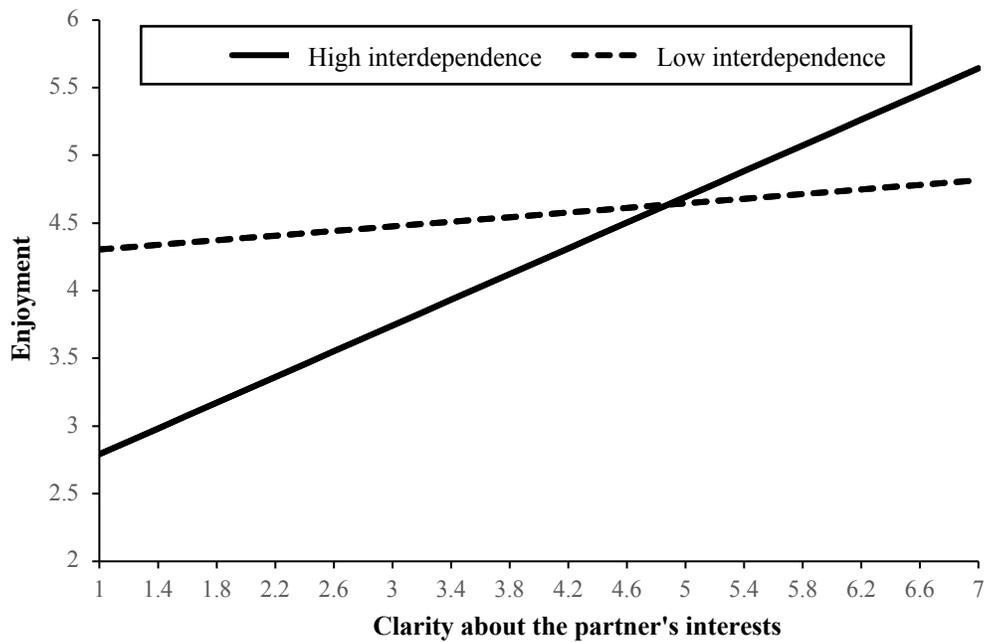
**FIGURE 4**

EFFECTS OF CLARITY AND INTERDEPENDENCE ON OBJECTIVE ABILITY TO FOCUS (STUDY 3)



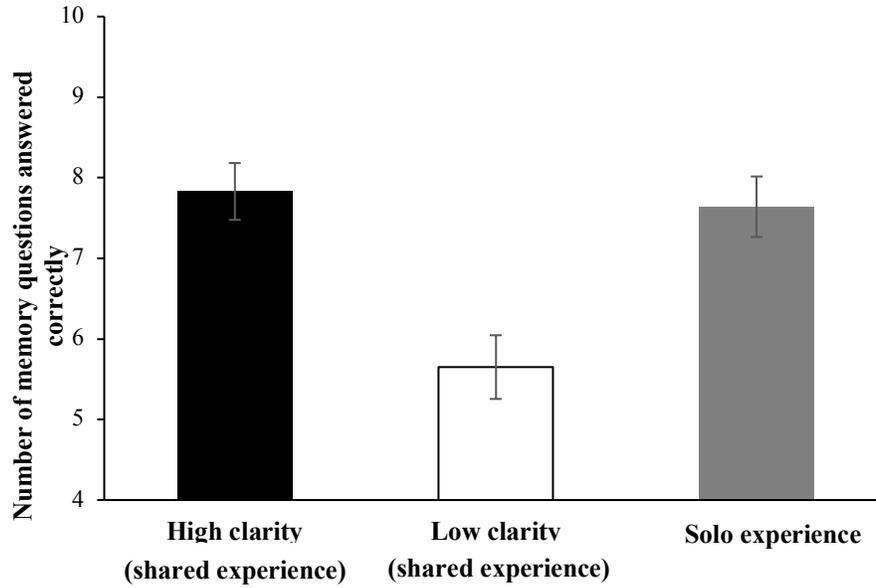
**FIGURE 5**

EFFECTS OF CLARITY AND INTERDEPENDENCE ON ENJOYMENT (STUDY 2)



**FIGURE 6**

EFFECTS OF EXPERIENCE CONDITINO ON OBJECTIVE ABILITY TO FOCUS  
(STUDY 3)



NOTE. Error bars represent standard errors of the mean.

## Chapter III: Inferring Personality from Solo vs. Accompanied Consumption: When Solo Consumers are Perceived to be More Open<sup>3</sup>

Imagine you are at a museum and notice a woman touring the exhibit by herself. What do you think drives her to come to museum alone and what would you think of her if she does so? Now imagine the woman is touring the exhibit with her friends. What do you think drives her to come to the museum with friends and what would you think of her then?

This research examines how people evaluate consumers who engage in public leisure activities, such as visiting an art museum or going to a movie theater, solo versus accompanied. Prior research shows that consumers are inhibited from engaging in these activities alone because of negative evaluations on social connectedness they anticipate from others (Ratner and Hamilton 2015). In the current investigation, we examine the actual inferences observers make about individuals engaged in solo (vs. accompanied) consumption. We explore the possibility that observers perceive solo consumers to be less socially connected than accompanied consumers (McFerran and Argo 2014), but that they also make more positive trait inferences for solo consumers, particularly on the trait of openness (Goldberg 1990; McCrae 1996; McCrae and Costa 1985). The person perception literature has not examined how people evaluate others who engage in activities solo versus accompanied, and the current investigation seeks to fill this gap.

When a consumer engages in an activity solo versus accompanied, we argue that this impacts the attributions observers make about the target's behavior, leading observers to make stronger dispositional inferences from the activity. Many common leisure activities such as going to a movie theater, watching a show, or visiting a gallery share the elements of broadening consumers' intellectual or aesthetic experiences in addition to meeting social needs. We propose

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<sup>3</sup> This research is conducted with Rebecca K. Ratner

that observers will make a stronger attribution that a solo (vs. accompanied) consumer engages in the activity to seek this intellectual or aesthetic stimulation as opposed to other motives such as a desire to meet social needs, which are highly plausible motives for an accompanied consumer. A stronger attribution to the motive to seek intellectual or aesthetic stimulation can in turn lead observers to make stronger motive-related trait inferences about the solo (vs. accompanied) consumer, such as the consumer is curious, open to new experiences, and has broad interests (McCrae 1996; McCrae and Costa 1985). Following this reasoning, factors that could attenuate the degree to which observers make attributions to the motive to seek intellectual or aesthetic stimulation rather than alternative motives such as motives underlying situational constraints should moderate these effects. For example, when a behavior is highly constrained by the situation (e.g., watching a movie on the plane), rather than motivated by purely discretionary reasons such as a desire to seek intellectual or aesthetic stimulation, observers will not infer that the target consumer is open even when the target consumer engages in the activity alone.

This research makes several theoretical contributions. First, existing literature almost exclusively examines solitary versus shared experiences from the actor's perspective (Bhargave and Montgomery 2013; Epley and Schroeder 2014; Ramanathan and McGill 2007; Ratner and Hamilton 2015). In this paper, we take the observers' perspective, and investigate the inferences people make about solo (vs. accompanied) consumers. To our knowledge, no research has examined observers' perceptions of solo compared to accompanied consumers. Further, this work adds to the attribution literature by revealing an amplifying effect of engaging in activities solo versus accompanied on dispositional inferences. The research question is also important for consumers' well-being. Consumers are often inhibited by the anticipation of others' negative evaluations on social connectedness when considering venturing out alone (Ajzen 1991; Dahl,

Manchanda and Argo 2001; Ratner and Hamilton 2015). Such beliefs and the resultant inhibition lead consumers to miss out on many rewarding solitary experiences (Ratner and Hamilton 2015). Our research reveals an unanticipated benefit of solo consumption: contrary to the concerns leading to consumers' inhibition from engaging in these leisure activities alone, solo consumers could be perceived even more positively on some personality dimensions compared to accompanied consumers.

The remainder of the paper proceeds as follows: We first discuss the related literature and develop the theorizing underlying our predictions. We then present the results of five main studies and several supplemental studies to test the mediating role of attributing the target's behavior to a motive to seek intellectual or aesthetic stimulation on the openness inferences, and the moderating role of the accessibility of situational attributions. We conclude with a discussion of implications for consumers and managers.

## **CONCEPTUAL BACKGROUND**

### Dispositional Inferences of Solo (vs. Accompanied) Consumers

Inferences about others' motives are common in everyday life (Heider 1958; Idson and Mischel 2001; Jones 1964; Malle, Moses, and Baldwin 2001). Models of person perception suggest that people engage in an automatic process of attributing others' behaviors to a motive (i.e., why is the person doing it?) when making sense of others' behaviors (Gilbert, Pelham, and Krull 1988). The inferences observers make about the target's motives will in turn help to shape the trait inferences about the person. Indeed, prior research has conceptualized that inferences

about motives and goals serve as mediating units in the formation of dispositional inferences (Idson and Mischel 2001; Malle 1999; Mischel and Shoda 1995; Reeder et al. 2004). For example, an observer might see a consumer purchase a ticket to attend a show of a documentary film and infer the person is interested in learning new things, from which the observer might infer that the consumer has a personality characterized by openness to new experiences and broadening her mind.

Prior research has not explored the dispositional inferences that observers make about consumers engaging in activities solo versus accompanied, though some work has examined inferences that consumers make about themselves being solo versus accompanied and about the anticipated behaviors exhibited by individuals versus groups. For example, consumers who are able to share their VIP status with others to achieve preferential treatment feel higher status than those who have VIP status but do not bring along guests (McFerran and Argo 2014). Individuals accompanied by others tend to feel less personally responsible for their actions than they feel when they are alone (Mynatt and Sherman 1975; Whyte 1991). Switching to the observer's side, some research has examined how people perceive interacting with solos versus groups. For example, people expect that groups will behave more abrasively and less agreeably compared to individuals in singularity in social interactions (Hoyle, Pinkley, and Insko 1989). Such anticipation leads people to display greater competitiveness when they interact with groups relative to when they interact with other individuals (McCallum et al. 1985). Some other research suggests that people tend to use different types of reasons when explaining behaviors performed by individuals compared to groups (e.g., why did Nina vs. high school seniors use drugs?; O'Laughlin and Malle 2002). However, this research has not examined how observers perceive

the individual who is solo versus accompanied, and the personality inferences people make about consumers who engage in activities alone versus accompanied.

We propose that the dispositional inferences observers make about solo versus accompanied consumers differ systematically, due to the attribution observers make about the target's behavior (e.g., a motive to meet social needs is more prominent for accompanied than solo consumers). Whereas an observer might attribute an accompanied consumer's leisure activity to a desire to spend time with the companion, this social motive is not as applicable for a consumer engaging in a leisure activity solo. Instead, observers might be more likely to attribute a solo consumer's behavior to a motive driven by the activity. For example, observers might infer that a consumer who purchases a ticket to see a documentary film with friends is motivated to see the film to spend time with the friends, whereas a consumer who attends the film solo is more likely to be interested in the film itself.

Many common leisure activities such as going to a movie theater, attending a show, or touring an exhibition involve having broadening intellectual or aesthetic experiences. We propose that observers are more likely to attribute a solo (vs. accompanied) target consumer's engagement in these activities to an interest in this broadening intellectual or aesthetic experience as opposed to a motive to cultivate the relationship with one's companions. This stronger attribution to the motive to seek intellectual or aesthetic stimulation will in turn lead observers to make stronger motive-related trait inferences about the solo (vs. accompanied) consumer, as we describe next.

Adopting the Big Five Personality Framework, the personality trait most closely related to the motive to seek intellectual or aesthetic stimulation is openness (e.g., curious, open to new experiences, comes up with new ideas, and has broad interests; John and Srivastava 1999). The

trait of openness captures individual differences in the structure and functioning of the mind, and has been characterized as intellect (Digman and Inouye 1986; Goldberg 1981, 1990) and the intrinsic need to appreciate and enlarge experiences (McCrae 1996). Openness is a dimension that is seen in vivid fantasy, artistic sensitivity, depth of feeling, and intellectual curiosity. Therefore, we predict that observers are likely to perceive a solo (vs. accompanied) leisure consumer as one who is more open to experiences.

Note that another possible mechanism underlying the more favorable openness inference for solo (vs. accompanied) consumption relates to the lower typicality of being solo than accompanied in these public leisure activities (Bellezza, Gino, and Keinan 2013). Given that these leisure activities are typically engaged in with others (Caprariello and Reis 2013; Ratner and Hamilton 2015), observers may perceive that a solo consumer is willing to deviate from norms and therefore is more open. Indeed, it could be that solo consumers will be perceived as more open than accompanied consumers when engaging in any leisure activities that are typically engaged in with company. We explore this alternative account in our studies, and find that atypicality is not sufficient to produce the openness inferences. Rather, it is the observers' inferences about the target consumers' motive to seek intellectual or aesthetic stimulation that is the precursor of the openness inference.

We further note that some activities people engage in during their spare time are unrelated to having broadening intellectual or aesthetic experiences (e.g., going to the gym or doing volunteer work). Observers may infer other motives than a desire for intellectual or aesthetic stimulation from the activity (e.g., an interest in vigorous physical striving or helping others), and therefore make other trait inferences than openness about the target consumer. We find similar effects that engaging in activities solo versus accompanied weakens the attribution to

a social motive but amplifies the attribution to relevant motives underlying these activities, leading to stronger motive-related trait inferences (e.g., conscientiousness or helpfulness). We will further discuss these activities in the General Discussion.

Aside from openness, the other Big Five personality trait most relevant to solo versus accompanied leisure consumption is extraversion. When a target consumer engages in a leisure activity alone, observers might think that the solo consumer has lower social needs in general, and thus infer that the solo consumer is less extraverted and less socially connected. However, given that an accompanied consumer is motivated to meet social needs, observers might infer that the accompanied consumer is more extraverted and socially connected (i.e., has more friends). Other personality dimensions including conscientiousness (e.g., efficient; Digman and Takemoto-Chock 1981), agreeableness (e.g., helpful; Digman 1990), and neuroticism (e.g., worried), are less likely to be inferred from these leisure activities, and therefore are not predicted to differentiate between perceptions of solo versus accompanied consumers.

Indeed, we conducted a pilot study in which participants ( $N = 366$ , US undergraduate students) were asked to consider one of three different leisure activities (i.e., going to a blockbuster, a comedy show, or a public lecture) that a target consumer engaged in either alone or accompanied (see appendix F for the stimuli), and then rated their perceptions of the target consumer on all items of the Big Five Personality scale (John and Srivastava 1999) as well as social connectedness (i.e., number of friends the person likely had). Results confirmed our theorizing: Openness and extraversion were perceived to be the most applicable dimensions in the Big Five Personality<sup>4</sup>, and emerged as significantly distinguished between perceptions of the

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<sup>4</sup>For each item in the Big Five Personality scale, we included a “not applicable” option, which allowed us to identify the relevant personality dimensions in these contexts as well as to reduce concerns about demand effects. One personality dimension was counted as applicable if at least one item in that personality dimension was perceived as

solo versus accompanied target consumer across all three activities. As theorized, respondents perceived solo (vs. accompanied) consumers to be more open, less extraverted and less socially connected across all three contexts (refer to Table 1). No other personality dimension emerged as significant in distinguishing people’s perceptions of solo (vs. accompanied) consumers across all these contexts.

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Insert Table 1 about here  
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We argue that observers’ overall favorability towards a target consumer is affected by the various personality inferences they make about the target, including more positive openness inferences increasing overall favorability and more negative social connectedness inferences decreasing overall favorability. Although we do not make strong predictions about the overall favorability of the evaluation of a solo (vs. accompanied) consumer, the present theorizing suggests that the more negative inferences associated with solo (vs. accompanied) consumers on social connectedness could be at least partially or wholly offset by the more positive inferences observers make about solo (vs. accompanied) consumers on openness, possibly leading observers to evaluate solo consumers as favorably as accompanied consumers overall.

#### Moderators of Openness Inferences

Observers might not always make positive inferences about solo (vs. accompanied) consumers on the trait of openness in these public leisure activities. Prior research suggests that observers tend to make trait inferences about a target consumer when they attribute others’

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applicable by a participant. If none of the items in a personality dimension was perceived as applicable, that personality was counted as not applicable.

behaviors to internal and discretionary motives rather than situational and avoidance-oriented motives (Heider 1958; Jones and Davis 1965; Jones and Harris 1967; Miller and Nelson 2002; Ross, Amabile, and Steinmetz 1977). Building on this literature, we propose that when motives underlying situational constraints become highly accessible, observers might not make the openness inferences for solo consumers. In this case, observers are likely to attribute others' behaviors to potent situational constraints rather than a discretionary motive such as to seek intellectual or aesthetic stimulation (Gilbert 1998; Kelley 1973; Krull 1993; Trope 1986). To illustrate, imagine that you see a consumer watch a movie on a plane alone. In this case, the consumer's behavior is constrained by the situation she is in (i.e., on the plane alone). Therefore, a motive underlying the situational constraint such that the consumer has no better things to do under the circumstance, rather than a desire for an aesthetic and intellectual experience, is likely to drive her behavior. Thus, observers are less likely to make the openness inference for the solo consumer in this context.

Related to the reasoning above, prior research has documented cross-cultural differences in people's tendency to attribute others' behaviors to internal factors versus situational factors (Chiu et al. 2000; Miller 1984; Morris and Peng 1994). Prior work has suggested that members of Western cultures (e.g., the United States) underscore the separation and independence of a target person from the context (Marriott 1976), and tend to treat individuals as the primary unit of actions (Lukes 1973; Sampson 1977). Such an emphasis on self-direction values encourage observers to search for internal reasons to interpret others' behaviors (Miller 1984). In contrast, cultural views stressed in many non-Western cultures (e.g., China, India) emphasize the situational variability of behaviors rather than self-directions, and therefore tend to interpret others' behaviors as resulting from some disequilibrium in the person's relations with the

surroundings (Miller 1984; Morris and Peng 1994). We build on this research, and propose that observers from non-Western cultures such as China are less likely to perceive behaviors like going to a movie alone as directed by a strong desire for broadening intellectual or aesthetic experiences; rather, observers might trace solo consumption to situational factors such as the person has no better things to do under the circumstance. The weaker attribution to a motive to seek intellectual or aesthetic stimulation in turn could attenuate the openness inferences about solo consumers.

We present the results of five main studies and several supplemental studies to test our key predictions. Studies 1-2 examine observers' perceptions of solo versus accompanied consumers on openness, social connectedness, as well as overall favorability. Study 2 also tested a downstream effect of being solo (vs. accompanied) on perceived openness. Studies 3-4 test the moderating role of the accessibility of situational constraints, as well as the mediating role of attributing the target's behavior to a motive to seek intellectual or aesthetic stimulation on the openness inferences for solo (vs. accompanied) consumers. The final study tests whether consumers have an accurate lay belief about the effects of being solo (vs. accompanied) on observers' perceptions. It could be that consumers are anxious about others' evaluations of them (Gilovich, Medvec, and Savitsky 2000; Olson 1988; Sasaki and Vorauer 2010; Van Boven et al. 2010), and therefore are not able to anticipate correctly that they will be perceived to be more open if they engage in these activities solo compared to accompanied.

## **STUDY 1: EVALUATIONS OF SOLO (VS. ACCOMPANIED) CONSUMERS**

The main objective of study 1 was to test our propositions that observers perceive solo

leisure consumers as less socially connected but more open, and these inferences influence the overall favorability of observers' evaluations of solo (vs. accompanied) consumers. Further, this study examined effects of typicality on openness ratings by varying the typicality of the day of the week for solo consumption (i.e., Sunday evening is perceived as more typical for a solo movie outing than Saturday evening<sup>5</sup>).

### Design, Stimuli, and Procedures

We used a 2 (Social context: solo vs. accompanied)  $\times$  2 (Typicality of solo consumption: low vs. high) between-subjects design. Two hundred and one participants from across the United States ( $M_{age} = 36.98$ , 43.8% male) were recruited on Amazon MTurk to participate in the study. All participants imagined going to see a blockbuster movie and at the ticket office they saw a consumer coming to see the same movie either alone (the solo condition) or accompanied (the accompanied condition). In the low (vs. high) typicality condition, participants were told that the target consumer was seen on a Saturday (vs. Sunday) night. The gender of the participant and the target consumer in the scenario was matched (the same procedure was also used in studies 3-5).

Next, participants were asked to sequentially rate the target person on the trait of openness (“open to new experiences,” “curious and loves to learn new things,” “original and comes up with new ideas,” “has broad interests”; 1 = not at all, 7 = very much;  $\alpha = .85$ ), extraversion (“talkative,” “social and outgoing”; 1 = not at all, 7 = very much;  $\alpha = .75$ ) and

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<sup>5</sup> In an independent test ( $N = 51$ ), participants answered three questions regarding the relative typicality of going to a movie alone on a Saturday vs. Sunday night (“How likely/typical/common do you think it is for someone to go to a movie alone on a Saturday vs. Sunday evening?”; 1 = more likely/typical/common on a Saturday evening; 4 = equally likely; 7 = more likely/typical/common on a Sunday evening). Compared to the midpoint, participants believed that it was more likely ( $M = 5.63$ ), more typical ( $M = 5.47$ ) and more common ( $M = 5.57$ ) for someone to go to a movie alone on a Sunday vs. Saturday evening ( $ps < .001$ ).

social connectedness (“How many friends do you think this woman has?”; 1 = very few friends, 7 = very many friends). Participants then indicated the overall favorability of their evaluations of the target consumer using four separate seven-point scales (1 = unfavorable/bad/negative/unappealing, 7 = favorable/good/positive/appealing;  $\alpha = .92$ ).

## Results

Unless otherwise indicated, ANOVA was used for all analyses in all studies.

*Openness.* A significant effect of social context emerged on perceived openness, such that solo (vs. accompanied) consumers were perceived to be more open ( $M_s = 5.16$  vs.  $4.73$ ;  $F(1, 197) = 12.47, p < .001$ ;  $\eta_p^2 = .06$ ). Neither the effect of typicality nor the social context  $\times$  typicality interaction reached significance ( $p_s > .42$ ). The results suggested that the more positive inferences observers made about solo (vs. accompanied) consumers on the trait of openness generalized across Saturdays and Sundays, and perceived typicality of solo consumption did not moderate this effect. In the studies 3-5, we directly measured perceived typicality of the target’s behavior to further test this account.

*Social connectedness and extraversion.* As predicted, a significant effect of social context emerged such that solo (vs. accompanied) consumers were perceived to be less socially connected ( $M_s = 3.62$  vs.  $4.67$ ;  $F(1, 197) = 46.92, p < .001$ ;  $\eta_p^2 = .19$ ) and less extraverted ( $M_s = 4.18$  vs.  $4.92$ ;  $F(1, 197) = 25.72, p < .001$ ;  $\eta_p^2 = .12$ ). Neither the effect of typicality nor the social context  $\times$  typicality interaction reached significance in both analyses ( $p_s > .18$ ), suggesting that the more negative inferences observers made about solo (vs. accompanied)

consumers on perceived social connectedness and perceived extraversion were not moderated by perceived typicality of solo consumption.

*Overall favorability of target consumer.* A non-significant effect of social context suggested that solo consumers were overall perceived as favorably as accompanied consumers ( $M_s = 4.87$  vs.  $4.92$ ;  $F(1, 197) = .16, p = .69$ ). Neither typicality nor the social context  $\times$  typicality interaction reached significance ( $p_s > .32$ ).

To test whether the various personality inferences including perceived openness and perceived social connectedness contributed to observers' overall favorability towards a solo versus accompanied target, a mediation analysis was conducted (Process Model 4; Hayes 2017). As predicted, we found that while inferences for solo (vs. accompanied) consumers on social connectedness negatively impacted the overall favorability towards the solo (vs. accompanied) target (95% CI = [-.45, -.16]), the openness inferences for solo (vs. accompanied) consumers on openness positively influenced observers' overall favorability towards the solo (vs. accompanied) target (95% CI = [.16, .46]). Perceived extraversion, however, did not mediate the effect of being solo (vs. accompanied) on observers' overall favorability towards the target consumer (95% CI = [-.18, .03]). This suggested that perceived social connectedness served as a stronger predictor of overall favorability towards a solo versus accompanied consumer compared to perceived extraversion (see Figure 7 for the mediation results). We obtained similar results on this mediation effect and the overall favorability measures in studies 2-4. For that reason, in studies 2-4 we focused on perceived social connectedness and perceived openness.

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Insert Figure 7 about here  
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## Discussion

Study 1 showed that though observers indeed perceived solo (vs. accompanied) consumers to be less socially connected, observers also perceived solo consumers to be more open, and overall perceived solo consumers as favorably as accompanied consumers. Perceived typicality of solo consumption did not moderate the effect. To rule out demand effects from first asking participants to consider openness, in a separate study using a similar movie scenario ( $N = 80$ , MTurk), we asked participants to first indicate their overall favorability towards the solo or accompanied target, and then to evaluate the target consumer on openness and social connectedness. Replicating findings in study 1, solo consumers overall were perceived as favorably as accompanied consumers ( $p = .66$ ). Again, solo (vs. accompanied) consumers were perceived to be more open ( $p = .003$ ) and less socially connected ( $p < .001$ ).

### **STUDY 2: DOWNSTREAM CONSEQUENCE OF OPENESS INFERENCE**

Study 2 aimed to test one downstream consequence of the openness inference: observers' willingness to take the target consumer's recommendation. It could be that observers would be more interested in taking recommendation from a solo (vs. accompanied) consumer, as they infer that the solo (vs. accompanied) consumer is more open (e.g., has more artistic interests and experiences) and therefore has better tastes for similar artistic and intellectual experiences.

#### Design, Stimuli, and Procedures

Three hundred and eighty-three participants from across the United States ( $M_{\text{age}} = 35.89$ , 36.6% male) were recruited on Amazon MTurk to participate in the study. They were asked to consider one two different activities (going to a blockbuster or visiting an art museum) that a target consumer engaged in either alone or accompanied. In the blockbuster condition, participants read that “Imagine that it is a Thursday evening. You are at a movie playing at an AMC theater near you. The movie is a Hollywood blockbuster movie. At the entrance you happen to see a woman coming to the movie by herself or with two of her friends” in the solo versus accompanied condition, respectively. We also created a version with a male target consumer, and participants were randomly shown one of the versions featuring the male or a female target. In the art museum condition, participants imagined that it was a Saturday afternoon and they were at an art museum, and that they saw a woman at the museum. They were then presented with a photo of a woman looking at an art piece either alone (the solo condition) or accompanied (the accompanied condition). Note that in the solo condition we created two versions of the photos, using the two women individually in the accompanied condition. Participants in the solo condition were randomly shown one of the versions (see appendix F for the photo stimuli used in this study).

