

## **Sharing information now vs later**

### **The effect of temporal contiguity cue and power on consumer response toward online reviews**

#### **Abstract**

**Purpose** – This study aims to address a novel information sharing phenomenon among many hospitality consumers, that is, sharing information during, rather than weeks after, a hospitality consumption experience. Specifically, this study tests if including a temporal contiguity cue in a review can significantly enhance the purchase intention of other consumers toward the reviewed business.

**Design/methodology/approach** – A 2 (personal sense of power) X 2 (temporal contiguity cue: manipulated to be absent vs present) quasi-experiment was conducted in this research. Floodlight analysis with the Johnson–Neyman technique was used to test the interaction effect. Hayes’ PROCESS procedure was used to test the mediation effects.

**Findings** – The study found that, for powerless consumers, temporal contiguity cue can effectively enhance the perceived trustworthiness of the review and purchase intention toward the reviewed business. Conversely, for powerful consumers, temporal contiguity cue can significantly reduce the perceived trustworthiness of the review and purchase intention toward the business. Mediation test further revealed evidence for the underlying psychological mechanism for these effects.

**Originality/value** – Revealing the mixed effects of a novel factor, temporal contiguity cue, on consumer responses toward online hospitality reviews, the current research contributes to the expanding stream of theoretical and managerial knowledge on online review management in social media platforms.

**Keywords:** Social media marketing, Online reviews, Personal sense of power, Review trustworthiness, Temporal contiguity cue

## 1 **1. Introduction**

2 With the growth of the sharing economy, understanding consumers' information sharing  
3 behaviors on social media websites has become an increasingly important topic for the  
4 contemporary hospitality industry (Economist, 2013; Leung et al., 2013). In recent years,  
5 advancements in information technologies reshaped how consumers share information about  
6 their hospitality consumption experiences on social media websites (Law et al., 2014, 2004).  
7 Instead of waiting for weeks or even months after their hospitality consumption experience,  
8 consumers can now post reviews during their consumption experience. Moreover, several  
9 hospitality and tourism firms have begun to encourage on-site review posting behaviors. For  
10 example, some hotels and restaurants put up signs at check-in encounters to generate on-site  
11 review postings.

12 To the best of the authors' knowledge, this interesting new phenomenon is yet to attract research  
13 attention from hospitality scholars. To better understand hospitality consumers' contemporary  
14 information-sharing behavior, an important question must be answered: Should hospitality  
15 firms encourage consumers to post reviews during or after the consumption experience? The  
16 current study addresses this question from the other consumers' perspective. Particularly, this  
17 research focuses on the effect of a novel linguistic factor, temporal contiguity cue. Reviews  
18 posted during a consumption experience typically include temporal contiguity cues that convey  
19 the temporal closeness between review posting and consumption experience. Examples of  
20 temporal contiguity cues include such words and phrases as "just got back from the trip today"  
21 (Chen and Lurie, 2013). Will the presence of such temporal contiguity cues enhance customers'  
22 purchase intention toward the reviewed business? Will all consumers exhibit similar responses  
23 to reviews that include these temporal contiguity cues? Inspired by these questions, this  
24 research was conducted to assess the impact of temporal contiguity cue on consumers' purchase  
25 intention toward the reviewed business and how consumers' personal sense of power moderates  
26 such an effect. Perceived trustworthiness of online reviews was examined as the psychological  
27 mechanism that explains the power-conditioned effect of temporal contiguity cue.

28 This study contributes to the body of contemporary hospitality marketing literature with new  
29 theoretical insights. Amid the expanding research stream on social media marketing, the topic  
30 of online reviews has gained significant scholarly attention (Chung and Koo, 2015; Dickinger,  
31 2011; Filieri and McLeay, 2014; Murphy and Chen, 2014; Wu et al., 2016; Ye et al., 2016;  
32 Zhang et al., 2014). Although online review is no longer a new topic in the hospitality literature,  
33 the effects of two review factors, namely, linguistic cues and temporal information, are

1 underexplored. Meanwhile, both factors are highly relevant in the contemporary social media  
2 environment (Chen and Lurie, 2013; Park et al., 2015). To address such a theoretical gap, the  
3 current research thus examines the effect of temporal contiguity cue on consumer responses  
4 toward online reviews. The current study also expands existing knowledge on how personal  
5 sense of power, as a trait variable, shapes consumer behaviors in the social media context (Wu  
6 et al., 2016; Zhang, 2015). Altogether, the findings of this research will advance the theoretical  
7 knowledge of online review management and customer-to-customer influence processes in the  
8 social media era.