Next, participants evaluated the target person on the trait of openness ( $\alpha = .86$ ). For social connectedness, we included five more measures (“To what extent do you think this woman is someone who is well-connected/part of a group/popular/well-liked/united with others”; 1 = not at all, 7 = very much) in addition to perceived number of friends, to increase the reliability of the measure ( $\alpha = .92$ ). To measure downstream consequences of perceived openness, participants then indicated their level of interest in watching movies or going to art exhibit that this woman recommended (“To what extent would you be interested in watching

movies/going to art exhibits that this woman recommends?” 1 = not at all, 7 = very much).

## Results

*Openness.* Replicating findings of study 1, there was a significant effect of social context in both activity contexts, such that a solo (vs. accompanied) movie-goer or museum visitor was perceived to be more open (Movie scenario:  $M_s = 4.71$  vs.  $4.09$ ;  $F(1, 138) = 15.13$ ,  $p < .001$ ;  $\eta_p^2 = .10$ ; Museum scenario:  $M_s = 5.54$  vs.  $5.21$ ;  $F(1, 251) = 9.45$ ,  $p = .002$ ;  $\eta_p^2 = .04$ ).

*Social connectedness.* As predicted, a significant effect of social context emerged on social connectedness in both activity contexts, such that solo (vs. accompanied) consumers were perceived to be less socially connected (Movie scenario:  $M_s = 3.78$  vs.  $5.11$ ;  $F(1, 138) = 26.23$ ,  $p < .001$ ;  $\eta_p^2 = .10$ ; Museum scenario:  $M_s = 4.48$  vs.  $5.06$ ;  $F(1, 251) = 21.08$ ,  $p < .001$ ;  $\eta_p^2 = .10$ ).

*Recommendation.* There was a significant effect of social context on participants’ interests in taking recommendation from the target consumer in both activity contexts, such that observers were more interested in watching movies or visiting art exhibits that a solo (vs. accompanied) consumer recommended (Movie scenario:  $M_s = 4.74$  vs.  $3.66$ ;  $F(1, 138) = 14.18$ ,  $p < .001$ ;  $\eta_p^2 = .09$ ; Museum scenario:  $M_s = 4.97$  vs.  $4.56$ ;  $F(1, 251) = 4.42$ ,  $p = .037$ ;  $\eta_p^2 = .02$ ).

A mediation analysis (Process Model 4; Hayes 2017) suggested that perceived openness mediated the effects of social context on observers’ interests in taking the recommendation from the target in both contexts (Movie scenario:  $b = .40$ , 95% CI = [.16, .68]; Museum scenario:  $b = .16$ , 95% CI = [.16, .68]; see Figure 8 for the mediation results).

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Insert Figure 8 about here  
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## Discussion

Study 2 generalized the proposed effects in another activity context (i.e., art museum). In addition, the results showed that the more favorable openness inferences about a solo (vs. accompanied) consumer led observers to become more interested in taking the recommendation from the solo (vs. accompanied) consumer.

In the next two studies, we test the moderating factors of the more positive openness inference for solo (vs. accompanied) consumers, and the underlying process for this inference.

### **STUDY 3: WHEN THE BEHAVIOR IS HIGHLY CONSTRAINED BY THE SITUATION**

Study 3 was designed to test the proposition that the extent to which a behavior is constrained by the situation moderates the effect of being solo (vs. accompanied) on perceived openness, and to provide evidence for the mediating role of attribution to a motive to seek intellectual or aesthetic stimulation. Specifically, participants either imagined seeing a person watch a movie at a theater alone or accompanied (low situational constraint), or imagined seeing a person watch a movie on a plane alone or accompanied (high situational constraint). We predicted that in the theater context, observers would make stronger attribution to a motive to seek intellectual or aesthetic stimulation when the target was solo (vs. accompanied), leading to higher openness perceptions. In the plane context, however, a situational attribution was highly accessible (e.g., the target has no better things to do on the plane) even when the target was

alone. Therefore, people would not infer a solo (vs. accompanied) movie-watcher on the plane to be more open.

### Design, Stimuli, and Procedures

We used a 2 (Social context: solo vs. accompanied)  $\times$  2 (Situational constraint: low vs. high) between-subjects design. A sample of 237 US undergraduate students (58% male;  $M_{\text{age}} = 20.4$ ) completed the study for course credit. Participants in the low situational constraint condition read: “Imagine that it is a Thursday evening. You are at a movie playing at an AMC theater near you. The movie is a Hollywood blockbuster movie. You notice a woman sitting a few rows ahead of you is watching the movie by herself or with a friend,” in the solo versus accompanied condition, respectively. In the high situational constraint condition, participants read: “Imagine that it is a Thursday evening. You are on a plane traveling back home. You notice a woman sitting a few rows ahead of you is watching a blockbuster movie by herself or with a friend,” in the solo versus accompanied condition, respectively.

Next, participants were given four possible motives (to seek intellectual or aesthetic stimulation; to socialize with others; to fulfill a physiological need; the person has no better things to do under the circumstances) that the target consumer engaged in the activity alone or accompanied, and rated the likelihood of each motive (“Please rate the extent to which each of the following factors is a cause of this person watches this movie at a theater/on a plane alone [with a friend]”; 1 = not at all likely to be a cause of the behavior, 7 = an extremely likely cause of the behavior). Participants then evaluated the target consumer on openness ( $\alpha = .78$ ), social connectedness, and rated the overall favorability of their evaluations of the target ( $\alpha = .83$ ) using

the same items as used in study 1. To examine the alternative explanation of perceived typicality, participants rated how typical it was for someone to engage in the activity alone [accompanied] (“How typical do you think it is to watch a movie at a theater/on a plane by oneself [with other people]?”; 1 = not at all typical, 7 = very typical).

## Results

*Attribution to various motives.* To test the attributions participants made about the target’s behavior, a 2 (Social context: solo vs. accompanied) × 2 (Situational constraint: low vs. high) × 4 (Motive: to seek intellectual or aesthetic stimulation vs. to socialize vs. to fulfill a physiological need vs. the person has no better things to do under the circumstances) mixed-design ANOVA was conducted, with the first two factors as between-subjects variables, and the third factor as the within-subjects variable. There was a significant main effect of motive ( $F(3, 699) = 101.96, p < .001; \eta_p^2 = .30$ ), a significant motive × social context interaction ( $F(3, 699) = 58.27, p < .001; \eta_p^2 = .20$ ), a significant motive × situational constraint interaction ( $F(3, 699) = 57.58, p < .001; \eta_p^2 = .20$ ), and a significant motive × social context × situational constraint interaction ( $F(3, 699) = 5.69, p = .001; \eta_p^2 = .02$ ). As depicted in Table 2, in the theater condition (low constraint), to seek intellectual or aesthetic stimulation was perceived to be the most likely motive for solo consumers, and to meet social needs was perceived as the most likely motive for accompanied consumers. The situational motive of having nothing better to do was considered less likely for both solo and accompanied consumers in the theater condition. In the plane condition (high constraint), however, the situational motive of having nothing better to do was perceived to be the most likely for both solo and accompanied consumers.

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Insert Table 2 about here  
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We further conducted a 2 (Social context: solo vs. accompanied)  $\times$  2 (Situational constraint: low vs. high) between-subjects ANOVA on attribution to the motive to seek intellectual or aesthetic stimulation, our proposed mediator. The main effect of situational constraint ( $p < .001$ ;  $\eta_p^2 = .05$ ) and the social context  $\times$  situational constraint interaction emerged as significant ( $F(1, 233) = 10.57, p = .001$ ;  $\eta_p^2 = .04$ ). As predicted, in the theater condition, participants were more likely to attribute the solo (vs. accompanied) target's behavior to a motive to seek intellectual or aesthetic stimulation ( $M_s = 4.27$  vs.  $3.21$ ;  $F(1, 233) = 13.16, p < .001$ ;  $\eta_p^2 = .05$ ). In the plane condition, however, participants in both the solo and accompanied conditions were equally unlikely to make this attribution ( $M_s = 2.84$  vs.  $3.13$ ;  $F(1, 233) = 0.98, p = .32$ ; refer to table 2). We further tested the mediating role of attribution to the motive to seek intellectual or aesthetic stimulation for openness, as described in the next section.

*Openness.* There was a significant main effect of situational constraint ( $p = .001$ ;  $\eta_p^2 = .05$ ) and a significant social context  $\times$  situational constraint interaction on perceived openness ( $F(1, 233) = 9.75, p = .002$ ;  $\eta_p^2 = .04$ ; see Figure 9). Replicating findings in studies 1-2, in the theater condition (low constraint), solo (vs. accompanied) consumers were perceived to be more open ( $M_s = 4.66$  vs.  $4.20$ ;  $F(1, 233) = 8.40, p = .004$ ;  $\eta_p^2 = .04$ ). However, in the plane condition (high constraint), solo (vs. accompanied) consumers were no longer perceived to be more open ( $M_s = 3.93$  vs.  $4.17$ ;  $F(1, 233) = 2.33, p = .13$ ).

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Insert Figure 9 about here  
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To test the mediating role of attributing the target's behavior to the motive to seek

intellectual or aesthetic stimulation on perceived openness, we performed a moderated mediation analysis (Process Model 8). We included social context as the independent variable, perceptions of each of the four motives as parallel mediators, accessibility of a situational constraint as the moderator, and perceived openness as the dependent variable. As predicted, attribution to the motive to seek intellectual or aesthetic stimulation mediated the effect in the theater condition (95% CI = [.03, .24]) but not in the plane condition (95% CI = [-.11, .02])<sup>6</sup>. None of the other motives significantly mediated this relationship in both situational constraint conditions (see Figure 10 for the mediation results).

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Insert Figure 10 about here  
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For perceived typicality of the target's behavior, we found a significant effect of social context, situational constraint ( $ps < .013$ ), and a significant social context  $\times$  situational constraint interaction ( $p < .001$ ). Watching a movie alone (vs. accompanied) was considered to be less typical at a theater ( $Ms = 2.95$  vs.  $5.98$ ;  $p < .001$ ) but more typical on a plane ( $Ms = 6.45$  vs.  $4.30$ ;  $p < .001$ ). However, perceived typicality did not mediate the effect of social context on perceived openness in both theater (95% CI = [-.30, .17]) and plane (95% CI = [-.12, .22]) conditions, further ruling out perceived typicality as an alternative explanation.

*Social connectedness.* There was a significant effect of social context, situational constraint ( $ps < .007$ ), and a significant social context  $\times$  constraint interaction on perceived social connectedness ( $F(1, 233) = 10.02$ ,  $p = .002$ ;  $\eta_p^2 = .04$ ). As predicted, in the theater condition, solo (vs. accompanied) consumers were perceived to be less socially connected ( $Ms = 3.36$  vs.  $4.38$ ;  $F(1, 233) = 29.05$ ,  $p < .001$ ;  $\eta_p^2 = .11$ ). In the plane condition, however, perceived social

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<sup>6</sup> Entering the motive to seek intellectual or aesthetic stimulation as the solo mediator revealed similar results.

connectedness did not differ between solo versus accompanied conditions ( $M_s = 4.16$  vs.  $4.33$ ;  $F(1, 233) = 0.76, p = .39$ ; see Figure 11).

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Insert Figure 11 about here  
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## Discussion

Study 3 supported our proposition that accessibility of a situational constraint moderates the effect of being solo versus accompanied on perceived openness and social connectedness. The results provided evidence for our proposed mechanism and further ruled out perceived typicality as an alternative account. As theorized, the more favorable inference observers made about solo (vs. accompanied) consumers on openness was mediated by a stronger attribution to a motive to seek intellectual or aesthetic stimulation.

In the next study, we test the moderating role of a cultural perspective, and further examine the proposed process.

### **STUDY 4: THE MODERATING ROLE OF CULTURAL PERSPECTIVE**

Study 4 was designed to test the moderating role of observer's culture in the relationship between social context and perceived openness. Though solo (vs. accompanied) consumers were perceived to be more open in the United States, a culture that emphasizes individual autonomy and self-direction values, the same effect might not hold in non-Western cultures that stress interdependence and situational norms such as China. For example, people from non-Western cultures might be less likely to infer that a consumer goes to a movie to seek intellectual or

aesthetic stimulation even when the person is alone; rather, they might be more likely to attribute a solo consumer's behavior to situational factors such as the person has nothing better to do.

### Design, Stimuli, and Procedures

We used a 2 (Social context: solo vs. accompanied)  $\times$  2 (Nationality: US vs. China) between-subjects design. A total of 435 participants ( $M_{\text{age}} = 30.48$ , 54% male) completed this study. We collected data using two online panels. US participants completed the study on MTurk. Chinese participants completed the study on a Chinese site similar to MTurk (en.Zhubajie.com). All participants completed the study in English and responded to the same dependent measures.

All participants read the movie theater scenario that was the same as in Study 3. Next, participants evaluated the target consumer on openness ( $\alpha = .77$ ), social connectedness, and indicated their overall favorability towards the target consumer ( $\alpha = .87$ ), using the same items as in prior studies. As a mediator, we measured the extent to which participants believed that the target consumer engaged in the activity to seek intellectual or aesthetic stimulation (1 = not at all, 7 = very much). We also included four items that measured the extent to which participants were independence-oriented (“I’d rather depend on myself than others,” “I rely on myself most of the time; I rarely rely on others,” “I often do my own thing,” “My personal identity, independent of others, is very important to me”);  $\alpha = .75$ ; Triandis and Gelfand 1998).

### Results

*Manipulation check.* A significant effect of nationality emerged on reported independence orientation, such that US-based participants indeed valued self-reliance and self-direction more compared to China-based participants ( $M_s = 5.29$  vs.  $4.89$ ;  $p = .009$ ). Neither the effect of social context nor the social context  $\times$  nationality interaction was significant ( $p_s > .44$ ).

*Openness.* There was a significant effect of nationality ( $p < .001$ ;  $\eta_p^2 = .04$ ) and more importantly, a significant social context  $\times$  nationality interaction on perceived openness ( $F(1, 431) = 5.21$ ,  $p = .02$ ;  $\eta_p^2 = .01$ ; see Figure 12). As predicted, US respondents perceived solo (vs. accompanied) consumers to be more open ( $M_s = 5.02$  vs.  $4.68$ ;  $F(1, 431) = 5.44$ ,  $p = .016$ ;  $\eta_p^2 = .01$ ). This difference in perceived openness between solo and accompanied consumers disappeared for Chinese respondents ( $M_s = 4.41$  vs.  $4.51$ ;  $F(1, 431) = .57$ ,  $p = .45$ ).

On the motive to seek aesthetic or intellectual stimulation, we found a significant effect of social context, nationality ( $p_s < .004$ ), and more importantly, a significant social context  $\times$  nationality interaction ( $F(1, 431) = 6.15$ ,  $p = .014$ ;  $\eta_p^2 = .01$ ; Figure 13). As predicted, US-based observers inferred that a solo (vs. accompanied) movie-goer was more motivated to seek intellectual or aesthetic stimulation ( $M_s = 4.95$  vs.  $4.23$ ;  $F(1, 431) = 14.21$ ,  $p < .001$ ;  $\eta_p^2 = .03$ ). China-based observers, however, did not infer a stronger motive to seek intellectual or aesthetic stimulation from solo (vs. accompanied) consumption ( $M_s = 4.19$  vs.  $4.12$ ;  $F(1, 431) = 0.16$ ,  $p = .69$ ).

-----  
Insert Figure 12, 13 about here  
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To test the mediating role of the motive to seek aesthetic or intellectual stimulation in the relationship between social context and the openness inference, we performed a moderated mediation analysis (Process Model 8). Replicating prior findings, the motive to seek aesthetic or

intellectual stimulation mediated the effect of social context on perceived openness when the participants were US-based (95% CI = [.097, .30]). When the participants were China-based, the mediation was not significant (95% CI = [-.08, .12]; see Figure 14 for the mediation results).

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Insert Figure 14 about here  
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*Social connectedness.* A significant effect of social context emerged such that solo (vs. accompanied) consumers were perceived to be less socially connected ( $M_s = 3.52$  vs.  $4.85$ ;  $F(1, 431) = 103.53, p < .001$ ;  $\eta_p^2 = .19$ ). Neither the effect of nationality nor the social context  $\times$  nationality interaction was significant ( $p_s > .69$ ), suggesting that the effect of social context held for both China-based and US-based participants.

## Discussion

Study 4 supported our hypothesis that observers' culture moderates the effect of social context on perceived openness. Solo (vs. accompanied) consumers were perceived to be more open in a culture that emphasizes individual autonomy and self-direction values (e.g., the US), but not in a culture that values interdependence and situational norms more (e.g., China). We found that the differences emerged because compared to observers from the US, observers from China were less likely to perceive that the target's behavior was driven by a motive to seek aesthetic or intellectual stimulation, even when the person was alone. Note that observers' culture did not impact their inferences about the solo versus accompanied consumers on social connectedness. It could be that even if China-based observers inferred that a consumer goes to a movie alone due to situational factors such as she has no better things to do (rather than to seek

intellectual or aesthetic stimulation), they might also infer that the consumer could have gone with company. The fact that the consumer was alone might suggest lower social needs to be met and therefore lower social connectedness.

### **STUDY 5: ACTUAL AND ANTICIPATED EVALUATIONS OF SOLO (VS. ACCOMPANIED) CONSUMERS**

The final study was designed to test whether consumers have an accurate lay belief about the effects of being solo (vs. accompanied) on observers' perceptions. Participants in this study were either asked to imagine observing someone going to a movie alone or with company (the observer condition) or imagine themselves going to a movie alone or with company (the self condition). We then asked participants to evaluate the target consumer (the observer condition) or anticipate others' evaluations of them (the self condition) on openness, social connectedness and overall favorability.

#### **Design, Stimuli, and Procedures**

We used a 2 (Social context: solo vs. accompanied)  $\times$  2 (Perspective: observer vs. self) between-subjects design. Two hundred individuals from across the United States ( $M_{\text{age}} = 35.04$ , 51% male) were recruited on Amazon MTurk to participate in the study. All participants read that "it is a Thursday evening, and there is a newly-released Hollywood blockbuster movie playing at an AMC theater near you." In the observer condition, participants imagined seeing a consumer coming to the movie either by herself (the solo condition) or with two of her friends

(the accompanied condition) at the entrance. In the self condition, participants imagined themselves going to the movie either alone or with two friends.

Next, participants in the observer condition were asked to rate the target consumer on openness (“curious,” “open to new experiences”;  $\alpha = .73$ ), social connectedness, and indicate their overall favorability towards the target ( $\alpha = .92$ ) using the same items as in Study 1; while participants in the self condition were asked to guess how favorably others in the theater would evaluate them on these same dimensions (e.g., “To what extent do you think others in the theater would think you are open to new experiences?”; 1 = not at all, 7 = very much). In addition, observers in both the solo and accompanied conditions indicated their own likelihood of going to a movie by themselves after they had evaluated a solo or an accompanied target (“How likely would you be to go to see a Hollywood blockbuster movie by yourself?”; 1 = very unlikely, 7 = very likely). In the self condition, participants answered their likelihood of attending a movie alone (the solo condition) or with friends (the accompanied condition) before they answered any questions in the survey about how they thought others would perceive them.

## Results

*Openness.* There was a significant effect of social context, perspective ( $ps < .001$ ), and more importantly, a significant social context  $\times$  perspective interaction ( $F(1, 196) = 3.96, p = .048; \eta_p^2 = .02$ ; Figure 15) on perceived openness. Replicating findings in studies 1-4, observers perceived solo (vs. accompanied) consumers to be more open ( $Ms = 5.64$  vs. 4.80;  $F(1, 196) = 16.37, p < .001; \eta_p^2 = .08$ ). In the self condition, however, consumers themselves

anticipated that others would evaluate solo and accompanied consumers similarly on openness ( $M_s = 4.70$  vs.  $4.44$ ;  $F(1, 196) = 1.51, p = .22$ ).

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Insert Figure 15 about here  
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*Social connectedness.* A significant effect of social context emerged, suggesting a less favorable perception (or anticipation of perceptions) for solo (vs. accompanied) consumers on social connectedness ( $M_s = 3.12$  vs.  $4.83$ ;  $F(1, 196) = 67.34, p < .001$ ;  $\eta_p^2 = .26$ ). Moreover, there was a significant effect of perspective, indicating that consumers themselves in general underestimated how favorably observers actually perceived them on social connectedness ( $M_s = 3.75$  vs.  $4.43$ ;  $F(1, 196) = 14.57, p < .001$ ;  $\eta_p^2 = .07$ ). The perspective  $\times$  social context interaction was not significant ( $F(1, 196) = 0.36, p = .55$ ). Together, this result suggested that consumers correctly anticipated the extent to which going to a movie solo (vs. accompanied) would negatively impact others' perception of social connectedness, though they overall anticipated that others would infer they were less socially connected than observers in fact inferred (Figure 16).

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Insert Figure 16 about here  
-----

*Overall favorability of target consumer.* There was a significant effect of social context, perspective ( $p_s < .001$ ), and a significant social context  $\times$  perspective interaction ( $F(1, 196) = 11.33, p = .001$ ;  $\eta_p^2 = .06$ ; see Figure 17) on overall favorability. Replicating prior findings, observers viewed solo consumers as favorably as accompanied overall ( $M_s = 5.08$  vs.  $5.11$ ;  $F(1, 196) = 0.02, p = .89$ ), but consumers themselves (in the self condition) believed that observers

would evaluate solo consumers less favorably than accompanied consumers ( $M_s = 4.06$  vs.  $5.09$ ;  $F(1, 196) = 24.03, p < .001; \eta_p^2 = .11$ ).

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Insert Figure 17 about here  
-----

A moderated mediation analysis was conducted to test the mediating role of perceived openness and social connectedness in observers' overall favorability towards the solo (vs. accompanied) target, and consumers' own anticipations (Process Model 8). As in study 1, for observers, both perceived openness and social connectedness mediated the effect of being solo (vs. accompanied) on observers' overall favorability towards the target, with perceived openness having a positive effect (95% CI = [.16, .53]) and perceived social connectedness having a negative effect (95% CI = [-.69, -.20]). For consumers themselves, however, only anticipated evaluations of social connectedness (95% CI = [-.77, -.25]) negatively mediated the effect of being solo (vs. accompanied) on anticipated overall favorability. The indirect effect of anticipated openness evaluations was not significant (95% CI = [-.07, .53]; see Figure 18 for the mediation results).

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Insert Figure 18 about here  
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*Interest in solo consumption.* In line with prior research suggesting a preference for accompanied (vs. solo) leisure consumption (Caprariello and Reis 2013; Ratner and Hamilton 2015), participants in the self condition who did not evaluate any target consumer reported to be less likely to attend a movie alone than with company ( $M_{\text{self:solo}} = 3.58$  vs.  $M_{\text{self:accom}} = 4.85$ ;  $p = .001$ ). To test was whether evaluating a solo versus accompanied target impacted one's interest in engaging in the activity alone, compared to a no-evaluation condition. A 3 cell (condition:

observer-accompanied, observer-solo, self-solo) between-subjects ANOVA was conducted on one's likelihood of attending a movie alone. Note that observers indicated their likelihood of attending a movie alone after evaluating either a solo or an accompanied target, while participants in the self-solo condition answered this question with no evaluation of a target consumer. We found a significant main effect of condition ( $F(2, 145) = 7.12, p = .001; \eta_p^2 = .09$ ). Whereas evaluating an accompanied consumer did not significantly impact one's own interest in going to a movie alone ( $M_{\text{observer:accom}} = 3.26$  vs.  $M_{\text{self:solo}} = 3.58; p = .43$ ), evaluating a solo consumer significantly increased one's interest in attending a movie alone ( $M_{\text{observer:solo}} = 4.70$  vs.  $M_{\text{self:solo}} = 3.58; p = .006$ ). These results suggested that simply asking consumers to consider their own reaction to a solo (vs. accompanied) consumer could significantly increase their willingness to venture out alone. These results also argued against the possibility that the observed effects were driven by social desirability concerns rather than reflections of participants' true assessments of the target. If participants in the observer condition did not think favorably of the solo target but only rated them highly due to social desirability pressures, we should not expect people who had evaluated a solo (vs. accompanied) consumer to indicate a stronger likelihood of going to the movie alone.

## Discussion

Study 5 replicated findings in prior studies that observers made positive inferences about solo (vs. accompanied) consumers on openness, and further demonstrated that consumers in fact failed to anticipate this. The results imply that consumers have an erroneous lay belief about how others will view them and they can be disinhibited from engaging in solo consumption if they

consider how they themselves would view a solo consumer.

## **GENERAL DISCUSSION**

How are solo (vs. accompanied) consumers actually viewed in public leisure activities? Do people evaluate solo (vs. accompanied) consumers negatively, or do people actually make positive inferences about solo consumers that they would not make about accompanied consumers? Prior literature suggested that consumers are often bothered by the anticipation of other people's negative evaluations when considering engaging in public leisure activities alone (vs. accompanied; Ajzen 1991; Dahl, Manchanda, and Argo 2001; Ratner and Hamilton 2015). This paper investigates whether consumers' concerns about solo (vs. accompanied) consumption are warranted.

We propose that being solo (vs. accompanied) impacts the motive attributions observers make about the target's behavior, leading observers to make stronger dispositional inferences from the activity. We propose and find that though observers indeed perceive solo (vs. accompanied) consumers engaging in public leisure activities to be less socially connected, people also perceive solo (vs. accompanied) consumers to be more open (studies 1-5). This is because people are more likely to attribute a solo (vs. accompanied) consumer's behavior to a motive to seek aesthetic or intellectual stimulation, and therefore make more positive inferences about solo (vs. accompanied) consumers on openness (studies 3-4). As a result of the higher openness inferences for solo (vs. accompanied) consumers, people become more likely to take recommendation from a solo versus an accompanied consumer (study 2). We also identify several factors that moderate observers' positive inferences for solo (vs. accompanied)

consumers on the trait of openness, including accessibility of a situational constraint (study 3) and the culture of the observers (study 4).

Different leisure activities have different characteristics that are pursued to fulfill various psychological needs (Tinsley and Eldredge 1995; Tinsley and Tinsley 1986). As we have theorized, many common leisure activities such as going to a movie theater or attending a museum relate to having broadening mental experiences. Some others relate to pushing oneself physically (e.g., going to the gym or running a marathon), meeting the need for vigorous physical striving; others relate to prosocial experiences (e.g., volunteer work), gratifying the need to support and help others. To generalize our findings and further demonstrate the amplifying effect of being solo (vs. accompanied) on personality inferences, we conducted several additional studies using activities where other motives than a desire for aesthetic or intellectual stimulation could be inferred from the activity (Wu and Ratner, working paper). In one study, participants ( $N = 370$ ; MTurk) imagined seeing a person coming to a gym to work out either alone or accompanied. We found that observers perceived a solo (vs. accompanied) gym-goer to be more conscientious ( $M_s = 5.40$  vs.  $4.98$ ;  $p = .03$ ), which is the personality dimension that captures individuals' will and volition to achieve (Digman and Takemoto-Chock 1981). In another study ( $N = 453$ ; MTurk), we asked participants to imagine seeing a person volunteer at a soup kitchen either alone or accompanied. As predicted, observers perceived the solo (vs. accompanied) volunteer to be more helpful ( $M_s = 5.96$  vs.  $5.60$ ;  $p = .001$ ). In these studies, we also replicated findings in study 5 that people were not able to anticipate the amplifying effect of being solo (vs. accompanied) on personality trait inferences. We theorize and find that this occurs because actors (vs. observers) experience a heightened arousal when anticipating others' evaluations, which hinders their ability to sufficiently adjust their anticipation based on social context

information (Wu and Ratner, working paper). The role of arousal in actors' misprediction of the solo amplification effect was supported by measuring arousal, which mediates the moderating effects of perspective (actor vs. observers) on personality inferences. The account of arousal was also supported by experimentally manipulating arousal. We found that actors are able to correct their mistaken beliefs when arousal is reduced by a slow-breathing exercise (Wu and Ratner, working paper).

In addition to virtue contexts, we also conducted studies to test whether the amplifying effects of being solo (vs. accompanied) on personality trait inferences can be extended to vice contexts. In one study, we asked participants to imagine seeing someone playing a slot machine at a casino either alone or accompanied. In this case, we found that the solo (vs. accompanied) gambler was perceived to be less, rather than more, reliable and responsible ( $M_s = 3.83$  vs.  $4.42$ ;  $p = .001$ ). Similarly, in another context in which a target person was described to walk by a person who falls on the street was perceived to be colder when the person was solo (vs. accompanied;  $M_s = 5.53$  vs.  $4.67$ ;  $p = .001$ ). These results extended the contexts examined in this paper, and further supported the proposition that being solo (vs. accompanied) amplifies the inferences about the target consumer on the personality trait that underlies the activity.

The present findings contribute to the literature on person perception. While previous researchers have made considerable progress in understanding how people believe they are viewed by other people (McFerran and Argo 2014; Ratner and Hamilton 2015; Ratner and Kahn 2002), our understanding of how social contexts (e.g., solo or accompanied) impact people's actual evaluations of consumers remains limited. Our results support the view that though people (like lay psychologists) could tell to a certain degree the impressions they convey to others (e.g., how socially connected other people think they are when they are alone vs. accompanied),

people sometimes make systematic mistakes about others' perceptions of themselves (DePaulo et al. 1987). We provide evidence that people make stronger inferences about the openness of consumers when they engage in public leisure activities alone (vs. accompanied), but such dispositional inferences are not anticipated by the consumers themselves.

This research also advances our understanding about solitary experiences. Though consumers are often concerned about others' evaluations about them when considering engaging in public leisure activities alone (Ratner and Hamilton 2015), to our knowledge no research examines observers' actual perceptions of solo compared to accompanied consumers. Existing literature on solitary consumption is limited, and almost exclusively examines it from the actor's perspective (Epley and Schroeder 2014; Ramanathan and McGill 2007; Ratner and Hamilton 2015). This paper takes the observer's perspective, and examines the inferences people make about solo (vs. accompanied) consumers. By doing so, this work also adds to the attribution literature by revealing an amplifying effect of being solo (vs. accompanied) on dispositional inferences.

Understanding how solo consumers are actually evaluated compared to accompanied consumers is important for consumers' well-being. If solo consumers are indeed viewed more favorably than accompanied consumers on some dispositional dimensions, such understanding may positively impact solo consumers' view of themselves and well-being if they are inclined to engage in solo consumption (Cooley 1902; Mead 1925, 1934). Further, research on impression-management (Baumeister 1982; Goffman 1978) posits that people are often concerned about the impressions they are conveying to others. If people intend to convey to others that they are open, engaging in some leisure activities alone (vs. accompanied) may better serve this purpose. Finally, prior research suggests that consumers often hold erroneous beliefs that prevent them

from maximizing happiness (Morewedge et al. 2007; Morewedge et al. 2010; Williams and Steffel 2014). Previous literature has shown that solitary experiences can be as rewarding as accompanied experiences (Ratner and Hamilton 2015). By erroneously believing that others would evaluate them negatively and therefore being inhibited from venturing out alone, consumers may miss out on opportunities to derive enjoyment. Hence, understanding that solo (vs. accompanied) consumers are actually perceived favorably in many ways by observers may help to alleviate consumers' concerns about venturing out alone in the future.

Our findings have implications for marketers as well. If solo consumers avoid attending movies, concerts, museum exhibits, plays, and other activities that involve expanding intellectual or aesthetic experiences alone because they are concerned about others' negative evaluations of them, marketers can encourage these consumers to attend by initiating campaigns to correct their erroneous beliefs. They can accurately communicate that opening their minds to new experiences will enrich solo consumers' own life as well as how others perceive them. Even merely prompting consumers to consider solo consumption can disinhibit them from engaging in these rewarding activities by themselves. Further, as we showed in study 2 that consumers are more likely to take recommendation from a solo rather than accompanied target, marketers might consider featuring solo consumers in their ad campaigns. Marketers could also encourage consumers, especially their solo visitors, to post their experiences on social media to attract more customers to come.

**TABLE 1**

DISPOSITIONAL INFERENCE ABOUT SOLO (VS. ACCOMPANIED) CONSUMERS ON  
BIG FIVE PERSONALITY TRAITS (PILOT STUDY)

|                             | <b>Blockbuster</b>   | <b>Comedy Show</b>   | <b>Public Lecture</b>  |
|-----------------------------|--|--|--|
| <b>Extraversion</b>         | Applicability: 94.0%   | Applicability: 88.6%   | Applicability: 88.5%   |
|                             | $M_{\text{solo}} = 3.35 (0.90)$ vs.<br>$M_{\text{accompanied}} = 4.34 (1.12)$      | $M_{\text{solo}} = 3.39 (1.17)$ vs.<br>$M_{\text{accompanied}} = 4.16 (0.94)**$    | $M_{\text{solo}} = 3.81 (0.84)$ vs.<br>$M_{\text{accompanied}} = 4.47 (1.07)**$    |
| <b>Openness</b>             | Applicability: 88.2%   | Applicability: 90.7%   | Applicability: 85.7%   |
|                             | $M_{\text{solo}} = 4.32 (0.95)$ vs.<br>$M_{\text{accompanied}} = 3.82 (0.95)**$    | $M_{\text{solo}} = 4.67 (0.88)$ vs.<br>$M_{\text{accompanied}} = 3.94 (0.85)**$    | $M_{\text{solo}} = 4.65 (0.88)$ vs.<br>$M_{\text{accompanied}} = 4.02 (0.89)**$    |
| <b>Agreeableness</b>        | Applicability: 84.0%   | Applicability: 81.4%   | Applicability: 78.1%   |
|                             | $M_{\text{solo}} = 4.31 (1.08)$ vs.<br>$M_{\text{accompanied}} = 4.04 (0.97)$ (NS) | $M_{\text{solo}} = 4.23 (0.74)$ vs.<br>$M_{\text{accompanied}} = 4.02 (0.87)$ (NS) | $M_{\text{solo}} = 4.38 (0.86)$ vs.<br>$M_{\text{accompanied}} = 4.29 (0.99)$ (NS) |
| <b>Conscientiousness</b>    | Applicability: 88.1%   | Applicability: 81.4%   | Applicability: 79.1%   |
|                             | $M_{\text{solo}} = 4.33 (0.79)$ vs.<br>$M_{\text{accompanied}} = 4.25 (0.74)$ (NS) | $M_{\text{solo}} = 4.35 (0.85)$ vs.<br>$M_{\text{accompanied}} = 3.82 (0.85)**$    | $M_{\text{solo}} = 4.54 (0.77)$ vs.<br>$M_{\text{accompanied}} = 4.26 (0.87)$ (NS) |
| <b>Neuroticism</b>          | Applicability: 77.5%   | Applicability: 73.2%   | Applicability: 76.0%   |
|                             | $M_{\text{solo}} = 3.87 (0.67)$ vs.<br>$M_{\text{accompanied}} = 3.94 (0.85)$ (NS) | $M_{\text{solo}} = 3.74 (0.65)$ vs.<br>$M_{\text{accompanied}} = 3.91 (0.34)$ (NS) | $M_{\text{solo}} = 3.74 (0.75)$ vs.<br>$M_{\text{accompanied}} = 3.75 (0.73)$ (NS) |
| <b>Social Connectedness</b> | $M_{\text{solo}} = 3.61 (1.46)$ vs.<br>$M_{\text{accompanied}} = 4.93 (1.49)**$    | $M_{\text{solo}} = 3.63 (1.38)$ vs.<br>$M_{\text{accompanied}} = 4.83 (1.54)**$    | $M_{\text{solo}} = 3.46 (1.20)$ vs.<br>$M_{\text{accompanied}} = 4.56 (1.53)**$    |

Note: \*\*. Significant at 0.01 level; NS. Not significant at 0.1 level; Standard deviations are in parentheses.

**TABLE 2**

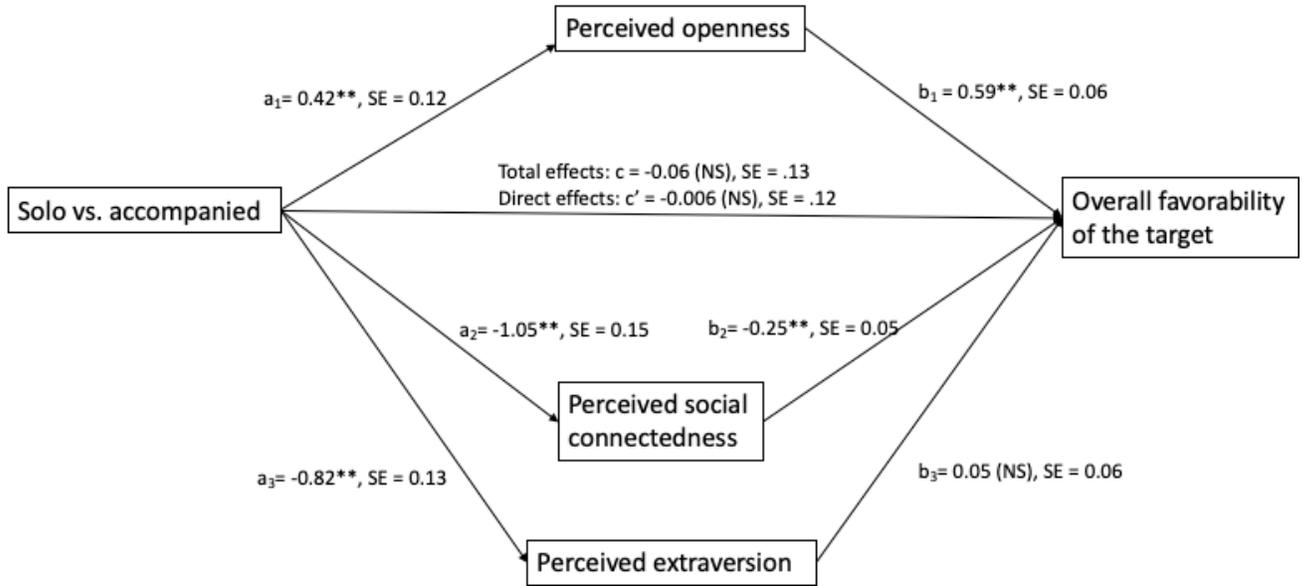
**ATTRIBUTION TO VARIOUS MOTIVES (STUDY 3)**

| Attribution to Various Motives          |   |                             |                          |                          |                               |                             |   |                             |
|---|---|-----------------------------|--------------------------|--------------------------|-------------------------------|-----------------------------|---|-----------------------------|
| Accessibility of Situational Constraint | To seek intellectual or aesthetic stimulation |                             | To socialize with others |                          | To fulfill physiological need |                             | The person has nothing better to do under the circumstances |                             |
|   | Solo  | Accompanied                 | Solo                     | Accompanied              | Solo                          | Accompanied                 | Solo  | Accompanied                 |
| Low (theater)                           | 4.27(1.78) <sup>a1</sup>                      | 3.21(1.43) <sup>a2,d1</sup> | 1.71(1.20) <sup>b1</sup> | 4.51(1.51) <sup>b2</sup> | 2.22(1.50) <sup>c1</sup>      | 1.75(1.09) <sup>c1</sup>    | 3.42(1.39) <sup>d1</sup>                                    | 3.23(1.55) <sup>d1,a2</sup> |
| High (plane)                            | 2.84(1.65) <sup>a2,c2</sup>                   | 3.13(1.52) <sup>a2,c2</sup> | 1.72(1.10) <sup>b1</sup> | 4.00(1.80) <sup>b2</sup> | 2.57(1.48) <sup>c1,a2</sup>   | 2.69(1.50) <sup>c2,a2</sup> | 6.13(1.15) <sup>d2</sup>                                    | 5.49 (1.57) <sup>d3</sup>   |

Note: Different superscript suggested significant differences at .05 level; Standard deviations are in parentheses.

**FIGURE 7**

**MEDIATION BY PERCIEVED OPENNESS, SOCIAL CONNECTEDNESS AND EXTRAVERSION ON OVERALL FAVORABILITY (STUDY 1)**

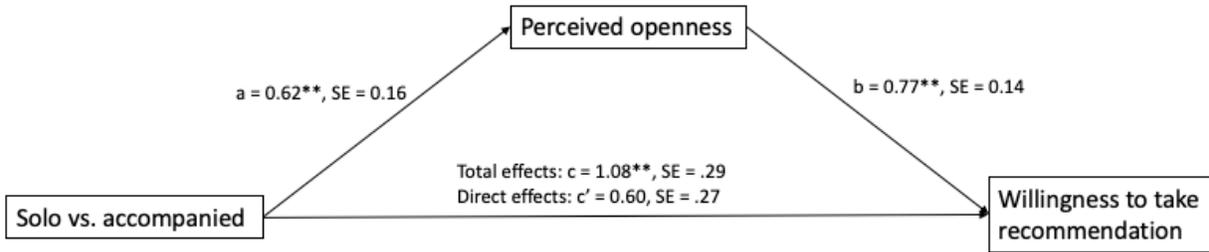


\*\* indicates significance at .05 level; \* indicates significance at .1 level

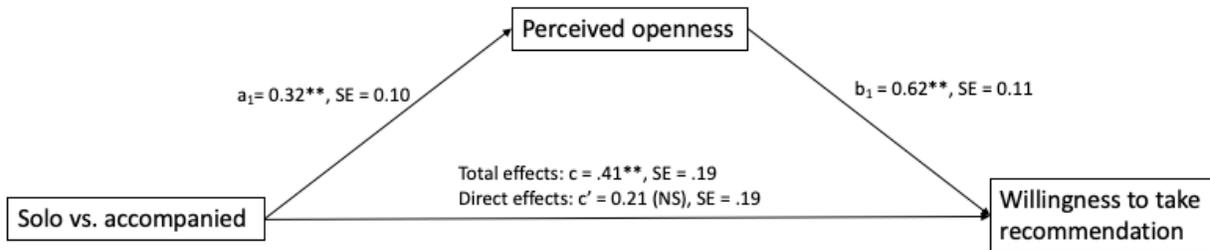
**FIGURE 8**

MEDIATION BY PERCEIVED OPENNESS ON RECOMMENDATION (STUDY 2)

Movie scenario



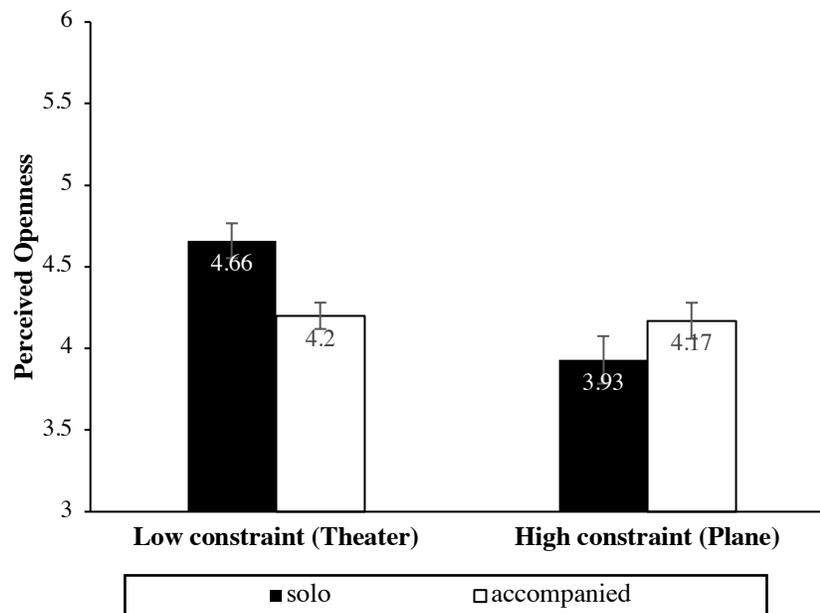
Art museum scenario



\*\* indicates significance at .05 level; \* indicates significance at .1 level

**FIGURE 9**

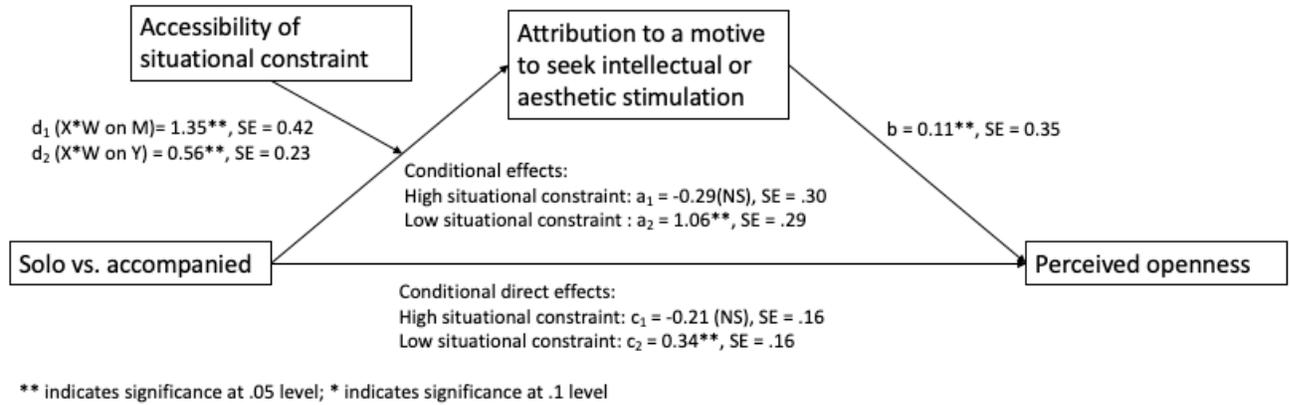
MEDIATION BY PERCEIVED OPENNESS ON RECOMMENDATION (STUDY 3)



NOTE. Error bars represent standard errors of the mean.

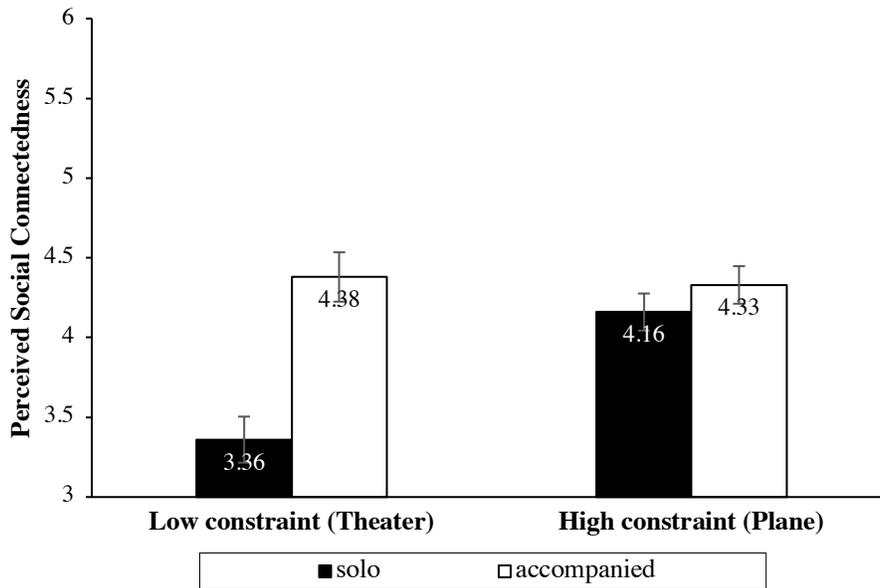
**FIGURE 10**

MODERATED MEDIATION BY ATTRIBUTION ON PERCEIVED OPENNESS (STUDY 3)



**FIGURE 11**

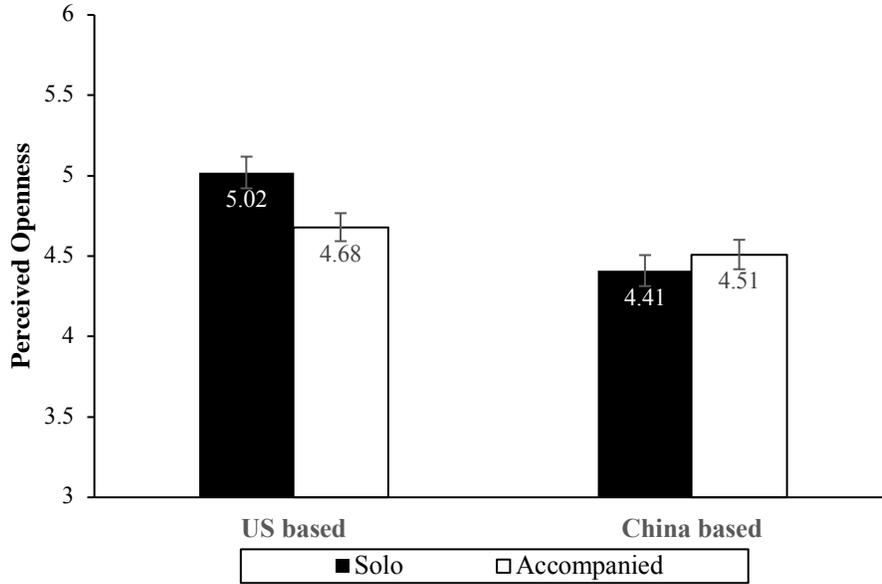
SOCIAL CONTEXT AND SITUATIONAL CONSTRAINT ON SOCIAL CONNECTEDNESS (STUDY 3)



NOTE. Error bars represent standard errors of the mean.

**FIGURE 12**

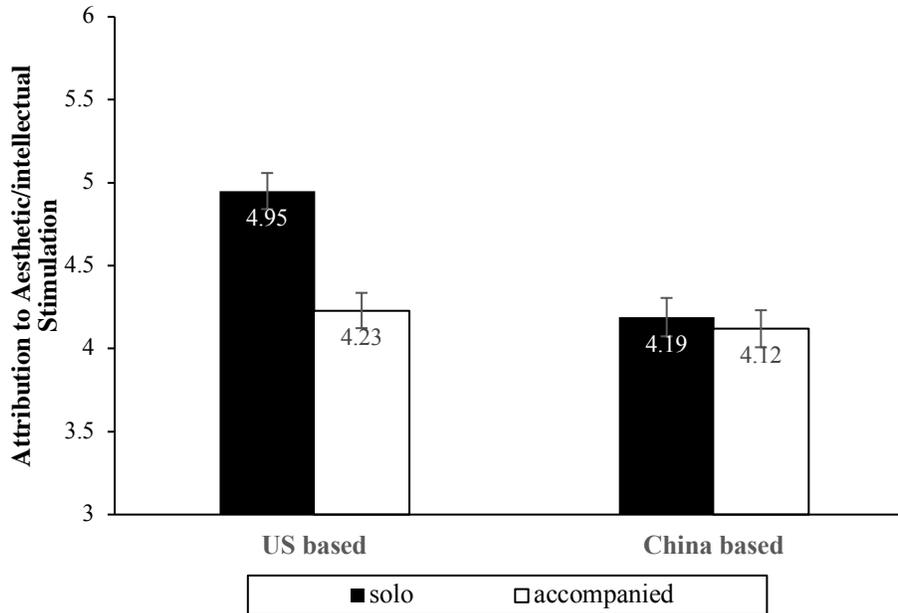
**SOCIAL CONTEXT AND CULTURE ON OPENNESS (STUDY 4)**



NOTE. Error bars represent standard errors of the mean.