9 This study also provides managerial insights on social media marketing practices of hospitality  
10 firms. Given the hospitality industry's considerable dependence on online distribution channels  
11 (Law et al., 2015), managing user-generated contents on social media websites has become  
12 crucial for the survival of contemporary hospitality businesses. Previous studies reveal that  
13 hospitality managers should be attentive to online reviews management, because online reviews  
14 can significantly influence consumers' attitude toward the review forum and their pre-purchase  
15 evaluations and purchase behaviors toward the reviewed business (Ayeh et al., 2013a, 2013b;  
16 Bronner and de Hoog, 2011; Filieri and McLeay, 2014; Wen, 2009; Ye et al., 2009; Zhang et  
17 al., 2014; Zhao et al., 2015). This study contributes to the expanding stream of managerial  
18 knowledge on online review management in social media platforms. Particularly, this research  
19 highlights two relatively overlooked aspects of online reviews management, that is, the time  
20 point when consumers should be encouraged to share information (i.e. during vs after  
21 consumption experience) and what information should consumers be encouraged to share (i.e.  
22 to specify vs or not to specify temporal contiguity between consumption experience and review  
23 posting). If the inclusion of a temporal contiguity cue in a review enhances (lowers) other  
24 consumers' purchase intention toward the reviewed business, then practitioners should  
25 encourage (discourage) consumers to share experiences during rather than after the  
26 consumption experience.

27 Along the rest of the paper, a literature review is first provided, synthesizing various studies  
28 discussing the impact of online reviews on consumer behavior. Next, drawing on the theory of  
29 temporal contiguity cue and the theory of social power, the current research proposes research  
30 hypotheses for experimental testing. With the report of findings from an experimental study,  
31 theoretical contributions and managerial implications, as well as limitations and directions for  
32 future research, are provided.

33

## 2. Theoretical Background

The current section of theoretical background first reviews previous research examining the impact of online reviews on consumer behavior (Section 2.1). Next, synthesized review of literature on the effect of temporal contiguity cue on human perceptions, in particular the literature on consumer perceptions, is outlined (Section 2.2). Following an overview of research on consumers' personal sense of power (Section 2.3), the interaction effect of temporal contiguity cue and consumers' personal sense of power is proposed (Section 2.4). Last but not least, the psychological mechanism that drives the interaction effect is explained (Section 2.5).

### 2.1 The impact of online reviews on consumer behavior

Without doubt, online reviews are becoming increasingly influential on consumers' decision-making in tourism and hospitality consumptions. Prior research shows that online reviews are highly influential for firm performance in the hospitality and tourism industry (Rupert Hills and Cairncross, 2011; Yacouel and Fleischer, 2012). This line of studies suggest that online reviews can generate various beneficial outcomes for hospitality and tourism firms such as increasing the number of online sales (Ye et al., 2009), enhancing customer loyalty (Loureiro and Kastenholz, 2011) and obtaining price premium (Yacouel and Fleischer, 2012).

With specific focus on consumer decision-making, previous research demonstrates that online reviews shared by others can influence consumers' perceptions about the online review and various pre-purchase evaluation processes (Bilgihan et al., 2014; Ye et al., 2009; Zhang et al., 2010). This stream of research shows that various online review characteristics such as review valence (Sparks and Browning, 2011; Vermeulen and Seegers, 2009), review usefulness and credibility (Ayeh et al., 2013a; Lee and Cranage, 2014; Lee et al., 2011; Litvin et al., 2008; Vermeulen and Seegers, 2009; Xie et al., 2011; Yacouel and Fleischer, 2012), review accessibility and ease of processing (Papathanassis and Knolle, 2011; Sparks and Browning, 2011) can significantly influence consumers' pre-purchase evaluations for tourism and hospitality business. Further, prior research indicates that peripheral factors of online reviews such as reviewer's expertise (Vermeulen and Seegers, 2009), reviewer's power (Wu et al., 2016), reviewer's anonymity (Bradley et al., 2015) and reviewer's social identity (Duffy, 2015, Zhang et al., 2014) can influence consumers' decision-making processes as well. Echoing the relevant managerial trend, scholars have started to examine the impact of managerial responses to consumers' online reviews (Lee and Cranage, 2014; Sparks and Bradley, 2014; Sparks and Browning, 2011; Wei et al., 2013). This school of research shows that managerial responses to negative online reviews can significantly influence consumers' trust for the firm (Sparks and

1 Browning, 2011), more specifically, how firms respond to the review matters (Lee and Cranage,  
2 2014). Specific (vs generic) responses can lead to higher levels of perceived credibility and  
3 communication quality of the review (Wei et al., 2013).