**FIGURE 13**

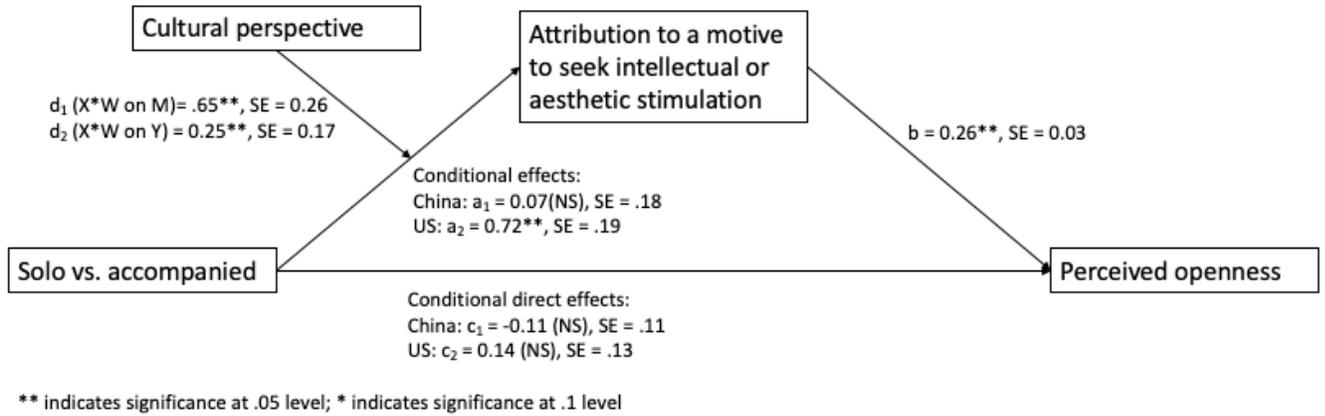
**SOCIAL CONTEXT AND CULTURE ON MOTIVE TO SEEK INTELLECTUAL OR AESTHETIC STIMULATION (STUDY 4)**



NOTE. Error bars represent standard errors of the mean.

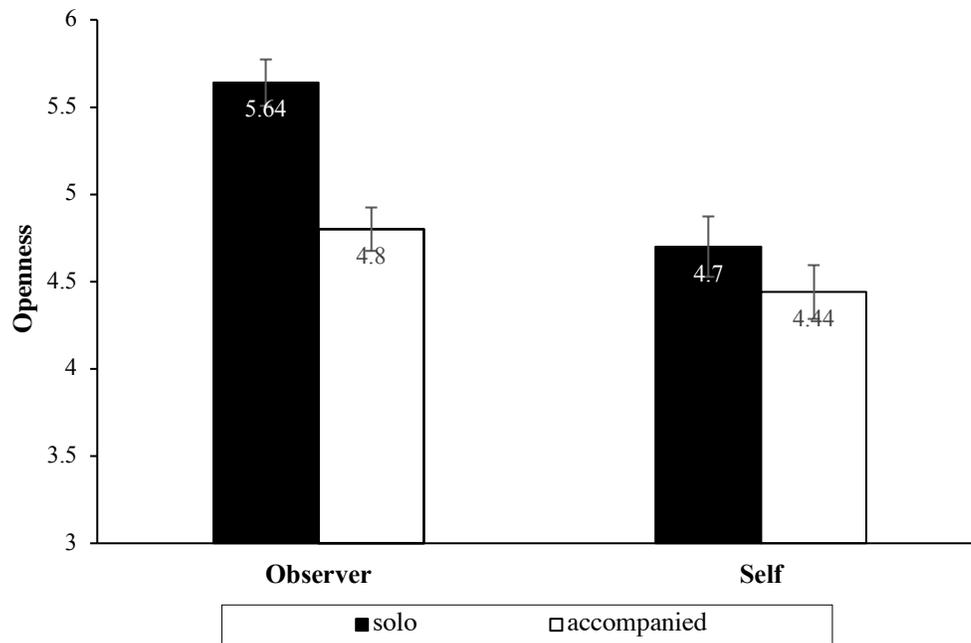
**FIGURE 14**

**MODERATED MEDIATION BY ATTRIBUTION ON PERCEIVED OPENNESS (STUDY 4)**



**FIGURE 15**

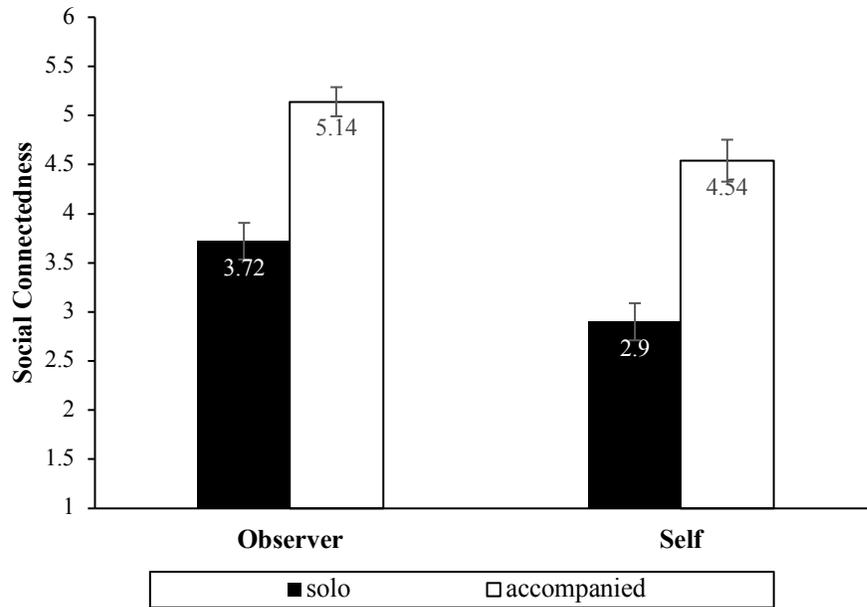
**SOCIAL CONTEXT AND PERSPECTIVE ON OPENNESS (STUDY 5)**



NOTE. Error bars represent standard errors of the mean.

**FIGURE 16**

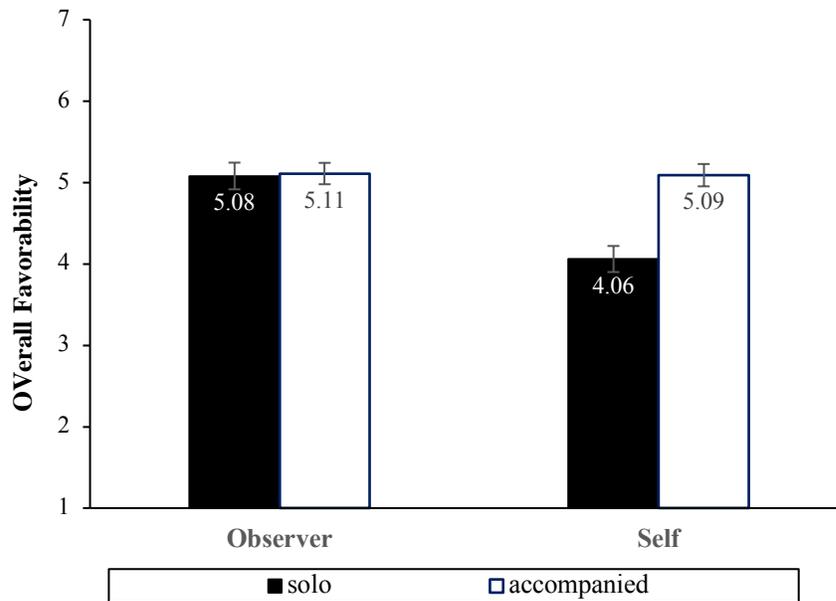
**SOCIAL CONTEXT AND PERSPECTIVE ON SOCIAL CONNECTEDNESS (STUDY 5)**



NOTE. Error bars represent standard errors of the mean.

**FIGURE 17**

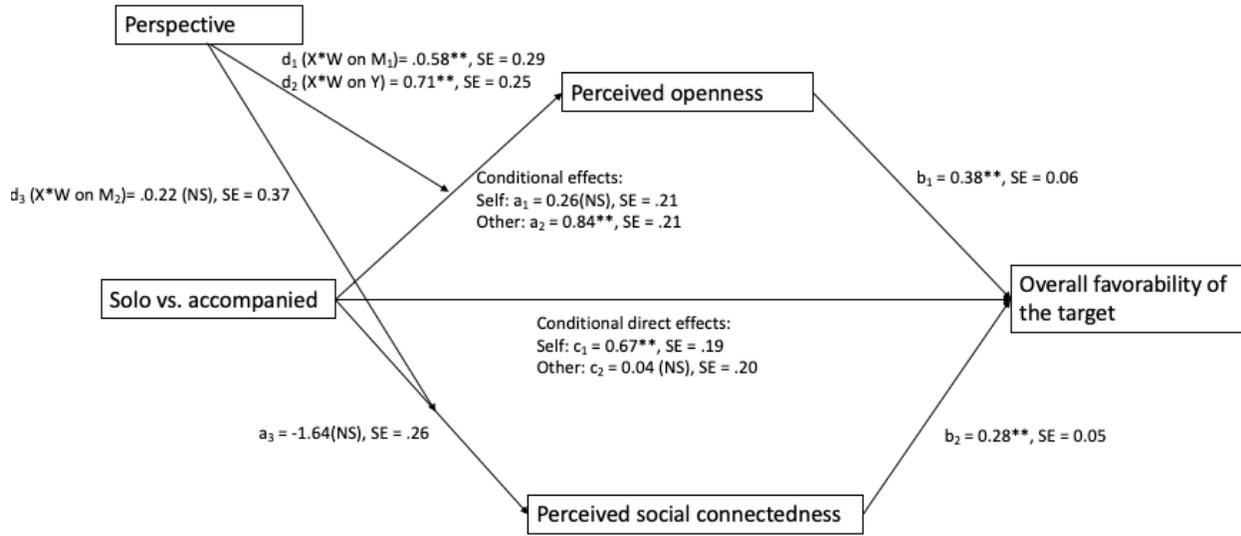
**SOCIAL CONTEXT AND PERSPECTIVE ON OVERALL FAVORABILITY (STUDY 5)**



NOTE. Error bars represent standard errors of the mean.

**FIGURE 18**

**MODERATED MEDIATION BY PERCEIVED OPENNESS AND SOCIAL  
CONNECTEDNESS (STUDY 5)**



\*\* indicates significance at .05 level; \* indicates significance at .1 level

## Chapter IV: Prolonging Happiness by Consuming Something That Is Not Mine: The Effect of Ownership Status on Hedonic Adaptation<sup>7</sup>

One of the author's friends had the following experience last year. While shopping at a shopping mall in her neighborhood, she tried out a massage chair, out of curiosity. The moment she sat on the chair, she felt magic--it was so comfortable and relaxing that she thought she was lying on clouds. In the next few weeks, she could not help but stop by the mall every few days to sit on the chair for a while. Having been massaged in the mall for weeks, she finally decided to purchase the massage chair. After she got her own massage chair, she loved it and enjoyed it a lot, but only for a couple of days. Unexpectedly, soon did she find herself losing interest in the massage chair. The chair seemed not as enjoyable as before, and she regretted her decision to purchase it. At the same time, she could not help wondering why the chair remained glamorous for weeks in the mall, but lost its glamour only in a few days after she owned it.

In retrospect, it is not surprising that happiness derived from the massage chair faded away quickly. Indeed, a rich body of research on the progression of affect has documented that consumers generally tend to adapt, a psychological process that is defined as the attenuation of the intensity of affective reactions (e.g., happiness, liking, enjoyment) towards a stimulus over time (Frederick and Loewenstein 1999; Helson 1964; Parducci 1995). For example, the enjoyment of chocolate subsides with repeated consumption; So do the thrill of a new sports car, and the delight over a new cool laptop. What is intriguing, however, is why the author's friend did not adapt to the massage chair in the mall before she had owned it, not even a bit. After all, she had used the massage chair for weeks before she made the purchase.

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<sup>7</sup> This research is conducted with Bowen Ruan

This research is motivated by the author's friend's experience, and examines whether ownership status (i.e., whether a consumer owns a product or not) influences consumers' adaptation to a product. Specifically, we investigate whether consuming a product for which consumers do not have ownership (vs. have ownership) could prolong happiness derived from the product, and the underlying process.

We propose that when consumers do not have ownership (vs. have ownership) of a product, they will experience a heightened level of arousal during the ongoing consumption process (Ardrey 1966; Aron et al. 2010; Furby 1978; Mendes et al. 2007; Moriguchi et al. 2011; Shen, Fishbach, and Hsee 2014; Wilson et al. 2005; Yang, Gu, and Galak 2016). We posit that such a heightened state of arousal, which could arise from a desire for acquiring ownership of the product, or the uncertain or novel nature of the consumption, could help to sustain the intensity of one's affective reactions towards the unowned object over time (Brown and Curhan 2013; Gorn, Pham and Sin 2001; Mano 1992; Zhu and Ratner 2015), slowing down the otherwise natural process of hedonic adaptation. Whereas for an owned object, consumers' arousal is not elevated during the consumption experience. Therefore, consumers will become accustomed to the stimulus more quickly over time, as shown in prior literature and observed in many hedonic consumption experiences (Galak, Kruger, and Loewenstein 2012; Redden 2008; Wang, Novemsky, and Dhar 2009).

This research makes several theoretical contributions. First, whereas prior literature on ownership almost exclusively focuses on the effects of ownership status on product valuation and perceptual judgment (Beggan 1992; Dai and Hsee 2013; Kahneman, Knetsch, and Thaler 1990; Nesselroade, Beggan, and Allison 1999; Thaler 1980), the current paper examines consumers' affective experience of actually consuming an unowned versus owned product.

Although non-ownership (vs. ownership) has been found to decrease the valuation of a product (i.e., the endowment effect; Kahneman et al. 1990; Thaler 1980), we find that it can also sustain consumers' affective responses towards the product as non-ownership elevates arousal in the ongoing experience. We also find that consumers are not able to anticipate the positive effect of non-ownership on hedonic adaptation, which could help to explain the negative effect of non-ownership on product valuation. Second, this research contributes to the hedonic adaptation literature by identifying a situation where the process of adaptation is less likely to exhibit: when consuming a product for which people do not have ownership (vs. have ownership). To reduce unwanted adaptation to a product, prior literature primarily explores ways to help reset affective intensity such as to limit exposure to the stimulus (Galak et al. 2012; Nelson, Meyvis, and Galak 2009), or to reduce the perceived repetitiveness of an ongoing consumption (Galak, Redden and Kruger 2009; Redden 2008). The current investigation introduces another perspective of reducing hedonic adaptation: to fuel arousal during an experience.

Our research also yields important practical implications. The results suggest that consumers can increase overall utility without devoting more resources. For example, if two friends order the same pizza at lunch, they may both be better off if they switch and eat each other's. Relatedly, encouraging consumers to participate in access-based economy can enhance consumer well-being by decreasing their adaptation to the product. Our findings can also be useful for marketers. For example, marketers can make non-ownership salient during the product trial period to decrease consumers' adaptation to their products, increasing purchase rate. Retailers might also be able to decrease returning rate by reframing their return time window as a period during which consumers do not have ownership of the product.

The remainder of the paper proceeds as follows: We first discuss the related literature on ownership status and hedonic adaptation, and develop the theorizing underlying our hypotheses. We then present the results of five studies using different sets of stimuli (e.g., candy, toy, car) and ownership status manipulation to test this effect and the underlying process of arousal. We conclude with a discussion of implications, applications and future directions.

## **THEORETICAL BACKGROUND**

### **Ownership Status**

Ownership status, which describes whether a product is owned by a consumer or not, is primarily examined for its impact on product valuation and perceptual judgment in prior literature (Beggan 1992; Dai and Hsee 2013; Kahneman et al. 1990; Nesselroade et al. 1999; Thaler 1980). Having ownership has been shown to increase valuation of a product. For example, in the classic studies of the endowment effect, individuals who are randomly endowed with one of two goods (e.g., a coffee mug) are less likely to exchange it for other good (e.g., chocolate bar) than would be expected by chance (Knetsch 1989). The endowment effect is also demonstrated in the WTP-WTA gap: The minimum amount of money that sellers (i.e., owners) are willing to accept to relinquish an endowed good (WTA; e.g., a coffee mug) is higher than the maximum amount of money that buyers (i.e., non-owners) are willing to pay to acquire it (WTP; Kahneman et al. 1990; Knetsch and Sinden 1984). While the endowment effect is traditionally explained by loss aversion, Beggan (1992) suggested that a higher valuation of an owned versus unowned product could occur even for possessions that are not about to become a loss; merely

owning a product can produce the same positive effects on product valuation when consumers associate the product with the self (i.e., “the mere ownership effect”). Ownership status has also been found to influence perceptions of external objects (Dai and Hsee 2013). For example, a hungry consumer tends to perceive a cake to be larger when the cake does not belong to him; however, when a consumer owns the cake, this hungry individual will perceive the size of the cake to be smaller. In these prior studies, however, people did not actually consume the (un)owned object. In this research, we focus on the affective experience of actually consuming an unowned versus owned product. Whereas prior research generally shows that non-ownership decreases the valuation of a product, we propose that non-ownership can also slow down the process of hedonic adaption, prolonging happiness consumers derive from the product.

#### Ownership and Arousal

We propose that non-ownership (vs. ownership) will produce a heightened state of arousal during the ongoing consumption experience. We argue that this heightened arousal can arise for several reasons. First, when consuming a product for which people have no ownership (vs. have ownership), they could develop a desire for acquiring ownership of the product, which could elevate arousal (Berlyne 1960; Wiers et al. 2002). On one hand, acquiring possessions is a natural instinct. People have an innate tendency to gain and to defend an exclusive property (Ardrey 1966; Litwinski 1942; McDougall 1923), and possessions could satisfy one’s inherent need for control (Furby 1978; White 1959). On the other hand, consumers can develop psychological ownership of an unowned product during a consumption experience, which could in turn increase their desire to obtain actual ownership of the product. Psychological ownership

is a psychological state in which a consumer feels that a target is theirs (Kirk, Peck, and Swain 2017; Peck and Shu 2009; Pierce et al. 2003), and it can be experienced for unowned objects via imagery, touch, or anticipatory possessions (Brasel and Gips 2013; Carmon, Wertenbroch, and Zeelenberg 2003; Peck and Shu 2009; Shu and Peck 2011; Spears and Yazdanparast 2014). By using the product, even non-owners may develop a feeling that the consumed product is theirs. The discrepancy between feeling having owned a product and the salient fact that one does not actually own the product could create a strong desire to obtain ownership of the product. Indeed, consumers who have developed psychological ownership of a product through touch become more interested in purchasing the product (Peck and Childers 2006). Prior literature suggests that desire is an arousal state (Berlyne 1960; Wiers et al. 2002), which will heighten the level arousal non-owners experienced during an ongoing experience.

Second, consuming an unowned (vs. owned) product can produce uncertainty about accessing the product in the future, which elevates non-owners' arousal during the consumption experience (FeldmanHall et al. 2016; Shen et al. 2014; Yang et al. 2016). For example, a consumer may feel uncertain about how long he can keep a play station if it is borrowed from his neighbor; A person may feel uncertain about whether she can keep driving her dad's car, even if he has promised to give her the car on her birthday, before her birthday actually comes. Prior literature shows that the state of uncertainty is associated with a heightened level of arousal. For example, uncertainty during social interactions can lead people to exhibit cardiovascular responses consistent with arousing states such as threat (Mendes et al. 2007). Consumers who are faced with uncertain rewards exhibit higher arousal, motivating them to invest more resources to pursue the reward (Shen et al. 2014).

Third, consuming an unowned (vs. owned) product can produce feelings of novelty, which increase arousal during the ongoing consumption experience. Consumers often view their possessions as reflections of themselves (Belk 1988). Therefore, owned products, as compared to unowned products, are associated more with the self. Given that self-related objects appear to be more familiar to consumers (Platek and Kemp 2009; Prentice 1990), consumers will experience higher novelty when they consume an unowned, versus an owned product. Novelty is found to increase arousal (Aron et al. 2010; Moriguchi et al. 2011), which could heighten non-owners' level of arousal during the consumption experience.

Based on these arguments, we propose that non-owners (vs. owners) will experience a heightened arousal during an ongoing consumption experience, which helps to sustain their affective reactions towards the product, as we describe next.

### Hedonic Adaptation and Ownership Status

Happiness is fleeting. Think about the thrill of a new sports car, a new play station, and the very first piece of Godiva chocolate you put in your mouth. Even though these experiences start off very enjoyable and positive, with time, however, people tend to derive less and less pleasure from it. One may not like the sports car or the play station nearly as much as time goes by, and could even become tired of the chocolate after having eaten five pieces in a roll. This phenomenon is known as hedonic adaptation, which is defined as an attenuation of the intensity of affective responses towards a stimulus over time (Frederick and Loewenstein 1999; Helson 1964; Parducci 1995). Hedonic adaptation occurs in nearly every domain (Frederick and Loewenstein 1999), from relatively mundane experiences such as preferred ice creams

(Kahneman and Snell 1990) or a well-liked song (Ratner, Kahn, and Kahneman 1999), to more significant events such as increases in income (Di Tella, Haisken-De New, and Mac-Culloch 2010), or severe diseases such as paralysis (Brickman, Coates, and Janoff-Bulman 1978).

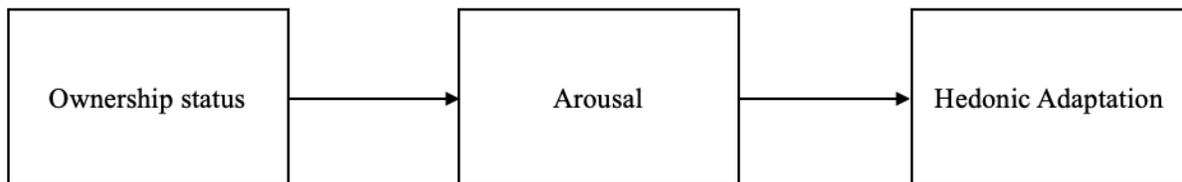
Since hedonic adaptation presents a significant barrier to lasting happiness (Brickman and Campbell 1971), a rich body of research has explored ways to reduce adaptation. Given that hedonic adaptation is partially caused by prolonged exposure or repeated consumption (Nelson and Meyvis 2008; Redden 2008), a natural way of slowing down the process of adaptation is to disrupt exposure to the stimulus or to reduce the perceived repetitiveness of a consumption. Doing so can allow the affective intensity to reset. For example, it is found that inserting breaks in an experience or prolonging intermissions between consumption episodes could disrupt one's exposure to a stimulus, reducing adaptation (Galak et al. 2013; Nelson and Meyvis 2008; Nelson et al. 2009). Increasing the perceived variety of a consumption, such as to categorize consumption items more specifically (e.g., categorizing jelly beans to specific flavor-based subcategories vs. a single general category) or to recall a variety of alternative items people have consumed in the past, could reduce perceived repetitiveness of a consumption, reducing adaptation (Galak et al. 2008; Redden 2008). Reducing perceived repetitiveness can also be achieved by distracting consumers from their ongoing consumption. For example, consumers are found to eat more during lunch if they are distracted by television shows (Higgs and Woodward 2009). Taken together, previous research primarily explores ways to reduce adaptation by disrupting an experience and resetting affective intensity. We propose that in addition to interrupting the adaptation process, increasing the level of arousal consumers experience in an ongoing consumption can also slow down adaptation, as we describe below.

Prior research suggests that affect can be defined by its valence (i.e., level of pleasantness) and its activation (i.e., arousal), and the latter will determine the intensity of an affect (Russell 1980; Russell and Barrett 1999). If hedonic adaptation is the attenuation of the intensity of affective responses over time, theoretically increasing consumers' level of arousal in an ongoing experience could slow down the process of hedonic adaptation. In fact, prior literature has suggested that arousal can positively influence the intensity of affective reactions (Brown and Curhan 2013; Gorn et al. 2001; Mano 1992; Zhu and Ratner 2015). For example, high arousal induced through physical exercises has been found to lead participants to experience more intense affect (e.g., liking) towards an attractive opposite-sex confederate (Dutton and Aron 1974). Similarly, high arousal induced through loud music is shown to increase the intensity of positive (negative) feelings experienced while watching an ad with a positive (negative) tone (Gorn et al. 2001).

Our theorizing that increasing arousal could prolong happiness is also in line with prior literature suggesting that a heightened arousal brought by uncertainty about positive events sustain the pleasure people derive from them (Wilson et al. 2005; Yang et al. 2016). For example, in one study, college participants learned that three opposite sex peers selected them as their best potential friend (over two other participants) and read distinctive comments from the students explaining the reasons for their choice (Wilson et al. 2005). Probably because of a desire to resolve uncertainty and the associated heightened arousal, it was found that happiness derived from reading these positive feedback was prolonged when participants were uncertain (vs. certain) about which student wrote which sets of comments.

Taken together, we propose that when consuming an unowned (vs. owned) product, consumers experience a heightened arousal, which could help to sustain the intensity of their affective responses to the product over time (see below for the conceptual model).

### CONCEPTUAL MODEL



We present five studies to test our proposed hypotheses. In study 1, we test the main proposition that non-owners (vs. owners) adapt more slowly. This study also shows that consumers do not intuit the positive effects of non-ownership status on hedonic adaptation, and do not choose to consume an unowned (vs. owned) when they are given an opportunity to do so. Studies 2-4 provide evidence for the underlying process of arousal by measuring it. In the last study, we provide further support for the arousal account by showing that the effect of ownership status on hedonic adaptation is moderated by experimentally manipulating arousal.

### STUDY 1: CONSUMING OWN VS. PARTNER'S CANDIES

The objective of study 1 was to test the main proposition that consumers will adapt more slowly to a product when they do not own versus own it. Participants in this study were either asked to consume a bag of chocolate that belonged to their study partner (the non-owner condition), or consume a bag of chocolate that belonged to themselves (the owner condition). We

then measured participants' affective responses to the chocolates over time.

### Design, Stimuli, and Procedures

We used a 2 (Ownership status: non-owner vs. owner; between-subjects)  $\times$  4 (Cumulative number of candy consumption: 3 vs. 6 vs. 9 vs. 12; within-subjects) mixed design. Ninety-four US undergraduate students ( $M_{\text{age}} = 22.02$ , 59.6% male) completed the study for course credit. Upon entering the lab, each participant was given two bags of chocolate as a gift for participating in the research session. All chocolates were put in plastic bags, and each bag contained twenty-five pieces of chocolate (i.e., Reese's pieces).

As the cover story, participants were told that the study explored how mere pairing with others might influence people's taste perception. They would be randomly paired with another student in the lab, and exchange one of their two bags of chocolate with that student. They would then taste both bags of chocolate, one bag of their own and one bag of their partner's, imagining the presence of each other. Before exchanging, all participants were asked to write down their names on their own bags of chocolate (i.e., a label was attached on each bag that said "chocolate belong to \_\_\_"; see appendix G for a photo of the stimuli used in the study). This procedure allowed participants to claim their ownership of the two bags of chocolate they received, and be able to distinguish their own bag of chocolate and their partner's chocolate after the exchange. Next, lab administrators collected one bag of chocolate from each participant, and randomly gave back one bag of another participant's chocolate to each participant.

Participants were told that they would consume both bags of chocolate. In the owner condition, participants were instructed to eat their own bag of chocolate before eating their

partner's, while in the non-owner condition, participants were instructed to taste their partner's bag first. All participants were then asked to rate their enjoyment of the chocolate for four times, each time after consuming three pieces of chocolate from either their own or their partner's bag ("How much are you enjoying eating your own/partner's chocolates so far?"; 0 = not at all, 100 = very much). These affective response measures were asked only after every third piece to limit carryover effects and response fatigue. Due to a time limit, participants were then told that they did not need to eat the other bag of chocolate. We collected demographic information in the end.

## Results

*Affective responses.* A mixed model was created for the affective responses with ownership as a between-subjects factor (owner vs. non-owner), and random effects for the intercept and the slope on the cumulative number of candy consumption to capture the repeated nature of the data. The analysis revealed a significant effect of the cumulative number of candy consumption ( $b = -5.71$ ;  $F(1, 106.73) = 24.34$ ,  $p < .001$ ), in support of the general notion of growing adaptation over time, and no main effect of ownership status ( $p = .963$ ). More importantly, we found a significant interaction effect between the cumulative number of candy consumption and ownership status ( $b = 3.31$ ;  $F(1, 106.56) = 4.27$ ,  $p = .041$ ). As depicted in Figure 19, and indicated by the interaction, participants who consumed the partner's bag of chocolate adapted more slowly than those who consumed their own bag (slopes:  $b_{\text{owner}} = -5.71$  vs.  $b_{\text{non-owner}} = -2.40$ ). Further, whereas enjoyment of the chocolate did not differ between owners versus non-owners on the first candy consumption ( $M_{\text{non-owner}} = 72.78$  vs.  $M_{\text{owner}} = 69.89$ ;  $F(1, 101.91) = 0.29$ ,  $p = .589$ ) or the second candy consumption ( $M_{\text{non-owner}} = 74.41$  vs.  $M_{\text{owner}} = 65.24$ ;

$F(1, 99.36) = 1.39, p = .242$ ), participants who consumed their partner's (vs. own) bag of chocolate enjoyed the chocolate on the third ( $M_{\text{non-owner}} = 70.69$  vs.  $M_{\text{owner}} = 57.69$ ;  $F(1, 99.71) = 3.02, p = .085$ ) and the final candy consumption ( $M_{\text{non-owner}} = 65.35$  vs.  $M_{\text{owner}} = 53.24$ ;  $F(1, 101.22) = 4.65, p = .033$ ).

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Insert Figure 19 about here  
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## Discussion

The results of study 1 confirmed our main proposition that non-ownership (vs. ownership) decreases the rate of hedonic adaptation.

In a separate study using the same student subject pool ( $N = 64$ ), we tested whether participants would anticipate the effect of ownership status on adaptation. Specifically, participants were told that later in this research session each student would receive two bags of chocolate (i.e., Reese's pieces). All participants were shown a picture of the chocolate that they expected to receive (refer to the photo in appendix G). Participants were then asked to consider two cases. In the first case, they could exchange one bag of their own chocolate with another student in the lab. During the study, they would eat one bag of their own chocolate, and one bag of another student's chocolate. In the second case, they would not exchange chocolate with another student in the lab, and therefore they would eat two bags of their own chocolate.

Though we found in the main study that the first case could prolong the happiness consumers derive from consuming the chocolate in actual experiences, most participants were not willing to exchange chocolate with others. Specifically, 77.42% of the participants preferred to be in the second case (i.e., not to exchange with another student). When asked to predict in

which case they would enjoy eating the chocolate more over time, a majority of participants (74.19%) believed that they would enjoy the chocolate more when they eat their own bags. The finding that consumers anticipated to derive higher enjoyment from consuming their own (vs. partner's) chocolate is consistent with the endowment effect. Consumers' failure to anticipate the positive effects of non-ownership on adaptation also helps to explain why consumers' affective experiences of consuming an owned versus unowned product differ from their valuation of an owned versus unowned product.

In the next study, we employ a different ownership status manipulation and a different stimulus to further generalize our findings. In the next study we also measured arousal to test the proposed process. Participants played with a toy that either has been gifted to them (the owner condition) or has not yet gifted to them (the non-owner condition).

## **STUDY 2: PLAYING WITH A KALEIDOSCOPE THAT I OWN VS. DON'T OWN YET**

The objective of study 2 was to conceptually replicate the findings in study 1 using a different ownership status manipulation and a different stimulus. Study 2 also aimed to test the mediating role of arousal. Specifically, participants were asked to play with a kaleidoscope during several breaks in a 30-minute research session. Half of the participants were gifted the kaleidoscope at the beginning of the research session, and therefore played with their own kaleidoscope during the breaks (the owner condition). The other half of the participants were told that the kaleidoscope would be gifted to them at the end of the session. Therefore they played with a kaleidoscope that was not yet theirs during the breaks (the non-owner condition). Since participants in both ownership status conditions could eventually receive the kaleidoscope, the

opportunity of playing with the kaleidoscope was not scarce in both conditions, ruling out the scarcity account.

### Design, Stimuli, and Procedures

Participants in this study was randomly assigned to either the owner or the non-owner condition. A hundred and eighty US undergraduate students ( $M_{\text{age}} = 19.77$ , 57.4% male) completed the study for course credit. Before the research session started, a kaleidoscope was placed on each working station. After being seated in the working station, all participants were told that the research session consisted of four different studies. Prior to entering each study, they would take a 45-second break to clear up their mind (i.e., four breaks in total). In the owner condition, participants were told that they received the kaleidoscope on the table as an additional bonus for participation. The kaleidoscope was now gifted to them, and they could play with it to kill time during these four breaks. In the non-owner condition, however, participants were told they would receive the kaleidoscope on the table as an additional bonus at the end of the session. The kaleidoscope was not theirs but would be gifted to them after completing study 4. Again, participants were told that they could play with the kaleidoscope to kill time during the breaks.

Before entering the first break, participants first rated their liking for the kaleidoscope (initial liking; “How much do you like the kaleidoscope now?”; 1 = not at all, 7 = very much). This measure served as participants’ initial affective response to the kaleidoscope. Participants then sequentially entered break 1, study 1, break 2, study 2, break 3, study 3, break 4 and lastly study 4. Note that participants were not forced to play with the kaleidoscope during the breaks. Instead, after each break we asked participants to indicate whether they played with the

kaleidoscope or not, which served as a behavioral measure of their adaptation to the kaleidoscope. In break 4 (about 25 minutes after being exposed to the kaleidoscope and playing with it), we measured participants' liking for the kaleidoscope again. As a mediator, we measured participants' subjective level of arousal at break 4 ("How excited do you feel now?"; 1 = not excited at all, 7 = very excited). Prior literature has used excitement as the subjective measure of arousal, and this subjective measure is found to be highly correlated with objective arousal measures such as heart rate (Ladouceur et al. 2003; Wulfert et al. 2005). We predicted that participants in the non-owner (vs. owner) condition would like the kaleidoscope more at break 4, an effect that could be explained by a higher level of arousal.

## Results

*Affective responses.* A mixed model was created for liking of the kaleidoscope with ownership status as a between-subjects factor (owner vs. non-owner), and random effects for the intercept and the slope on the number of breaks to capture the repeated nature of the data. The analysis revealed a significant interaction effect between the two factors ( $b = 0.59$ ;  $F(1, 188.00) = 4.93$   $p = .028$ ). As depicted in Figure 20, and indicated by the interaction, participants' in the non-owner (vs. owner) condition adapted to the kaleidoscope more slowly (slopes:  $b_{\text{owner}} = -0.31$  vs.  $b_{\text{non-owner}} = 0.25$ ). In addition, replicating the results of study 1, whereas there was no difference on participants' initial liking of the kaleidoscope between the non-owner versus owner conditions ( $M_{\text{non-owner}} = 3.89$ ,  $SD = 1.49$  vs.  $M_{\text{owner}} = 3.86$ ,  $SD = 1.60$ ;  $F(1, 188.54) < 0.1$ ), participants in the non-owner (vs. owner) condition liked the kaleidoscope more at break 4 ( $M_{\text{non-owner}} = 4.12$ ,  $SD = 1.58$  vs.  $M_{\text{owner}} = 3.55$ ,  $SD = 1.70$ ;  $F(1, 325.19) = 6.14$ ,  $p = .014$ ). This result

confirmed our proposition that consuming a product for which one did not have (vs. have) ownership decreased the rate of adaptation.

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Insert Figure 20 about here  
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*Number of playing participants over time.* We further tested whether the number of participants who played with the kaleidoscope over time differed between the owner vs. non-owner conditions. If participants in the non-owner condition adapted more slowly than participants in the owner condition, as we have theorized, we should observe that more participants in the non-owner (vs. owner) condition played with the kaleidoscope as time went by. There was a significant main effect of break, suggesting that over time fewer participants played with the kaleidoscope ( $b = -0.12$ ;  $F(1, 426.46) = 39.94, p < .001$ ) and more importantly, a significant interaction between break and ownership ( $b = 0.05$ ;  $F(1, 426.31) = 3.91, p = .049$ ; Figure 21). Whereas during break 1 a similar percentage of participants played with the kaleidoscope in the non-owner versus owner conditions (non-owner: 81.4% vs. owner: 84.9%;  $\chi^2(1) = 0.42, p = .52$ ), at break 4 a significantly greater percentage of participants in the non-owner (vs. owner) condition played with the kaleidoscope (non-owner: 44.8% vs. owner: 31.2%;  $\chi^2(1) = 3.71, p = .05$ ).

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Insert Figure 21 about here  
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*Arousal.* A 2 (Ownership status: owner vs. non-owner) between-subjects ANOVA was conducted on participants' level of arousal at break 4. There was a significant main effect of ownership status ( $M_{\text{non-owner}} = 3.29, SD = 1.59$  vs.  $M_{\text{owner}} = 2.55, SD = 1.26$ ;  $F(1, 187) = 12.68, p$

< .001;  $\eta_p^2 = .06$ ), such that participants in the non-owner condition felt more excited at break 4 compared to participants in the owner condition.

A mediation analysis was conducted to test the mediating role of arousal in the relationship between ownership status and hedonic adaptation (Process Model 4). We included ownership status as the independent variable, arousal at break 4 as the mediator, and liking for the kaleidoscope at break 4 as the dependent variable. The indirect effect of arousal at 95% interval was significant (95% CI = [-.875, -.245]), suggesting that arousal significantly mediated the effect of ownership status on hedonic adaptation (refer to Figure 22 for the mediation results).

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Insert Figure 22 about here  
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## Discussion

Employing a different ownership status manipulation and a different stimulus, the results of study 2 replicated findings in study 1 that consuming an object that consumers have not yet owned (vs. have owned) decreased hedonic adaptation. This study also tested the role of arousal, and showed that the higher arousal non-owners (vs. owners) experienced mediated the effects. This study also suggested that the observed effects were unlikely to be driven by feelings of scarcity, as participants in both ownership status conditions would receive the kaleidoscope. In the next study, we test the effects of ownership status using a field study to provide further external validity for our proposed effects.

### **STUDY 3: PLAYING WITH A SLINKY THAT I OWN VS. DON'T OWN YET**

Study 3 was designed to provide further support for our proposed effects in a field setting. All participants in this study received a slinky that they could take home to play with. We manipulated ownership status similarly to study 2. We predicted that participants in the non-owner (vs. owner) condition would adapt to the slinky more slowly.

#### Design, Stimuli, and Procedures

We used a 2 (Ownership status: owner vs. non-owner; between-subjects)  $\times$  2 (Number of days playing with the slinky: initial vs. day 1; within-subjects) mixed design. Participants were recruited in a behavioral lab. Participants were told that this study was about consumer's toy playing experiences, and the study would last for a week. By participating in the study, they could play with a metal slinky. A hundred and twenty-two US undergraduate students who came to the lab to participate in a research session agreed to participate in our study, and received the slinky. Resembling the manipulation used in study 2, in the owner condition, participants were told that the slinky was gifted to them, and they could play with this slinky however they like in the next seven days. When the study ended, they could still keep the slinky. Participants then signed an electronic receipt to declare their ownership of the slinky. In the non-owner condition, however, participants were told that the slinky was not theirs now. They could play with it however they like in the next seven days. When the study ended, they would receive the slinky as a gift by signing a receipt electronically.

Participants were then asked to play with the slinky in the lab for 20 seconds, and to

indicate their liking for the slinky (initial liking; “How much do you like the slinky now?”; 0 = not at all, 100 = very much). Again, this measure served as participants’ initial liking for the slinky. Participants were informed that we would send out a follow-up email every evening about their toy-playing experiences for seven days. Participants then left the lab with the slinky.

In the follow-up email, we asked participants about their liking for the slinky so far, and how long they played with the slinky since the last time they answered the survey (in minutes). The number of minutes participants played with the slinky served as a behavioral measure of hedonic adaptation. If playing with a slinky one had not yet owned (vs. had owned) decreased the rate of adaptation, we should observe that participants in the non-owner (vs. owner) condition to play with the slinky for longer. We measured arousal to test the process (“How excited do you feel about this slinky?”; 1 = not at all, 7 = very much). To directly test the alternative accounts of scarcity, we asked participants to indicate the extent to which they thought they had limited opportunities to play with the slinky (1 = not limited at all, 7 = very limited).

## Results

Of the 122 participants recruited, thirty-eight participants in the non-owner condition and forty participants in the owner condition completed the first follow-up survey (a 64% response rate that did not vary by experimental conditions). Only forty-seven participants in total completed the second follow-up survey, so we stopped collecting data at that point. We therefore focused on the initial liking and the first day survey in this study.

*Affective response.* A mixed model was created for liking of the slinky with ownership status as a between-subjects factor (owner vs. non-owner), and random effects for the intercept

and the slope on the number of days to play with the slinky to capture the repeated nature of the data. The analysis revealed a significant interaction effect between the two factors ( $b = -6.92$ ;  $F(1, 78) = 7.31, p = .008$ ). As depicted in Figure 23, and indicated by the interaction, participants' in the non-owner (vs. owner) condition adapted to the slinky more slowly (slopes:  $b_{\text{owner}} = -5.58$  vs.  $b_{\text{non-owner}} = 3.68$ ). In addition, whereas participants in the non-owner versus owner condition showed no difference on the initial liking of the slinky ( $M_{\text{non-owner}} = 70.32, SD = 22.13$  vs.  $M_{\text{owner}} = 67.98, SD = 22.82$ ;  $F(1, 78) = 0.22, p = .643$ ), participants in the non-owner (vs. owner) condition indicated that they liked the slinky more on day 1 ( $M_{\text{non-owner}} = 74.00, SD = 25.71$  vs.  $M_{\text{owner}} = 62.40, SD = 25.21$ ;  $F(1, 78) = 4.67, p = .033$ ).

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Insert Figure 23 about here  
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*Time to play with the slinky.* A 2 (Ownership status: owner vs. non-owner) between-subjects ANOVA was conducted on the amount of time (log-transformed) participants had played with the slinky on day 1. Supporting our proposition, participants in the non-owner condition played with the slinky significantly longer than participants in the owner condition (in minutes:  $M_{\text{non-owner}} = 17.32$  vs.  $M_{\text{own}} = 9.33$ ;  $F(1, 76) = 4.32, p = .039$ ), suggesting that non-owners (vs. owners) adapted to the slinky more slowly.

*Arousal.* A 2 (Ownership status: owner vs. non-owner) between-subjects ANOVA was conducted on participants' self-reported arousal on day 1. There was a marginally significant effect of ownership status ( $M_{\text{non-owner}} = 4.87, SD = 1.74$  vs.  $M_{\text{owner}} = 4.20, SD = 1.70$ ;  $F(1, 76) = 2.94, p = .09$ ;  $\eta_p^2 = .04$ ), such that participants in the non-owner condition were marginally more excited about the slinky on day 1 compared to participants in the owner condition.

A mediation analysis was conducted to test the mediating role of arousal in the relationship between ownership status and hedonic adaptation (Process Model 4). We included ownership status as the independent variable, arousal at day 1 as the mediator, and liking for the slinky on day 1 as the dependent variable. The indirect effect of arousal at 90% interval did not include zero (90% CI = [-10.24, -0.35]), suggesting that arousal mediated the effect of ownership status on hedonic adaptation.

On perceived scarcity, the effect of ownership status was not significant ( $M_{\text{non-owner}} = 3.44$  vs.  $M_{\text{owner}} = 3.15$ ;  $F(1, 76) = 0.50, p = .48$ ). This result directly ruled out scarcity as an alternative explanation.

## Discussion

Whereas study 2 tested the effects of ownership status on hedonic adaptation in a 30-minute research session in the lab, study 3 showed the proposed effects in a real situation for a longer time frame, providing external validity for the findings. This study provided further support for the proposed account of arousal, while directly ruled out the account of scarcity. In the next study, we examine the role of ownership status in a marketing context.

## **STUDY 4: FRAMING A FINANCING PLAN**

Study 4 was designed to test the effects of ownership status in a marketing domain. Unlike studies 1-3 where participants consumed a product that they owned or did not own, in this study we manipulated the salience of the non-ownership status in a car financing context. When

consumers finance a car, they do not legally own the car until the loan is paid off. Most dealers do not make this information salient to consumers. However, could making it salient that consumers drive a car that they do not legally own when they use a financing plan decrease consumers' adaptation to the car? In this study, participants were asked to imagine that they used a 36-month financing plan to purchase a new car. In the non-owner salience condition, participants were clearly pointed out that they did not have ownership of the vehicle for the duration of the loan, while participants in the baseline condition were not specifically informed of this. Participants were then asked to rate their affective responses to the car over time.

We acknowledge that in this study participants reported their anticipated rather than actual affective reactions to the car over a 36-month period. Prior research has shown that consumers are able to predict the diminishing liking of a product when the prospective duration is made salient to them (Wang et al. 2009). For example, it was found that consumers were able to correctly predict their adaptation to a digital camera when they were asked to predict their enjoyment of the camera at two points in time (e.g., a week after the purchase and 1 year after the purchase). Given that in this current study we drew participants' attention to prospective duration by asking them to predict their affective responses to the car several points in time, the anticipated affective reactions should mimic consumers' actual ratings.

### Design, Stimuli, and Procedures

We used a 2 (Ownership status: baseline vs. non-ownership salient; between-subjects) × 6 (Cumulative number of months driving the car: 0 vs. 6 vs. 12 vs. 18 vs. 24 vs. 30; within-subjects) mixed design. One hundred fifty-eight participants were recruited from Amazon MTurk

( $M_{\text{age}} = 38.38$ , 48.7% male) to participate in this study in exchange for a small monetary reward.

All participants read a hypothetical scenario: “Imagine that you plan to purchase a new car. After searching online and visiting several dealerships, you find a model that you really like. This model uses cutting-edge technology, has a cool exterior design, and is fuel-efficient. You have enough money to buy this model in cash. However, you learn from the dealer that there is a 36-month financing plan available. The financing plan requires zero down payment and comes with an APR (i.e., annual interest rate) of 0.99%.”

All participants imagined that they decided to use the financing plan to purchase the car. In the non-ownership salient condition, we informed participants that they did not have legal ownership of the car for the duration of the loan. Specifically, participants read: “With financing, lenders will hold the legal ownership of the vehicle for the duration of the car loan. Once you pay off the loan, you will obtain the legal ownership of the car.” In the baseline condition, however, participants were not presented with this information. Participants were then asked to imagine vividly that they signed the contract, that the salesperson handed them the key to the new car, and that they got into the car, sat in the driver’s seat, and started the engine.

Participants were then asked to rate how much they would enjoy driving the car (“How much would you enjoy driving the car at this point?”; 1 = not at all, 7 = very much) and how much they would like the car (“How much would you like the car at this point?”; 1 = not at all, 7 = very much) at month 0, month 6, month 12, month 18, month 24 and month 30, respectively. As a mediator, we also measured arousal (“How excited would you feel at this point?”; 1 = not at all, 7 = very much) at each time point. After participants answered their affective responses to the car at a time point (e.g., at month 6), they were asked to vividly imagine that six months had passed, and picture how the car would be like and how they would feel about the car at this point

for at least 15 seconds, before they rated their affective reactions towards the car again (e.g., at month 12). To increase the vividness of the passage of time, and to facilitate participants to better imagine their feelings about car as time went by, all participants were also presented with an animated calendar showing that time went by.

In this study, we also tested whether making salient the fact that consumers did not legally own a car for the duration of the car loan had downstream effects even after consumers have paid off the loan (in our case, after 36 months). Specifically, we asked consumers in both ownership status conditions to imagine that 36 months had passed, and they had paid off the loan. We then asked participants to indicate how much they would enjoy driving the car at that point, how much they would like the car at that point, and how likely to would purchase a new car (“How likely would you consider buying another new car at this point?”; 1 = not at all likely, 7 = very likely). We predicted that the positive effects of non-ownership salience would carry over even after consumers had obtained the legal ownership of the product, such that participants in the non-ownership salient condition would enjoy driving the car and like the car more, and be less interested in purchasing a new car compared to participants in the baseline condition.

## Results

*Affective responses.* Six affective response indices (all  $\alpha$ s > .84) were created as the mean of participants’ enjoyment and liking for the car taken after imagining every six months had passed by. A mixed model was created for the affective response indices with ownership as a between-subjects factor (owner vs. non-owner), and random effects for the intercept and the slope on the cumulative number of months driving the car to capture the repeated nature of the

data. The analysis revealed a significant main effect of the cumulative number of months driving the car ( $b = -0.27$ ;  $F(1, 168.56) = 72.79, p < .001$ ), in support of the general notion of growing adaptation over time, and a significant main effect of ownership status ( $b = -0.38$ ;  $F(1, 169.19) = 5.26, p = .023$ ). More importantly, we found a significant interaction effect between the two factors ( $b = 0.16$ ;  $F(1, 169.19) = 12.87, p < .001$ ). As depicted in Figure 24, and indicated by the interaction, participants in the non-ownership salient (vs. baseline) condition adapted to the car more slowly (slopes:  $b_{\text{non-ownership salient}} = -0.11$  vs.  $b_{\text{baseline}} = -0.27$ ). Furthermore, whereas the affective response to the car did not differ between the non-ownership salient vs. baseline conditions at month 0 ( $M_{\text{non-ownership salient}} = 5.93, SD = 0.96$  vs.  $M_{\text{baseline}} = 6.07, SD = 1.03$ ;  $F(1, 165.77) = 2.21, p = .139$ ), month 6 ( $M_{\text{non-ownership salient}} = 5.48, SD = 1.03$  vs.  $M_{\text{baseline}} = 5.56, SD = 1.04$ ;  $F(1, 160.99) = 0.22, p = .633$ ), month 12 ( $M_{\text{non-ownership salient}} = 5.02, SD = 1.07$  vs.  $M_{\text{baseline}} = 4.94, SD = 1.19$ ;  $F(1, 158.31) = 0.36, p = .552$ ), and month 18 ( $M_{\text{non-ownership salient}} = 4.72, SD = 1.11$  vs.  $M_{\text{baseline}} = 4.63, SD = 1.28$ ;  $F(1, 158.19) = 2.32, p = .130$ ), participants in the non-ownership salient (vs. baseline) condition liked the car more at month 24 ( $M_{\text{non-ownership salient}} = 4.66, SD = 1.16$  vs.  $M_{\text{baseline}} = 4.27, SD = 1.42$ ;  $F(1, 158.23) = 4.89, p = .028$ ) and month 30 ( $M_{\text{non-ownership salient}} = 4.65, SD = 1.27$  vs.  $M_{\text{baseline}} = 3.99, SD = 1.51$ ;  $F(1, 156.20) = 7.33, p = .008$ ).

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Insert Figure 24 about here  
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*Arousal.* A similar mixed model was conducted for participants' arousal. Consistent with the patterns of interim affective responses, there was a significant main effect of ownership status ( $b = -0.35$ ;  $F(1, 341.2) = 87.39, p < .001$ ), a significant main effect of ownership status ( $b = -0.39$ ;  $F(1, 341.66) = 17.54, p < .001$ ), and a significant interaction effect between the two factors ( $b = 0.14$ ;  $F(1, 340.51) = 21.82, p < .001$ ; see Figure 25). As depicted in Figure 25, and

indicated by the interaction, arousal of participants in non-ownership salient (vs. baseline) condition reduced more slowly (slopes:  $b_{\text{non-owner salient}} = -0.21$  vs.  $b_{\text{baseline}} = -0.35$ ). Again, participants in the non-ownership salient (vs. baseline) condition were significantly more excited at month 24 ( $M_{\text{non-owner salient}} = 3.98$ ,  $SD = 1.69$  vs.  $M_{\text{baseline}} = 3.22$ ,  $SD = 1.71$ ;  $F(1, 230.57) = 6.58$ ,  $p = .011$ ) and month 30 ( $M_{\text{non-owner salient}} = 4.50$ ,  $SD = 1.79$  vs.  $M_{\text{baseline}} = 3.00$ ,  $SD = 1.67$ ;  $F(1, 204.91) = 11.68$ ,  $p = .001$ ), but the contrast between ownership status conditions on arousal was not significant at month 0, month 6, month 12 and month 18 ( $ps > .11$ ).

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Insert Figure 25 about here  
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A mediation analysis was conducted to test the mediating role of arousal in the relationship between ownership status and hedonic adaptation (Process Model 4). We included ownership status as the independent variable, arousal as the mediator, and affective responses at each month point as the dependent variable, respectively. Replicating prior findings, arousal significantly mediated the effect of ownership status at month 24 (95% CI = [-0.69, -0.12]), and month 30 (95% CI = [-1.21, -0.52]; see Figure 26 for the mediation results).

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Insert Figure 26 about here  
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*Downstream effects.* We further tested whether the positive effects of non-ownership salience carried over after one had gained ownership of the product. Two separate 2 (Ownership status: baseline vs. non-ownership salient) between-subjects ANOVA was conducted on participants' affective responses to the car (a composite of liking and enjoyment,  $\alpha = .92$ ) as well as their likelihood of purchasing a new car, respectively. We found a significant main effect of ownership status on affective response ( $F(1, 156) = 31.21$ ,  $p < .001$ ;  $\eta_p^2 = .17$ ), and a

marginally significant main effect of ownership status on the likelihood of purchasing a new car ( $F(1, 156) = 3.07, p = .082; \eta_p^2 = .02$ ). Participants in the non-ownership salient (vs. baseline) condition liked the car more even after paying off the loan ( $M_{\text{non-owner salient}} = 5.26, SD = 1.28$  vs.  $M_{\text{baseline}} = 3.97, SD = 1.62$ ), and were less likely to purchase a new car ( $M_{\text{non-owner salient}} = 2.92, SD = 1.83$  vs.  $M_{\text{baseline}} = 3.47, SD = 2.04$ ).

## Discussion

This study replicated prior findings using a different ownership status manipulation and a different product category (i.e., car). These findings also had implications for marketers and consumers. When consumers use financing plans to purchase a product such as a car or a laptop, dealers or retailers usually do not make it salient that consumers do not hold legal ownership of the product until they pay off the loan. Our results suggested that making this message salient could have benefits for consumers: it slows down the rate of hedonic adaptation, leading consumers to feel less tired of the product as time goes by.

One limitation of the study was that we used anticipated rather than actual affective responses. Though prior literature has shown that anticipated adaptation is consistent with actual adaptation when the prospective duration is made salient (Wang et al. 2009), one could still argue that anticipation may not perfectly correspond to actual ratings. Even that, we believe that the findings of this study are meaningful to marketers, since anticipated liking could impact one's product choices. If consumers anticipate that they will like a car more after a few years, as we observed in the non-ownership salient condition, they would probably be more likely to purchase the car.

In the next study, we manipulate arousal in addition to ownership status to provide direct evidence for the proposed process of arousal.

## **STUDY 5: THE MODERATING ROLE OF EXPERIMENTALLY REDUCING AROUSAL**

According to our theory that the impact of non-ownership (vs. ownership) on hedonic adaptation arises from heightened arousal, we should be able to moderate this effect by experimentally reducing arousal. In this study, we manipulated participants' level of arousal as well as ownership status. We predicted that when participants' arousal was not experimentally decreased, we would replicate prior findings that participants would adapt to an unowned (vs. owned) product more slowly. However, when participants' level of arousal was experimentally reduced, the effect of ownership status on hedonic adaptation would attenuate, as non-owners would adapt at rates similar to that of owners.

In this study we also measured participants' valuation of the owned versus unowned product, to demonstrate the endowment effect and our effect in the same study design.

### Design, Stimuli, and Procedures

We used a 2 (Ownership status: owner vs. non-owner; between-subjects) X 2 (Arousal: baseline vs. low; between-subjects) × 5 (Cumulative number of candy consumption: 3 vs. 6 vs. 9 vs. 12 vs. 15) mixed design. One hundred and sixteen US undergraduate students (37.9% male)

completed the study for course credit<sup>8</sup>. The procedure of this study was similar to that in study 1. Specifically, each participant received two bags of chocolate (i.e., Reese's pieces) put in plastic bags as a gift upon entering the lab. They were told that they would be randomly paired with another student in the lab, exchange one of their two bags of chocolate with that student, and taste both bags of chocolate (one bag of their own and one bag of their partner's). After lab administrators exchanged chocolate for each participant, participants were told that they would eat their own bag of chocolate first (the owner condition) or their partner's bag first (the non-owner condition).

We then measured participants' valuation of their own versus their partner's chocolate by asking them to indicate their willingness to pay (WTP) for the chocolate. Specifically, participants were asked to choose between getting their or their partner's chocolate versus getting a certain amount of money if they were given such as choice ("Suppose you can choose between getting your/your partner's chocolate and getting a certain amount of money, would you choose to get the chocolate or money?"; options: chocolates vs. \$0.25, \$0.5, until \$2.5, respectively; for each option, participants can choose between "I choose to get the chocolate" versus "I choose to get money"). We added this measure to demonstrate the endowment effect. We argue that while consumers value an object less when it is not owned (vs. owned), as suggested by the endowment effect (Kahneman et al. 1991), the slower hedonic adaptation can hold when consumers actually consume an unowned versus owned product.

Next, to manipulate arousal, participants in the low arousal condition were instructed to do a slow-breathing exercise, which has been shown to reduce one's arousal (adapted from Etkin, Evangelidis, and Aaker 2015; Mogilner, Kamvar, and Aaker 2011; Rudd 2013). They read:

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<sup>8</sup> The sample size of the study was small due to a limited number of participants in the student pool.

“Before beginning this breathing exercise, please uncross your arms and legs. Make sure you are sitting in a comfortable up-right position. Each complete breath (inhale plus exhale) lasts 11 counts. The inhale should last 5 counts (i.e., 1-2-3-4-5) and the exhale should last 6 counts (i.e., 6-7-8-9-10-11). In this breathing exercise you will complete 10 of these 11 count breaths.” We anticipated that performing this slow-breathing exercise would reduce participants’ arousal. Therefore, non-owners would adapt to the candies as fast as the owners. In the baseline condition, participants completed a comparable task (i.e., a counting task) that was unrelated to arousal but took the same amount of time as the slow-breathing exercise. Specifically, participants read the following instructions: “Before beginning this counting exercise, please uncross your arms and legs. Make sure you are sitting in a comfortable up-right position. In this counting exercise, you will count to 11 (i.e., 1-2-3-4-5-6-7-8-9-10-11) 10 times. Start from 1 and count to 11 each time.” Because this counting exercise did not target arousal, we expected that participants in the non-owner (vs. owner) condition would adapt to the chocolates more slowly, as we found in prior studies.

After taking ten slow breaths or 10 counting exercises, all participants were then asked to rate their enjoyment of the chocolate for five times, each time after consuming three pieces of chocolates from either their own or their partner’s bag (“How much are you enjoying eating your own/partner’s chocolate so far?”; 0 = not at all, 100 = very much). Next, we measured participants’ WTP for their versus their partner’s chocolates again, to explore whether consuming an unowned versus owned product could change participants’ valuation of the product. Due to a time limit, participants were told that they did not need to eat the other bag of chocolate. We collected demographic information in the end.

## Results

*Affective responses.* A mixed model was created for the affective responses (enjoyment) with ownership (owner vs. non-owner) and arousal (baseline vs. low) as two between-subjects factors, and random effects for the intercept and the slope on the cumulative number of candy consumption to capture the repeated nature of the data. The analysis revealed a significant main effect of the cumulative number of candy consumption ( $b = -7.19$ ;  $F(1, 116.57) = 24.34$ ,  $p < .001$ ), a marginally significant main effect of arousal ( $b = -10.55$ ;  $F(1, 116.57) = 2.91$ ,  $p = .091$ ), and a significant main effect of ownership status ( $b = -16.54$ ;  $F(1, 116.57) = 5.83$ ,  $p = .017$ ). There were also a marginally significant interaction between cumulative number of candy consumption and arousal ( $b = 2.64$ ;  $F(1, 116.57) = 2.80$ ,  $p = .097$ ), a significant interaction between cumulative number of candy consumption and ownership status ( $b = 4.44$ ;  $F(1, 116.57) = 6.49$ ,  $p = .012$ ), a marginally significant interaction between arousal and ownership ( $b = 16.76$ ;  $F(1, 116.57) = 3.23$ ,  $p = .075$ ). Since the study was underpowered because of a limited sample, the three-way interaction was marginally significant ( $b = -3.88$ ;  $F(1, 116.57) = 2.68$ ,  $p = .105$ ). However, the pattern of the results was consistent with our predictions, as we describe next.

In the baseline condition (i.e., the counting exercise), we found a significant interaction between ownership status and the cumulative number of candy consumption ( $b = 4.44$ ;  $F(1, 55.37) = 5.64$ ,  $p = .021$ ). As depicted in Figure 27, and indicated by the interaction, participants who consumed the partner's bag of chocolate adapted more slowly than those who consumed their own bag over time (slopes:  $b_{\text{owner}} = -7.19$  vs.  $b_{\text{non-owner}} = -2.75$ ). Unexpectedly, we also found that participants who ate their own (vs. partner's) bag of chocolate enjoyed it more at the first consumption ( $M_{\text{non-owner}} = 63.10$ ,  $SD = 28.10$  vs.  $M_{\text{owner}} = 72.82$ ,  $SD = 20.19$ ;  $F(1, 55.24) =$

3.88,  $p = .054$ ). Enjoyment between owners versus non-owners at the fifth consumption was directionally reversed, such that participants enjoyed eating their partner's (vs. own) chocolate more ( $M_{\text{non-owner}} = 52.29$ ,  $SD = 32.71$  vs.  $M_{\text{owner}} = 45.41$ ,  $SD = 32.22$ ;  $F(1, 54.94) = 0.40$ ,  $p = .529$ ). In the low arousal condition (i.e., the slow-breath exercise), however, the interaction between ownership and the cumulative number of candy consumption was not significant ( $b = 0.56$ ;  $F(1, 61.20) = 0.14$ ,  $p = .708$ ). As predicted, participants in the owner versus non-owner conditions adapted to the candies at similar rates (slopes:  $b_{\text{owner}} = -4.55$  vs.  $b_{\text{non-owner}} = -4.00$ ).

We also tested whether experimentally reducing arousal (vs. baseline) increased non-owners' adaptation to the chocolate. Though the interaction between arousal and the cumulative number of candy consumption did not reach significance ( $F(1, 52.57) = 0.62$ ,  $p = .434$ ), the pattern was consistent with our prediction, such that non-owners whose arousal was reduced by a breathing exercise adapted to the candies faster than those whose arousal was not experimentally reduced (slopes:  $b_{\text{low-arousal}} = -4.00$  vs.  $b_{\text{baseline}} = -2.75$ ).

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Insert Figure 27 about here  
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*Willingness to pay.* The willingness to pay measures (one measured prior to the consumption of the candies, and one measured after the candy consumption) helped us to demonstrate the endowment effect (using the measurement prior to the candy consumption), as well as to explore whether consuming an unowned versus owned product for some time impacted consumers' valuation of the product. A mixed model was created for the willingness to pay with ownership (owner vs. non-owner) and arousal (baseline vs. low) as two between-subjects factors, and random effects for the intercept and the slope on the timing of the measurement to capture the repeated nature of the data. The analysis revealed a significant main

effect of the timing of the measurement ( $b = -0.43$ ;  $F(1, 112.87) = 34.26$ ,  $p < .001$ ), a significant main effect of ownership status ( $b = -0.66$ ;  $F(1, 114.64) = 7.73$ ,  $p = .006$ ), and a significant interaction between the timing of the measurement and ownership status ( $b = 0.46$ ;  $F(1, 115.10) = 9.13$ ,  $p = .003$ ). The three-way interaction between the three factors was not significant ( $p = .327$ ).

A contrast analysis suggested that prior to the consumption of the candies, participants were willing to pay more for their own (vs. their partner's) bag of chocolate ( $M_{\text{owner}} = 0.73$  vs.  $M_{\text{non-owner}} = 0.58$  USD;  $F(1, 171.98) = 4.36$ ,  $p = .039$ ). This result replicated the endowment effect. After the consumption of the candies, however, willingness to pay for the candies did not differ between the owners versus non-owners ( $M_{\text{owner}} = 0.35$  vs.  $M_{\text{non-owner}} = 0.48$  USD;  $F(1, 112.86) = 0.30$ ,  $p = .587$ ), suggesting that the endowment effect was attenuated or even directionally reversed after consumers have used the product for some time with the faster decline of enjoyment for owners (vs. non-owners).

## Discussion

This study tested the underlying process of arousal directly by experimentally manipulating arousal via a slow-breathing exercise. We found that when participants' arousal was not experimentally reduced, we replicated prior findings such that non-owners adapted to the product more slowly compared to the owners. However, when participants' level of arousal was reduced experimentally via a slow-breathing exercise, the effect of ownership status on hedonic adaptation went away: participants adapted to the chocolates at similar rates when the chocolates belonged to their own or their partner.

In this study, we also measured participants' valuation of an owned versus unowned product. We replicated the endowment effect, such that consumers valued their own chocolates more than their partner's. We also found that the endowment effect was attenuated after consumers have used the product for a while.

## **GENERAL DISCUSSION**

It is not surprising that consumers generally tend to adapt, a process that is defined as the attenuation of the intensity of affective responses towards a stimulus over time (Frederick and Loewenstein 1999; Helson 1964; Parducci 1995). The thrill of victory subsides with time. So do the pleasure of a new sports car, the delight over a new dress, and the distress of a painful diagnosis. In this research, we examine whether ownership status impacts hedonic adaptation. Will consumers adapt to desirable products such as tasty food, fun toys or new purchases like cars more slowly when they do not have ownership (vs. have ownership) of the product?

We demonstrate that non-ownership (vs. ownership) could reduce hedonic adaptation. We propose and find that non-owners experience a heightened level of arousal, which helps to sustain the intensity of affective reactions. In support of the arousal account, we show that the effect of ownership status on hedonic adaptation is mediated by measured arousal, and moderated by experimentally manipulating arousal. We rule out other accounts such as the feeling of scarcity. We enhance confidence in our findings with convergent evidence using different product categories, including food (studies 1 and 5), toy (studies 2-3) and car (study 4), and different manipulations of ownership status.

The current research contributes to the literature on ownership. Prior literature primarily focuses on the effects of ownership status on object valuation and perceptual judgement (Beggan 1992; Dai and Hsee 2013; Kahneman et al. 1990; Nesselroade et al. 1999; Thaler 1980). However, none of this prior research has examined how ownership status could impact one's actual consumption of an object, and the affective reactions towards the owned versus unowned object over time. This research seeks to fill this gap. We find that whereas prior work shows that non-ownership (vs. ownership) negatively impacts product valuation (Beggan 1992; Heider 1958; Kahneman et al. 1991; Thaler 1980), the opposite is true when it comes to the actual experience of consuming the product.

Our research also speaks to the growing body of research that compares experiential purchases (i.e., money spent on doing) with material purchases (i.e., money spent on having). Experiential purchases have been found to provide more enduring happiness than material purchases (Van Boven and Gilovich 2003). Our research suggests that it could be the lack of factual ownership in experiential purchases (e.g., people do not own a travel destination) that sustain the happiness derived from these purchases; whereas for material possessions, people have obtained ownership, and therefore their enjoyment declines at a faster rate.

This research also contributes to the hedonic adaptation literature by identifying a novel situation in which the process of hedonic adaptation is less likely to exhibit. In addition, previous research on hedonic adaptation primarily explores factors that could help reset affective intensity, such as the number and length of breaks in an experience (Galak et al. 2013; Nelson and Meyvis 2008; Nelson et al. 2009), or the level of categories in the consumption (Redden 2008). This research provides a new perspective of slowing down the process of hedonic adaptation, which is to add arousal to the experience. We argue that lack of ownership can fuel

arousal, a factor that has been found to positively influence affective intensity during an experience (Brown and Curhan 2013; Gorn, Pham and Sin 2001; Mano 1992; Zhu and Ratner 2015), and therefore, sustain happiness.

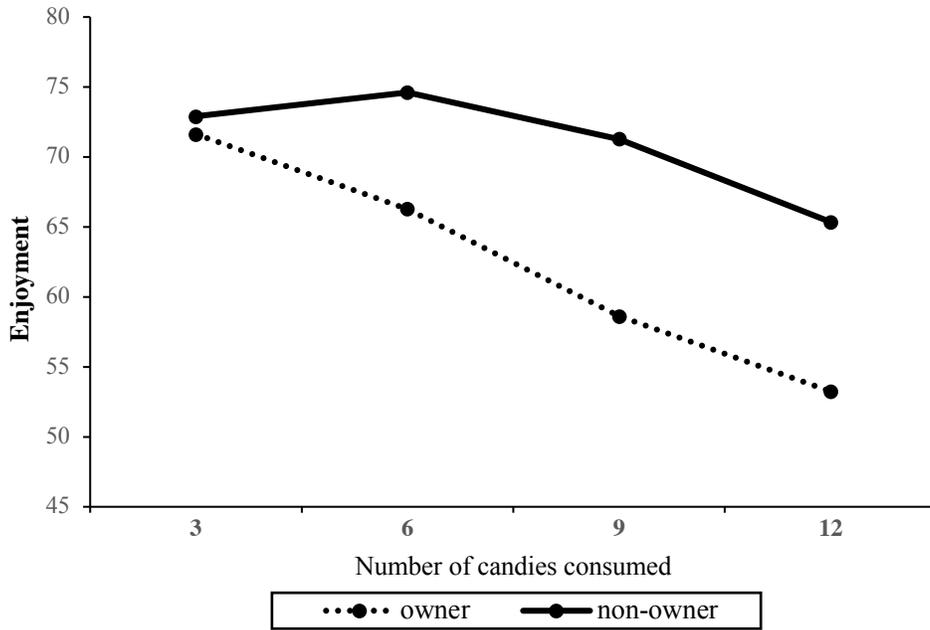
We speculate that the heightened arousal for non-owners can arise from several sources, including a desire to acquire ownership of the product, uncertainty about the future usage, and the novelty of the experience. These mechanisms might operate simultaneously in some cases, and in some other cases one mechanism might be more likely than others. For example, when the non-ownership status is made salient when consumers are driving a financed car, the desire to acquire ownership could be a major source of arousal, while novelty might be less relevant. If the car is rented, uncertainty and novelty might be more relevant than a desire to own. Future research can be conducted to disentangle these different sources of arousal for non-owners, and identify under what circumstances one mechanism might be more likely than the others.

Our research also yields important practical implications. First, showing that using an unowned (vs. owned) product is more enjoyable can educate consumers to make more deliberate and better decisions. The findings suggest to consumers that engaging in sharing economy could be beneficial as compared to acquiring ownership, because it can sustain the happiness they derive from the product. For example, leasing a car might produce a more enjoyable experience than purchasing it. Renting a bike to ride might be more enjoyable than riding one's own bike. The finding also suggests a potential way of increasing overall utility without using more resources. For example, if two friends both own a product (e.g., a bag of M&M's) and are about to consume it, they will both be better off if they first switch what they own and then consume the product the other person owns.

Our findings are also relevant to marketers. For example, as suggested by study 4, to reduce consumers' adaptation to their products, retailers can make the non-ownership status salient to the consumers when the products are financed. Further, it might be a wise strategy for online retailers to allow consumers to try out their products for free first and decide which ones to keep before paying for the products (e.g., Warby Parker; Amazon Wardrobe). By doing so, consumers might be willing to keep more products, as they adapt to these products more slowly during the trial period. Even when the products are already owned by the consumers, marketers can also frame the purchase to make consumers feel that they do not own the products. For example, marketers can reframe the return time window as a time period when consumers do not have actual ownership of the products, since they are able to return the product during that period.

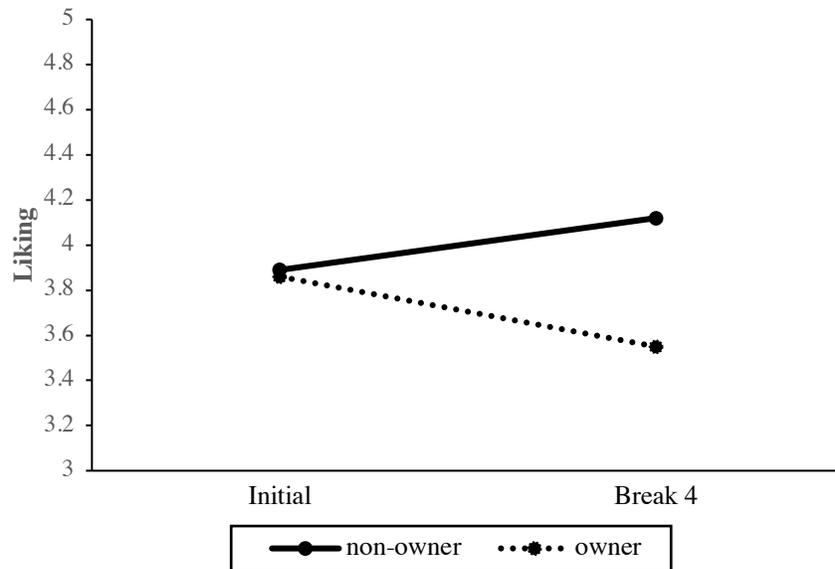
**FIGURE 19**

**AFFECTIVE RESPONSES BY OWNERSHIP STATUS (STUDY 1)**



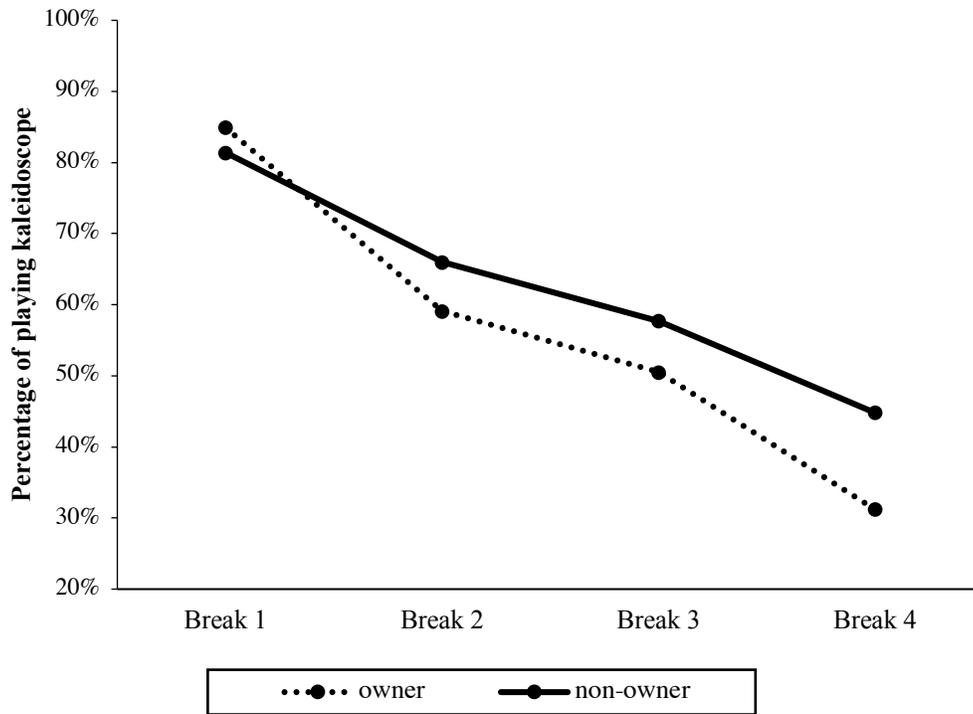
**FIGURE 20**

**AFFECTIVE RESPONSES BY OWNERSHIP STATUS (STUDY 2)**



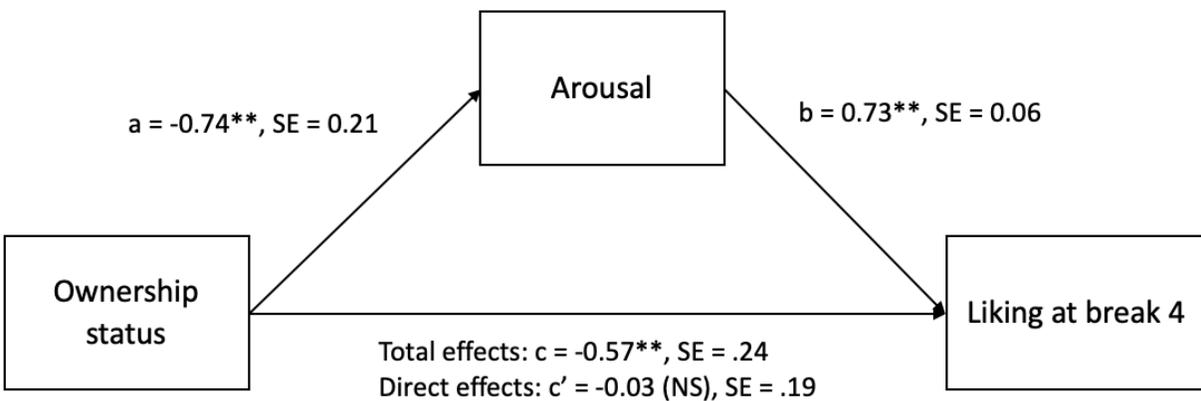
**FIGURE 21**

PLAYING BEHAVIOR BY OWNERSHIP STATUS (STUDY 2)



**FIGURE 22**

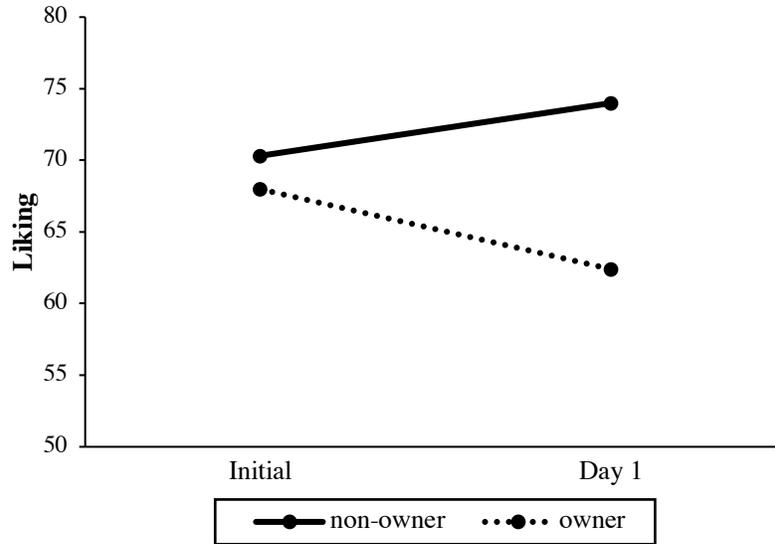
MEDIATION BY AROUSAL (STUDY 2)



\*\* indicates significance at .05 level; \* indicates significance at .1 level

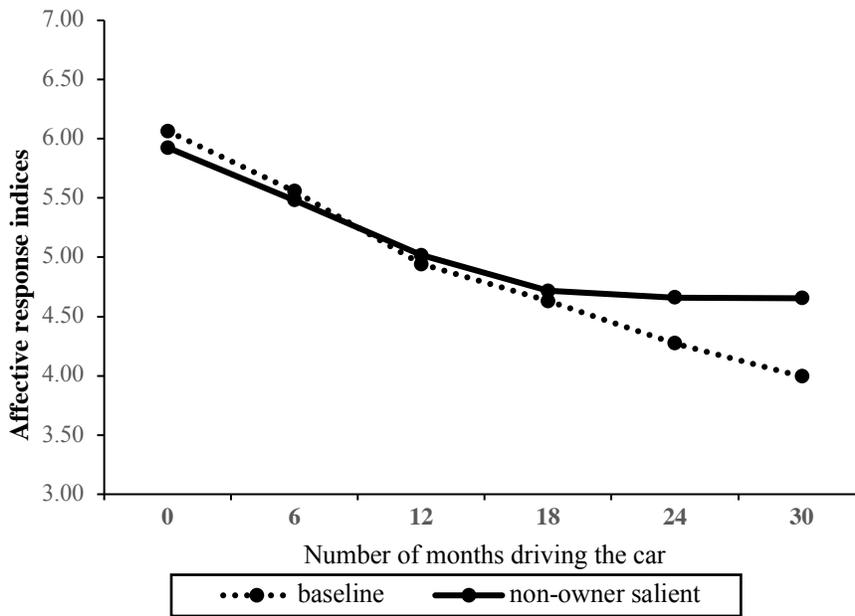
**FIGURE 23**

AFFECTIVE RESPONSES BY OWNERSHIP STATUS (STUDY 3)



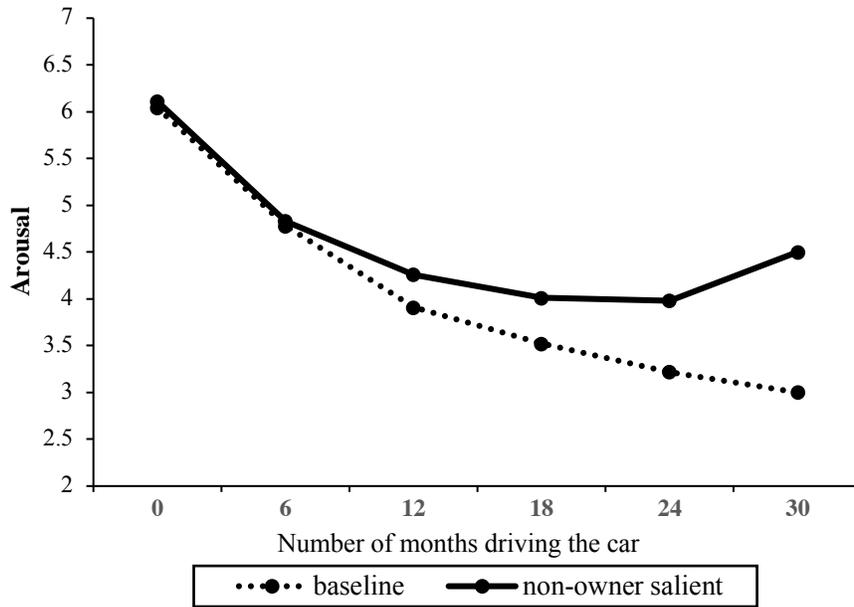
**FIGURE 24**

AFFECTIVE RESPONSES BY OWNERSHIP STATUS (STUDY 4)



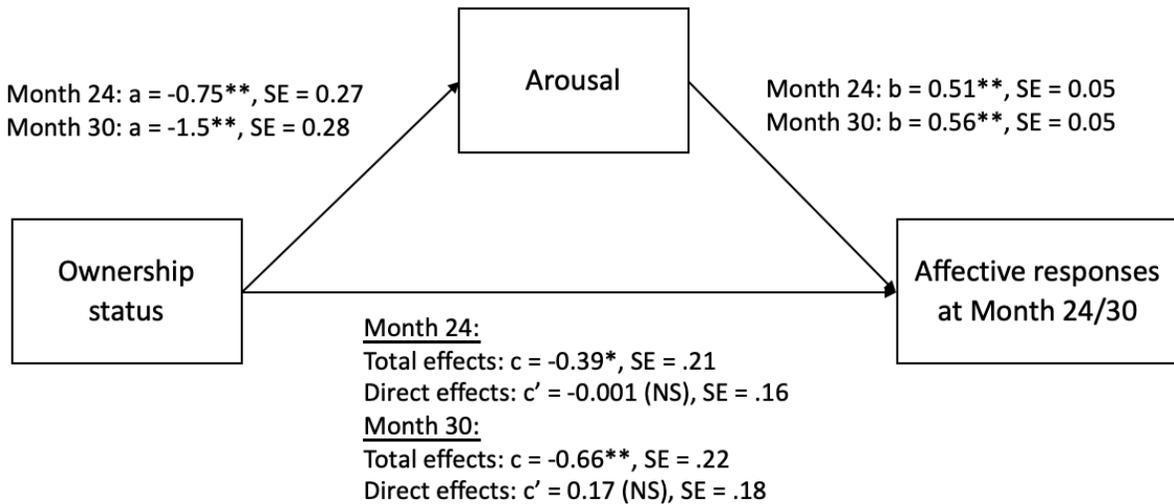
**FIGURE 25**

**AROUSAL BY OWNERSHIP STATUS (STUDY 4)**



**FIGURE 26**

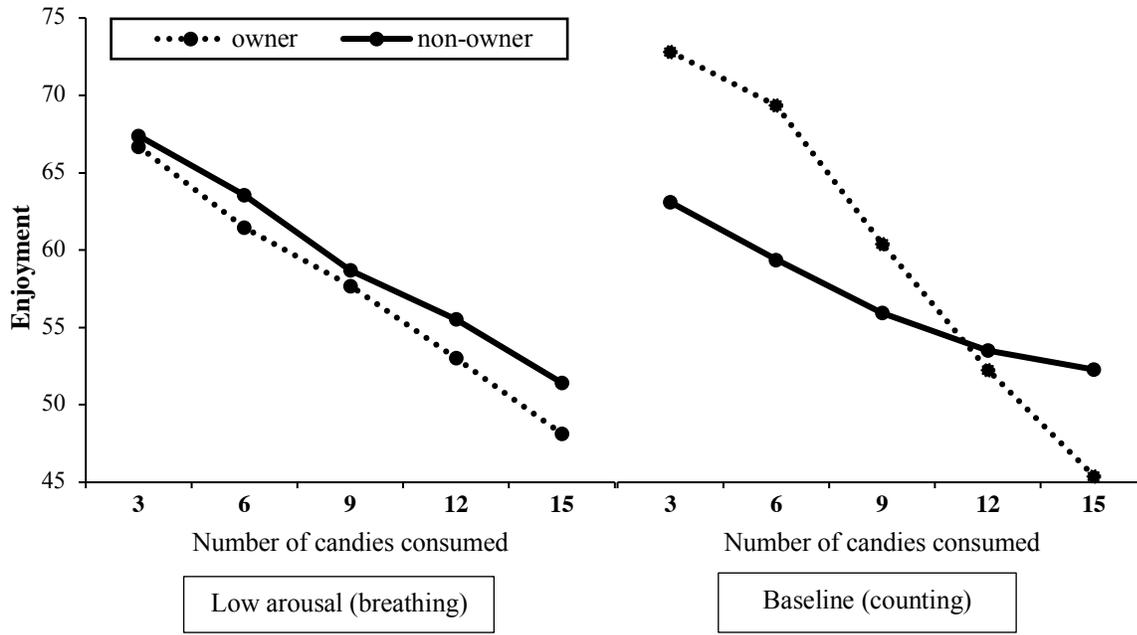
**MEDIATION BY AROUSAL (STUDY 4)**



\*\* indicates significance at .05 level; \* indicates significance at .1 level

FIGURE 27

AFFECTIVE RESPONSES BY OWNERSHIP STATUS AND AROUSAL (STUDY 5)



## APPENDIX A

### ROBUSTNESS CHECK: CONTROLLING FOR OWN INTERESTS AND PARTNER'S INTERESTS (CHAPTER II)

#### Study 1:

|                                    | <b>Model 1</b> |       |         | <b>Model 2</b><br>(controlling for consumer's own interests) |       |         | <b>Model 3</b><br>(controlling for consumers' own interests, and partner's interests) |      |         |
|------------------------------------|----------------|-------|---------|--|-------|---------|---|------|---------|
|                                    | estimate       | t     | p-value | estimate   | t     | p-value | estimate  | t    | p-value |
| <b>Subjective ability to focus</b> |                |       |         |  |       |         |   |      |         |
| intercept                          | 3.38           | 25.47 | 0.000   | 2.39   | 10.57 | 0.000   | 2.29  | 6.87 | 0.000   |
| solo experience                    | 0.59           | 2.97  | 0.003   | 0.55   | 2.94  | 0.004   |   |      |         |
| high clarity experience            | 0.35           | 1.79  | 0.077   | 0.33   | 1.83  | 0.070   | 0.33  | 1.88 | 0.063   |
| actor's interest                   |                |       |         | 0.23   | 5.23  | 0.000   | 0.19  | 3.66 | 0.000   |
| partner's interest                 |                |       |         |  |       |         | 0.07  | 1.30 | 0.195   |
| <b>Enjoyment</b>                   |                |       |         |  |       |         |   |      |         |
| intercept                          | 3.54           | 23.79 | 0.000   | 2.14   | 9.15  | 0.000   | 2.17  | 6.06 | 0.000   |
| solo experience                    | 0.48           | 2.19  | 0.030   | 0.42   | 2.10  | 0.037   |   |      |         |
| high clarity experience            | 0.75           | 3.41  | 0.001   | 0.72   | 3.63  | 0.000   | 0.72  | 3.79 | 0.021   |
| actor's interest                   |                |       |         | 0.32   | 7.30  | 0.000   | 0.28  | 5.41 | 0.000   |
| partner's interest                 |                |       |         |  |       |         | 0.04  | 0.71 | 0.477   |
| <b>Ease of coordination</b>        |                |       |         |  |       |         |   |      |         |
| intercept                          | 3.61           | 27.78 | 0.000   | 3.48   | 13.47 | 0.000   | 3.31  | 9.13 | 0.000   |
| solo experience                    |                |       |         |  |       |         |   |      |         |
| high clarity experience            | 0.47           | 2.48  | 0.015   | 0.47   | 2.47  | 0.015   | 0.47  | 2.45 | 0.016   |
| actor's interest                   |                |       |         | 0.03   | 0.60  | 0.553   | 0.04  | 0.68 | 0.499   |
| partner's interest                 |                |       |         |  |       |         | 0.35  | 0.67 | 0.505   |

Note: baseline group is low clarity shared experience

**Study 2:**

|   | <b>Model 1</b> |       |         | <b>Model 2</b><br>(controlling for consumer's own interests) |       |         | <b>Model 3</b><br>(controlling for consumers' own interests, and partner's interests) |       |         |
|---|----------------|-------|---------|--|-------|---------|---|-------|---------|
|   | estimate       | t     | p-value | estimate   | t     | p-value | estimate  | t     | p-value |
| <b>Objective ability to focus (memory test)</b> |                |       |         |  |       |         |   |       |         |
| intercept                                       | 8.61           | 15.88 | 0.000   | 9.34   | 15.15 | 0.000   | 8.64  | 12.13 | 0.000   |
| clarity   | -0.08          | -0.71 | 0.477   | -0.09  | -0.77 | 0.440   | -0.10   | -0.85 | 0.399   |
| interdependence                                 | -2.69          | -2.73 | 0.007   | -2.79  | -2.85 | 0.005   | -2.84   | -2.93 | 0.004   |
| interdependence*clarity                         | 0.42           | 2.08  | 0.039   | 0.45   | 2.26  | 0.025   | 0.45  | 2.28  | 0.024   |
| actor's own interests                           |                |       |         | -0.18  | -2.25 | 0.026   | -0.15   | -1.80 | 0.073   |
| partner's interests                             |                |       |         |  |       |         | 0.16  | 1.89  | 0.061   |
| <b>Subjective ability to focus</b>              |                |       |         |  |       |         |   |       |         |
| intercept                                       | 4.53           | 11.21 | 0.000   | 4.41   | 9.48  | 0.000   | 4.16  | 7.86  | 0.000   |
| clarity   | 0.08           | 0.95  | 0.345   | 0.08   | 0.95  | 0.346   | 0.08  | 0.91  | 0.364   |
| interdependence                                 | -1.28          | -1.74 | 0.084   | -1.27  | -1.73 | 0.086   | -1.29   | -1.76 | 0.080   |
| interdependence*clarity                         | 0.20           | 1.29  | 0.199   | 0.19   | 1.27  | 0.208   | 0.19  | 1.27  | 0.206   |
| actor's own interests                           |                |       |         | 0.03   | 0.52  | 0.604   | 0.04  | 0.63  | 0.530   |
| partner's interests                             |                |       |         |  |       |         | 0.06  | 0.97  | 0.333   |
| <b>Enjoyment</b>                                |                |       |         |  |       |         |   |       |         |
| intercept                                       | 4.21           | 9.04  | 0.000   | 4.52   | 8.46  | 0.000   | 4.43  | 7.15  | 0.000   |
| clarity   | 0.09           | 0.88  | 0.379   | 0.09   | 0.91  | 0.365   | 0.09  | 0.90  | 0.371   |
| interdependence                                 | -1.90          | -2.23 | 0.027   | -1.90  | -2.25 | 0.026   | -1.91   | -2.25 | 0.026   |
| interdependence*clarity                         | 0.39           | 2.22  | 0.028   | 0.39   | 2.27  | 0.025   | 0.40  | 2.27  | 0.025   |
| actor's own interests                           |                |       |         | -0.08  | -1.16 | 0.249   | -0.08   | -1.09 | 0.280   |
| partner's interests                             |                |       |         |  |       |         | 0.02  | 0.30  | 0.760   |

### Study 3:

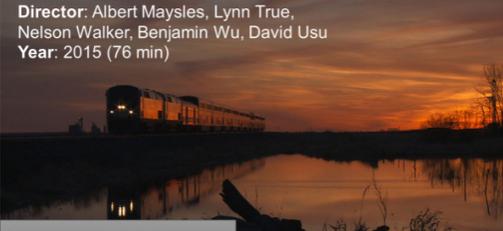
|   | <b>Model 1</b> |       |         | <b>Model 2</b><br>(controlling for consumer's own interests) |       |         | <b>Model 3</b><br>(controlling for consumers' own interests, and partner's interestss) |       |         |
|---|----------------|-------|---------|--|-------|---------|--|-------|---------|
|   | estimate       | t     | p-value | estimate   | t     | p-value | estimate   | t     | p-value |
| <b>Objective ability to focus (memory test)</b> |                |       |         |  |       |         |  |       |         |
| intercept                                       | 5.65           | 12.46 | 0.000   | 6.30   | 9.72  | 0.000   | 7.36   | 7.25  | 0.000   |
| solo experience                                 | 1.99           | 3.50  | 0.001   | 1.91   | 3.38  | 0.001   |  |       |         |
| high clarity experience                         | 2.18           | 3.39  | 0.001   | 2.10   | 3.29  | 0.002   | 1.97   | 3.05  | 0.004   |
| actor's interest                                |                |       |         | -0.15  | -1.39 | 0.166   | -0.26  | -1.94 | 0.056   |
| partner's interest                              |                |       |         |  |       |         | -0.14  | -1.05 | 0.297   |
| <b>Subjective learning</b>                      |                |       |         |  |       |         |  |       |         |
| intercept                                       | 4.73           | 25.13 | 0.000   | 4.31   | 14.96 | 0.000   | 3.86   | 9.04  | 0.000   |
| solo experience                                 | 0.86           | 3.53  | 0.001   | 0.91   | 3.77  | 0.000   |  |       |         |
| high clarity experience                         | 1.07           | 4.01  | 0.000   | 1.12   | 4.27  | 0.000   | 1.17   | 4.32  | 0.000   |
| actor's interest                                |                |       |         | 0.10   | 1.89  | 0.061   | 0.15   | 2.36  | 0.021   |
| partner's interest                              |                |       |         |  |       |         | 0.05   | 0.88  | 0.384   |
| <b>Enjoyment</b>                                |                |       |         |  |       |         |  |       |         |
| intercept                                       | 5.85           | 30.83 | 0.000   | 5.94   | 19.55 | 0.000   | 5.43   | 11.56 | 0.000   |
| solo experience                                 | 0.29           | 1.15  | 0.252   | 0.27   | 1.10  | 0.275   |  |       |         |
| high clarity experience                         | 0.28           | 1.03  | 0.309   | 0.26   | 0.97  | 0.334   | 0.33   | 1.09  | 0.281   |
| actor's interest                                |                |       |         | -0.02  | -0.40 | 0.694   | 0.00   | -0.01 | 0.994   |
| partner's interest                              |                |       |         |  |       |         | 0.10   | 1.38  | 0.172   |

Note: baseline group is low clarity shared experience

## APPENDIX B

### STUDY STIMULI (CHAPTER II)

#### Study 1: Movie Posters and Movie Descriptions Participants explored

|  |   |
|--|---|
|  <p>Director: Brad Horn<br/>Year: 2014 (86 min)</p> <p><b>FIRST AND 17</b></p>  | <p>In 2013 Da'Shawn Hand, a star defensive lineman at his Woodbridge, Virginia high school, was the top-ranked football recruit in America. Aggressively pursued by every top football college in the country, Hand must navigate the intricacies of pressures, emotions and drama facing him as a high school senior trying to graduate while making one of the most important decisions of his life. With scholarship offers from more than 90 schools, Hand faces the prospects of his future as Decision Day looms. This movie is directed by Brad Horn and edited by Jayne Orenstein. The movie won was named Multimedia Project of the Year by the Associated Press Sports Editors.</p> <p><b>FIRST AND 17</b></p>                                    |
|  <p>Director: Alexandria Bombach, Mo Scarpelli<br/>Year: 2015 (85 min)</p> <p><b>FRAME BY FRAME</b></p>                               | <p>When the Taliban seized power in Afghanistan in 1996, they banned and criminalized photography. Since the Taliban were ousted in 2001, Afghan photojournalists have been working to establish a free press and reframe their country's identity following decades of war and oppression.</p> <p>Frame by Frame follows four Afghan photojournalists as they navigate an emerging and dangerous media landscape in the pursuit of the truth. One of the photographers, Pulitzer Prize winner Massoud Hossaini, leads the new media revolution during a tumultuous time in which dangers are still very present. This movie also includes never-before-seen archival footage shot in secret during the Taliban regime.</p> <p><b>FRAME BY FRAME</b></p>    |
|  <p>Director: Sacha Jenkins<br/>Year: 2015 (82 min)</p> <p><b>FRESH DRESSED</b></p>   | <p>Fresh Dressed is a fascinating chronicle of hip-hop, urban fashion, and the hustle through the decades, and touches on the genesis of some of hip-hop's most influential ideas and their cross-over into mainstream culture. The fashion trends born out of a mix of ingenuity, creativity and swagger, such as oversized pants and graffiti-drenched jackets, soon found their way onto high-fashion runways and into suburban closets in middle America.</p> <p>Directed by Sacha Jenkins in 2015, the film features Kanye West, Pharrell Williams, Sean "Puffy" Combs, Marc Ecko, Big Daddy Kane &amp; many others.</p> <p><b>FRESH DRESSED</b></p>   |
|  <p>Director: Albert Maysles, Lynn True, Nelson Walker, Benjamin Wu, David Usu<br/>Year: 2015 (76 min)</p> <p><b>IN TRANSIT</b></p> | <p>In Transit takes you on a journey into the hearts and minds of passengers aboard Amtrak's Empire Builder, the busiest long-distance train route in America. Legendary documentary filmmaker Albert Maysles captures a series of intimate vignettes aboard the train as passengers share their fears, hopes and dreams as the moving landscape of America shifts behind them on their journey.</p> <p>Candid and direct, the film unfolds as a series of interconnected vignettes, ranging from overheard conversations to moments of deep intimacy. As the Empire Builder crisscrosses the country, passing through oil fields and vast plains, a loving portrait of America emerges, in its full human and natural beauty.</p> <p><b>IN TRANSIT</b></p> |
|  <p>Director: Leah Wolchok<br/>Year: 2015 (32 min)</p> <p><b>VERY SEMI-SERIOUS</b></p>  | <p>The New Yorker is one of the most famous magazines in the world — for its insightful, thorough articles, adventuresome fiction and, of course, its iconic cartoons. Very Semi-Serious takes an unprecedented behind-the-scenes look at the New Yorker. It explores the history and process of the magazine's cartoons through the lens of its humorous, often self-deprecating cartoon editor, Bob Mankoff. Wolchok captures the art, inspiration and madness that goes into creating the cartoons that have come to define an institution.</p> <p><b>VERY SEMI-SERIOUS</b></p>  |

## Study 2: The Photos and Blurbs Participants Explored



A young girl in the Masanga community of Sierra Leone attends an alternative Bondo ceremony that does not include female genital mutilation or cutting (FGM/C). Bondo ceremonies serve as highly-regarded rites of passage for Sierra Leonean girls as they enter adulthood and thus secret all-women communities, but decoupling FGM/C from the girls' ceremonies has allowed the community to continue to practice some of their traditions without harming their physical and mental health. During the Bondo ritual, girls can spend up to a month in the bush learning skills from how to be a good wife and mother to successful member of society.



The wedding of 16-year-old Anita in February, in Kagati village, just outside Kathmandu Valley, Nepal. The country experienced a massive earthquake last year, which, as other natural disasters, is likely to increase the rate of child marriage. Nepal has one of the highest rates of child marriage in the world — 41 percent of girls and 11 percent of boys marry before age 18. Globally, a girl is married every two seconds.



Visiting Ethiopia forever changed the way I think about coffee. Nearly all of the work to produce coffee still happens by hand, including the sorting and drying of coffee cherries and later beans. Neighbors and friends gather every day to drink coffee together. It is the main social event within a village and there is a deep reverence towards the whole process of crafting it and drinking it. Incense is burned and neighbors do not leave until they have consumed at least three cups, as the third round is considered to bestow a blessing.



They look adorable, but these emperor penguin chicks are hardy survivors as well. They are just a few weeks old, and yet they are already spending time on Antarctic sea ice without parents hovering over them constantly. When their parents go to sea to find food for their offspring, chicks gather in groups and together they go out exploring their surroundings. But the lives of these penguins and of multitudes of marine life around Antarctica have just been given an extraordinary gift: The largest marine protected area (MPA) in the world—covering 600,000 square miles—has just been declared in the Ross Sea off Antarctica. We are joyous!



Every iceberg tells a story. Each one is a snapshot of water frozen in time. I photographed this blue diamond just a few weeks ago along the Antarctic Peninsula, but by the end of the austral summer—this March—it will be gone. The clarity of the water in spring here is exquisite because it's not yet clouded by the abundance of plankton that blooms in the summer. Ninety percent of all ice on Earth is contained by Antarctica, and as our planet warms, ice shelves and glaciers dislodge an ever-larger portion of it each year into the Southern Ocean, where most icebergs melt away in a single season—adding to sea level rise.



The Northern Lights are an ethereal way to connect to the universe while you have your feet on planet Earth. These brilliant displays are caused by gases in our atmosphere colliding with charged particles from the sun that are carried to Earth on the “solar wind.” One recent night in Greenland, Northern Lights flared up and danced across the night skies in spectacular fashion. In the end my fingers were numb with cold but I felt closer to the cosmos.



Snack time for baby pandas at Chengdu Panda Base in Sichuan Province, China. Pandas nurse for the first 8-9 months of their lives and then eat as much as 40 percent of their body weight daily in bamboo. Their bamboo diet does not provide them much nutrition and has been further threatened by habitat loss. But thanks to years of research and a focus on conservation efforts, China has brought pandas back from the brink of extinction. Giant pandas have been upgraded from endangered to threatened, with an estimated adult population of 1,864 in the wild and 500 in captivity.



Salar de Uyuni. The world's largest salt flat (10,582 square kilometers) in southwest Bolivia was formed as a result of transformations between several prehistoric lakes. Covered by a few meters of salt crust, this area is called "flat" for a reason, with the average altitude variations within one meter. It is so large and flat that many of the earth's observation use the Salar as an object to calibrate their altimeters.



A harp seal pup seeks shelter from the wind as it waits for its mother to return to its ice nursery in Canada's Gulf of St Lawrence near Prince Edward Island. This image was taken during a moderate winter when limited sea ice had formed. This year, like many others is not normal, it is record setting warm. THIS WEEK thousands of pregnant female harp seals are struggling to find ice strong and suitable enough to birth their pups. There is very little ice in the gulf this season and what has formed is thin and too weak to sustain wind and waves. This lack of ice in the Gulf is becoming a turning point for this species as they struggle to reproduce in these waters.

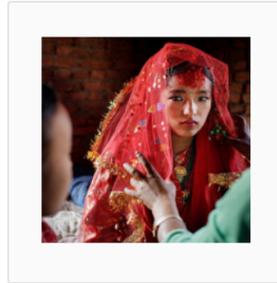
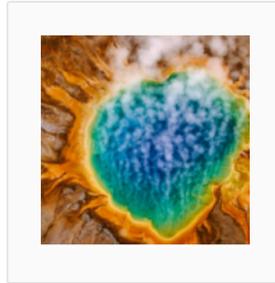
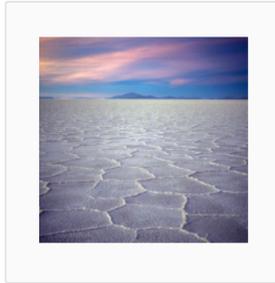
## APPENDIX C

### OBJECTIVE MEASURE OF ABILITY TO FOCUS ON THE ACTIVITY: MEMORY TESTS (CHAPTER II)

#### Study 2:

To understand how much you remember about the photos and the blurbs, we will now ask you several questions about them.

1. Which one of the following photos is NOT in the set of photos you just saw?



---

2. How many pandas were present in the photo of the giant panda?

One

Two

Three

Four

---

**3. Which of the following **correctly** describes the photo of the emperor penguin chicks?**

The emperor penguin chicks in the photo are only a few weeks old.

The emperor penguin chicks stay together when their parents go to find food.

The area in Ross Sea off Antarctica was recently declared as the largest marine protected area in the world.

All above is correct.

---

**4. What are auroras in Greenland also called?**

Northern lights

Southern lights

Solar lights

Cosmos lights

---

**5. Which of the following **incorrectly** describes the photo about the harp seal pup?**

The image depicts a harp seal pup seeks shelter from the wind.

The image was taken during a cold winter.

The ice in this Gulf is thin and weak.

The climate has made it harder for harp seals to reproduce in this gulf.

---

**6. Which of the following is an **incorrect** description of the Bondo ceremony without female genital mutilation or cutting (FGM/C)?**

It is a ritual held in the Masanga community of Sierra Leone.

It occurs in an all-women community.

It sacrifices women's physical health for mental health.

It is a highly regarded rite of passage in entering adulthood.

---

**7. Thinking back to the giant panda photo, which description is **incorrect**?**

The photograph was taken at Chengdu Panda Base in China.

The giant panda is no longer an endangered animal.

There are less than 1500 giant pandas in the wild.

Giant pandas eat as much as 40 percent of their body weight daily in bamboo.

---

**8. In a coffee social event in Ethiopia, how many cups do the attendees need to drink before leaving?**

One

Two

Three

Four

9. Which of the following **incorrectly** describes the photo about iceberg?

The photograph was taken along the Antarctic Peninsula.

The "blue diamond" in the photograph will melt away the end of the austral summer.

The water in the area is clearer in Summer than in Spring.

As the planet warms, ice shelves and glaciers in Antarctica dislodge a large portion into the Southern Ocean.

---

10. One of the pictures describes a country where the rate of child marriage is increasing. Which country is it?

Ethiopia

Nepal

Thailand

India

---

11. Which of the following **incorrectly** describes "Salar de Uyuni"?

Salar de Uyuni is the world's largest salt flat.

Many of the earth's observations use the Salar de Uyuni as an object to calibrate altimeters.

Salar de Uyuni is located in southeast Bolivia.

Salar de Uyuni was formed as the result of transformations between prehistoric lakes.

### Study 3:

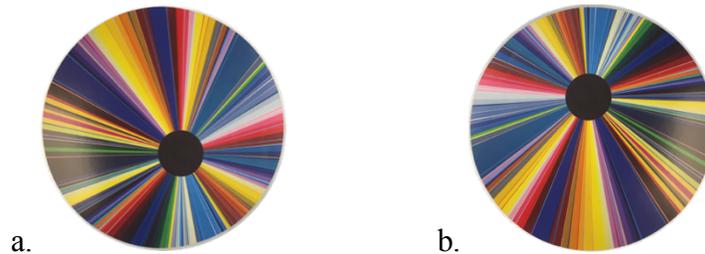
Please answer the questions individually.

To understand how much you remember about the exhibit, we will now ask you several questions regarding the artwork in the gallery.

1. Thinking back to the exhibit, which one of the following pieces of artwork is **NOT** exhibited in the gallery? (Please circle your answer)



2. Which is John Grunwell's Entelechy 22?



3. Which of the following statement is **not true** about Ako Yamro's sculpture "Ballerina"?

- a. The ballerina is standing on one of her feet.
- b. The piece is made of bronze.
- c. The artist grew an interest in arts and painting when he was a young boy.
- d. All of the above are true.

4. Which of the following statements is **true** for the painting "Bear Carver"?

- a. The artist built wood panels to paint on.
- b. The painting reflects a recent bicycle trip the artist had to northern California.
- c. The artist observes constantly with the eyes of a kitten.
- d. All of the above are true.



5. Which of the following statements is **not true** about Brinille Ellis's work "Havana Red Smile"?

- a. This is a photographic print.
- b. This piece captures the smile of one young lady.
- c. The artist's primary purpose of doing art is to visually create an emotional and artistic connection with each viewer.
- d. This piece communicates the subject, Havana's story.

6. In Teresa Jarzynski's "Damien", Damien has a tattoo on his arm. What color is it?

- a. Purple
- b. Red
- c. Green
- d. Yellow



7. Which of the following is an **incorrect** description of Tinam Valk's "Tide Coming In"?

- a. He wanted to portray layers of emotions through his painting.
- b. He built textures using different materials such as acrylic paint, oils, charcoal, and pastel.
- c. He was interested in leading viewers to feel a particular feeling.
- d. He was inspired from objects that have history, such as old structures or buildings.



8. Which of the following statements is **not true** about Michael Fleischhackers and his work "Washington Street 1"?

- a. The artist, Michael Fleischhackers, is a photographer.
- b. Michael Fleischhackers nowadays works exclusively in bright colors.
- c. "Washington Street 1" is a silver gelatin photo print.
- d. The subjects in Michael Fleischhackers's work generally include cityscapes and figure studies.

9. Which of the following is a **correct** description of Lynda Mitic's Curls?

- a. It is a photo.
- b. It captures timelessness.
- c. It avoids light.
- d. It shows the afterlife.



10. Which of the following is not a material used in Ruth Pettus's "Silence"?

- a. Wood
- b. Tangerine
- c. Lemon
- d. Plastic

11. What color is used overall in George Smith's "Discovery"?

- a. Gray
- b. Red
- c. Green
- d. Yellow



12. Which of the following is **not true** about Daniel Heifetz's "Abstract Landscape 1"?

- a. The painting is oil on canvas.
- b. The image is first physically drawn and painted, and then scanned into digital form.
- c. The author makes sure that his work on social media is identical to his original work.
- d. The piece was created in the year 2016.



\*Note that the memory tests were printed in black and white

## APPENDIX D

### SUPPLEMENTAL STUDY (STUDY 1): CONGRUENCE IN PARTNERS' INTERESTS DOES NOT MODERATE THE EFFECTS OF CLARITY (CHAPTER II)

In this study, we asked participants to recall shared experiences during which they had either low or high clarity about their partner's interests, and for which their own interests were either congruent or incongruent with their partner's interests. We expected that regardless of the congruence in interests, lacking clarity about the partner's interests reduces ease of coordination, resulting in lower ability to focus on the activity, and enjoy the activity.

#### Design, Stimuli, and Procedures

In this study, we asked participants to recall a leisure activity they engaged in with another person for which they were clear (vs. not clear) that they had congruent (vs. incongruent) interests during the activity. Thus, the study used a 2 (clarity about the partner's interests: low vs. high) X 2 (congruency: congruent vs. incongruent) between-subjects design. A sample of 190 individuals from across the United States ( $M_{\text{age}} = 33.55$ , 49% male) were recruited on Amazon Mechanical Turk to participate in the experiment in exchange for \$0.50. Seven participants were excluded from the analysis because they did not write down any activity, resulting in a total of 183 participants.

All participants were asked to recall an activity they had engaged in with another person. In the low clarity condition, participants assigned to the congruence [incongruence] condition were asked to recall a situation where they participated in a leisure activity with another person

and they were not sure if the two of them had the same [different] level of interests in the activity during the activity. In the high clarity condition, participants assigned to the congruence [incongruence] condition were asked to recall a situation where they participated in a leisure activity with another person and the two of them had the same [different] level of interests in the activity.

After describing their experiences, all participants were asked to indicate how well they were able to focus on the content of the activity (1 = not well at all; 7 = very well). Next, participants rated how much they enjoyed the experience (1 = not at all, 7 = very much), how much they regretted the experience (1 = not at all, 7 = very much), and the extent to which they wished that they had done the activity alone (1= not at all, 7= to a great extent). Finally, we measured the ease of coordination during the experience (“To what extent were you and your partner able to coordinate and figure out ways to spend time to accomplish both of your goals?”; 1 = not at all, 7 = to a great extent), the extent to which participants felt their partner’s interests were clear to them (“How clear was it to you what your partner wanted to accomplish in the experience?”; 1 = not at all clear, 7 = very clear), and perceived their own interests were congruent with their partner’s (“To what extent were your goal and your partner’s goal different?”; 1= “not different at all”, 7 = very different). We collected demographic information at the end.

## Results

The activities participants described ranged from outdoor activities such as hiking and tennis to indoor activities such as playing a board game or playing cards.

*Manipulation checks.* Participants in the low (vs. high) clarity condition ( $M_{\text{low clarity}} = 5.28$ ,  $SD = 1.64$  vs.  $M_{\text{high clarity}} = 6.02$ ,  $SD = 1.23$ ;  $F(1, 179) = 12.05$ ,  $p = .001$ ,  $\eta_p^2 = .06$ ) reported lower clarity about what their partner's interests. Participants in the congruence (vs. incongruence) condition claimed that their own goal was less different from their partner's ( $M_{\text{congruent}} = 3.44$ ,  $SD = 2.22$  vs.  $M_{\text{incongruent}} = 5.13$ ,  $SD = 1.73$ ;  $F(1, 179) = 46.29$ ,  $p < .001$ ,  $\eta_p^2 = .21$ ). These results confirmed the effectiveness of our manipulations.

*Ease of coordination.* We predicted that low (vs. high) clarity would reduce ease of coordination between activity partners regardless of the level of congruence. A 2 (clarity about the partner's interests: low vs. high) X 2 (congruency: congruent vs. incongruent) between-subjects ANOVA on ease of coordination revealed a significant main effect of clarity ( $F(1, 179) = 12.14$ ,  $p < .001$ ,  $\eta_p^2 = .06$ ). Neither the main effect of congruence ( $F(1, 179) < 1$ ) nor the interaction effect between the two factors ( $F(1, 179) < 1$ ) was significant. As predicted, participants in the low (vs. high) clarity condition believed they were less able to coordinate with their partner ( $M_{\text{low clarity}} = 4.66$ ,  $SD = 1.92$  vs.  $M_{\text{high clarity}} = 5.55$ ,  $SD = 1.48$ ), regardless of whether their goals and partner's goals were congruent or incongruent.

*Ability to focus on the activity.* We conducted 2 (clarity about the partner's interests: low vs. high) X 2 (congruency: congruent vs. incongruent) ANOVAs on participants' ability to focus on the activity, which revealed only a significant main effect of clarity, such that participants with low (vs. high) clarity were less able to focus on the activity content ( $M_{\text{low clarity}} = 5.47$ ,  $SD = 1.64$  vs.  $M_{\text{high clarity}} = 6.13$ ,  $SD = 1.30$ ;  $F(1, 179) = 8.21$ ,  $p = .005$ ,  $\eta_p^2 = .04$ ). Neither the main effect of congruency nor the interaction was significant in either analysis.

*Enjoyment.* A 2 (clarity about the partner's interests: low vs. high) X 2 (congruency: congruent vs. incongruent) between-subjects ANOVA on enjoyment showed that participants in

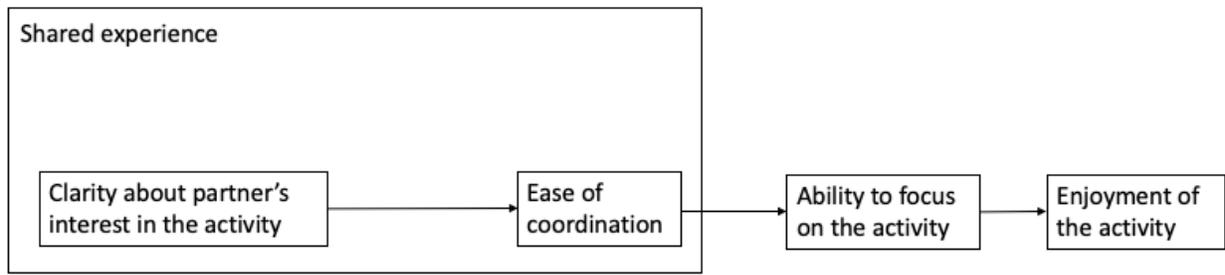
the low (vs. high) clarity condition enjoyed their experiences less ( $M_{\text{low clarity}} = 4.91$ ,  $SD = 1.86$  vs.  $M_{\text{high clarity}} = 5.99$ ,  $SD = 1.31$ ;  $F(1,179) = 20.23$ ,  $p < .001$ ,  $\eta_p^2 = .10$ ). The main effect of congruence was also significant ( $M_{\text{congruent}} = 5.70$ ,  $SD = 1.57$  vs.  $M_{\text{incongruent}} = 5.17$ ,  $SD = 1.79$ ;  $F(1,179) = 4.52$ ,  $p = 0.035$ ,  $\eta_p^2 = .03$ ), replicating prior findings that congruence in evaluations makes shared experiences more enjoyable (Raghunathan and Corfman 2006). Replicating findings in the main studies, the interaction effect between clarity and congruence was not significant ( $F(1, 179) < 1$ ). Not only did low clarity decrease enjoyment in the congruent condition, it also decreased enjoyment in the incongruent condition ( $M_{\text{low clarity}} = 4.64$  vs.  $M_{\text{high clarity}} = 5.71$ ,  $F(1,179) = 9.25$ ,  $p = .003$ ).

Measures of participants' regret and the extent to which they wished to have done the activity alone yielded similar results. Two separate 2 (clarity about the partner's interests: low vs. high) X 2 (congruency: congruent vs. incongruent) between-subjects ANOVAs on participants' regret and the extent to which they wished to have engaged in the activity alone revealed only a significant main effect of clarity. As predicted, participants regretted their experiences more ( $M_{\text{low clarity}} = 2.29$ ,  $SD = 1.72$  vs.  $M_{\text{high clarity}} = 1.53$ ,  $SD = 1.26$ ;  $F(1,179) = 10.97$ ,  $p < .001$ ,  $\eta_p^2 = .06$ ) and wished that they had done the activity alone more when clarity was low (vs. high;  $M_{\text{low clarity}} = 3.39$ ,  $SD = 2.72$  vs.  $M_{\text{high clarity}} = 2.28$ ,  $SD = 1.81$ ;  $F(1,179) = 12.75$ ,  $p < .001$ ,  $\eta_p^2 = .06$ ). Neither the main effect of congruency nor the interaction emerged as significant.

*Mediation.* We tested whether the reduced ability to focus on the activity content associated with low (vs. high) clarity resulted in lower enjoyment (see Figure 1). A serial mediation analysis was conducted with clarity as the independent variable, enjoyment as the dependent variable, and ease of coordination and the ability to focus on the activity as the first and second mediators, respectively (Process Model 6; Hayes 2017). At the confidence interval of

95%, the indirect effects of clarity on enjoyment through coordination and the ability to focus on the activity content was significant ( $b = 0.15$ , 95%  $CI = [0.06, 0.30]$ ), confirming the proposed process.

**FIGURE 1: SERIAL MEDIATION WITHIN SHARED EXPERIENCE**



## Discussion

The results of this supplemental study show that clarity about a partner's interests influences one's own ability to focus on activity content and enjoyment by impacting ease of coordination. We also show that the effects of clarity were not moderated by whether accompanied consumers had incongruent or congruent interests.

## APPENDIX E

### SUPPLEMENTAL STUDY (GENERAL DISCUSSION): DOWNSTREAM CONSEQUENCES OF LACK OF CLARITY (CHAPTER II)

This study aims to extend our findings to a wider range of leisure activities. In this study, we asked participants to recall a shared experience during which they had either low or high clarity about their partner's interests. Our goal was to extend the proposed effects of clarity in shared experiences to downstream consequences such as satisfaction and willingness to recommend the experience to others, and show that the negative impacts of low (vs. high) clarity about the partner's goals occur due to coordination difficulties.

#### Design, Stimuli, and Procedures

Using a 2-cell (clarity about the partner's interests: low vs. high) between-subjects design, we asked participants to recall a leisure activity they engaged in with another person, in which they were either unclear (low clarity condition) or clear (high clarity condition) about what the other person wanted to get out of the activity. We asked participants to pick an activity that they had paid money to participate in (e.g., entrance fee to a museum or a sports event). A sample of 236 individuals from across the United States ( $M_{\text{age}} = 34.45$ , 57.2% male) were recruited on Amazon Mechanical Turk in exchange for a small monetary payment.

After describing their shared experiences, all participants were asked to indicate how well they were able to focus on the content of the activity (1 = not well at all, 7 = very well) and how much they enjoyed the experience (1 = not at all, 7 = very much). We also included measures to

test consumers' overall satisfaction with the experience. Specifically, participants rated how much they thought the activity was worth what they had paid for it ("To what extent do you think the experience was worth what you paid for the activity?"; 1 = not at all, 7 = absolutely), how much they regretted paying to participate in the activity ("To what extent do you regret how much you paid for participating in the activity?"; 1 = not at all, 7 = very much), and the extent to which they wished that they had done the activity alone (1 = not at all, 7 = to a great extent). To test the downstream consequences of lack of clarity, we asked participants their willingness to recommend the activity to friends ("Would you recommend the activity to your friends?" 1 = definitely no, 7 = definitely yes). To provide process evidence, we measured the ease of coordination during the experience ("To what extent were you and your partner able to coordinate and figure out how you would navigate through the experience?"; 1 = not at all, 7 = to a great extent). Participants answered a manipulation check for clarity ("How clear was it to you what your partner wanted to get out of the activity?"; 1 = not at all clear, 7 = very clear) and demographic questions at the end.

## Results

Participants described a great variety of activities, including attending concerts, shows, and sports games, and going to museums, aquariums and theme parks (Table 1). The types of activities participants recalled were similar in the low and high clarity conditions.

**TABLE 1**

**ACTIVITIES RECALLED IN SUPPLEMENTAL STUDY**

|   | <b>High clarity</b>  | <b>Low clarity</b>  |
|---|--|---|
| <b>Activity type</b>  | Aquarium (2)   | Aquarium (2)  |
|   | Bumper cars (1)  | café (1)  |
|   | Café (1)   | Carverns (1)  |
|   | Concert (10)   | Concert (10)  |
|   | Cooking (1)  | Cooking (1)   |
|   | Cultural activities (1)  | Dance (1)   |
|   | Dance (2)  | Fishing (1)   |
|   | Escape room (1)  | Flea market (1)   |
|   |  | Gym and other exercises<br>(e.g., play basketball, vollyball, yoga, marathon etc.) (10) |
|   | Fun class (1)  | Hiking and ziplining (1)  |
|   | Gym and other exercises<br>(e.g., play basketball, yoga, marathon etc.) (11) | Hot springs (1)   |
|   | Hiking and ziplining (3)   | Hotair balloom (1)  |
|   | Indoor activities (3)  | Indoor activities (2)   |
|   | Laser tag (1)  | Movies (4)  |
|   | Movies (6)   | Museum<br>(e.g., ark encounter, science museum, art museum) (17)                        |
|   | Museum<br>(e.g., ark encounter, science museum, art museum) (12)             | Park/fruit picking (3)  |
|   | Painting (1)   | Restaurant and club (6)   |
|   | Park/fruit picking (3)   | Show (e.g., musical, ballet) (5)  |
|   | Restaurant and club (3)  | Skiing, skating and floating (3)  |
|   | Show (e.g., musical, ballet) (4)   | Sports event<br>(e.g., soccer game, baseball game, basketgame etc.) (12)                |
|   | Skiing, skating and floating (1)   | Swimming pool (2)   |
| Snorkeling (1)  | Theme park (3)   |   |
| Sports event<br>(e.g., soccer game, baseball game, football game, basketgame etc.) (21) | Tour (2)   |   |
| Theme park (4)  | Work (3)   |   |
| Tour (3)  | Zoo (4)  |   |
| Work (2)  | Other activities (party, outing event, sex)                                  |   |
| Zoo (5)   |  |   |
| Other activities (party, outing event, sex)   |  |   |

Note: the number in the parentheses represented the number of participants who recalled such an activity

*Manipulation check.* As intended, participants in the low (vs. high) clarity condition reported lower clarity about what their partner wanted to accomplish ( $M_{\text{low clarity}} = 4.43$ ,  $SD = 1.84$  vs.  $M_{\text{high clarity}} = 5.90$ ,  $SD = 1.37$ ;  $F(1, 234) = 48.88$ ,  $p < .001$ ,  $\eta_p^2 = .17$ ), confirming the effectiveness of our manipulation.

*Ease of Coordination.* We predicted that low (vs. high) clarity would decrease ease of coordination. As predicted, an ANOVA on ease of coordination showed that participants in the

low (vs. high) clarity condition felt significantly less able to coordinate with their partner ( $M_{\text{low clarity}} = 5.35$ ,  $SD = 1.43$  vs.  $M_{\text{high clarity}} = 5.79$ ,  $SD = 1.38$ ;  $F(1, 234) = 5.81$ ,  $p = .017$ ;  $\eta_p^2 = .02$ ).

*Ability to focus on the activity.* A similar analysis was conducted on participants' ability to focus on the activity content. The analysis revealed a main effect of clarity, such that participants with low (vs. high) clarity felt significantly less able to focus on the activity content ( $M_{\text{low clarity}} = 5.63$ ,  $SD = 1.44$  vs.  $M_{\text{high clarity}} = 6.04$ ,  $SD = 1.16$ ;  $F(1, 234) = 5.84$ ,  $p = .016$ ;  $\eta_p^2 = .02$ ).

*Enjoyment and satisfaction.* A similar analysis on enjoyment showed that participants in the low (vs. high) clarity condition enjoyed their experiences less ( $M_{\text{low clarity}} = 5.41$ ,  $SD = 1.75$  vs.  $M_{\text{high clarity}} = 6.05$ ,  $SD = 1.33$ ;  $F(1, 234) = 10.21$ ,  $p = .002$ ;  $\eta_p^2 = .04$ ). Further, participants in the low (vs. high) clarity condition regretted paying for the activity more ( $M_{\text{low clarity}} = 3.23$ ,  $SD = 2.21$  vs.  $M_{\text{high clarity}} = 2.59$ ,  $SD = 1.93$ ;  $F(1, 234) = 5.50$ ,  $p = .02$ ;  $\eta_p^2 = .02$ ), believed that the activity was less worth the money ( $M_{\text{low clarity}} = 5.14$ ,  $SD = 1.92$  vs.  $M_{\text{high clarity}} = 5.70$ ,  $SD = 1.29$ ;  $F(1, 234) = 5.83$ ,  $p = .016$ ;  $\eta_p^2 = .02$ ), and wished that they had done the activity alone more ( $M_{\text{low clarity}} = 3.47$ ,  $SD = 2.21$  vs.  $M_{\text{high clarity}} = 2.59$ ,  $SD = 2.17$ ;  $F(1, 234) = 9.40$ ,  $p = .002$ ;  $\eta_p^2 = .04$ ). These effects confirmed our predictions that consumers who had low (vs. high) clarity about their partner's goals would be less satisfied with their experiences.

*Willingness to recommend.* The analysis conducted on willingness to recommend the activity showed that consumers were less willing to recommend the activity to friends when clarity was low (vs. high;  $M_{\text{low clarity}} = 5.41$ ,  $SD = 1.88$  vs.  $M_{\text{high clarity}} = 6.09$ ,  $SD = 1.28$ ;  $F(1, 234) = 10.89$ ,  $p = .001$ ;  $\eta_p^2 = .04$ ).

*Mediation.* We tested the model depicted in figure 1 to see whether in shared experiences low (vs. high) clarity about a partner's goals reduced ability to focus on the activity by increasing

coordination difficulty, leading to lower enjoyment. A serial mediation analysis was conducted with clarity as the independent variable, enjoyment as the dependent variable, coordination difficulty as the first mediator, and ability to focus on the activity content as the second mediators (Process Model 6; Hayes 2017). At the confidence interval of 95%, the indirect effect of clarity on enjoyment through coordination and ability to focus on the activity content was significant ( $\beta = 0.12$ , 95%  $CI = [.02, .25]$ ), confirming the proposed process.

In addition to impairing the consumer's ability to focus on the content and their subsequent enjoyment, lack of clarity also has costs for service providers, because it consequently lowers consumers' willingness to recommend the activity to others. A serial mediation analysis was conducted, with clarity as the independent variable, willingness to recommend as the dependent variable, and ability to focus on the content and enjoyment as the first and the second mediators, respectively (Process Model 6; Hayes 2017). As predicted, at the confidence interval of 95%, the indirect effect of clarity on willingness to recommend through ability to focus on the content and enjoyment was significant ( $\beta = 0.20$ , 95%  $CI = [.03, .37]$ ).

## Discussion

The results of study 2 showed that clarity about a partner's goals impacted coordination difficulty, influencing one's own ability to focus on activity content, and enjoy the experience. This result has clear implications for service providers: consumers who had low (vs. high) clarity about their partner's goals were less willing to recommend the activity to friends and regretted paying for the activity. This study also shows that a lack of clarity about the partner's interests and its problems exist in a wide range of accompanied leisure experiences, further generalizing

our findings.

## APPENDIX F

### STIMULI IN PILOT STUDY (CHAPTER III)

1. Blockbuster [solo/accompanied]

Imagine that it is a Thursday evening. You are at a movie playing at an AMC theater near you. The movie is a newly-released Hollywood blockbuster movie. At the entrance you happen to see a woman coming to the movie [by herself/with two of her friends].

On the next page, please answer some questions about this encounter.

2. Comedy Show [solo/accompanied]

Imagine that it is a Thursday evening. You are at a public lecture hosted by a science institution nearby. The lecture touches upon current and emerging topics in science that influences people's everyday lives (e.g., biology, astronomy, plant science). At the entrance you happen to see a woman coming to the lecture [by herself/with two of her friends].

On the next page, please answer some questions about this encounter.

3. Public Lecture [solo/accompanied]

Imagine that it is a Thursday evening. You are at a movie playing at an AMC theater near you. The movie is a newly-released Hollywood blockbuster movie. At the entrance you happen to see a woman coming to the movie [by herself/with two of her friends].

On the next page, please answer some questions about this encounter.

### STIMULI IN STUDY 2 (CHAPTER III)



Solo condition (version 1)

Solo condition (version 2)

Accompanied condition

## APPENDIX G

### STIMULI USED IN STUDY 1 (CHAPTER IV)



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