## 4 **2.2 The effect of temporal contiguity cue on consumer perceptions**

5 Temporal contiguity cue can be defined as the peripheral information cue that implies the  
6 temporal closeness of two events (Buehner and May, 2003). Temporal contiguity is a key factor  
7 in causality perception (Haering and Kiesel, 2015). Previous social psychology research  
8 demonstrates that people tend to establish causal inferences based on the temporal closeness  
9 between two events (Bullock et al., 1982; Einhorn and Hogarth, 1986; Haering and Kiesel,  
10 2015; Sederberg et al., 2010; Wennekers et al., 2012). When two events occur in a close  
11 sequence, the first event is highly likely to be judged as the cause of the second event (Choi and  
12 Scholl, 2006; Greville and Buehner, 2010; Haering and Kiesel, 2015; Topolinski and Reber,  
13 2010). Conversely, when there is a significant delay between the two events, people are more  
14 likely to believe that it is forces other than the first event that cause the second event (Boakes  
15 and Costa, 2014; Ginns, 2006; Topolinski and Reber, 2010). Thus, temporal contiguity cue can  
16 enhance the perceived causal connections between two events (Buehner and May, 2003;  
17 Bullock et al., 1982; Chen and Lurie, 2013; Einhorn and Hogarth, 1986; Wennekers et al., 2012).  
18 Although the effect of temporal contiguity cue has been pervasively studied in social  
19 psychology literature, the topic has only recently gained attention from marketing scholars.  
20 Recently, Chen and Lurie (2013) assessed how temporal contiguity cue influences the effect of  
21 online product reviews on consumer behavior. In this context, temporal contiguity cue is  
22 defined as the information cues that imply the temporal closeness between one's product  
23 consumption experience and the posting of an online review (Chen and Lurie, 2013). For  
24 example, some online reviews may include phrases, such as "today", "this morning" or  
25 "tonight", which indicate the closeness between the time of consumption and the time of review  
26 posting. Online reviews may also contain other temporal cues, such as "last week", "last month"  
27 or "last year", which do not indicate high levels of temporal contiguity between the time of  
28 consumption and the time of review posting.

29 Chen and Lurie (2013) found that when exposed to a positive product review that encloses (vs  
30 does not enclose) a temporal contiguity cue, other consumers exhibit significantly higher levels  
31 of purchase intention toward the reviewed business. The aforementioned authors explained that  
32 this effect occurs because temporal contiguity strengthens the perceived causal relationship  
33 between a positive consumption experience and the posting of a positive online review. In other

1 words, when a temporal contiguity cue is included, consumers are highly likely to perceive that  
2 the review was posted mainly because of the positive consumption experience rather than other  
3 causes. Meanwhile, when a temporal contiguity cue is absent, consumers may draw other  
4 inferences for the posted review. For example, a few studies found that consumers tend to  
5 believe that others post positive online reviews out of selfish concerns, such as obtaining  
6 financial reward or enhancing self-image (Angelis et al., 2012; Wu et al., 2016). Thus, when  
7 positive online reviews include (vs do not include) temporal contiguity cues, consumers tend  
8 to exhibit higher levels of purchase intentions toward the reviewed business.

9 Although Chen and Lurie (2013) revealed an interesting effect of temporal contiguity cue in  
10 the online product reviews context, their research did not examine the moderators of the  
11 temporal contiguity cue effect. For instance, not all consumers are alike, and the positive effect  
12 of temporal contiguity cue may not hold for everyone. Could temporal contiguity cue negatively  
13 influence certain groups of consumers' pre-purchase evaluations and consumption intentions?  
14 To date, the extant body of consumer behavior research has not demonstrated such results,  
15 which opens opportunities for the current research. Assessing the impact of potential  
16 moderators, particularly that of consumers' individual trait factors, is necessary to establish a  
17 theoretically meaningful extension of prior research. To that end, the current study extends the  
18 existing research by examining how an important individual trait factor, consumers' personal  
19 sense of power, moderates the effect of temporal contiguity cue.

### 20 **2.3 The moderating role of consumers' personal sense of power**

21 Consumers' personal sense of power can be defined as the perception of a person's ability to  
22 control or influence other people in social interactions (Anderson et al., 2012). As a key variable  
23 that shapes many aspects of every day social interactions, personal sense of power has gained  
24 much attention in the social psychology and consumer behavior literature (Anderson et al., 2012;  
25 Cislak, 2013; Inesi et al., 2012; Keltner et al., 2003; Mooijman et al., 2015; Rucker et al., 2011,  
26 2012). Yet, personal sense of power only recently gained research interest in the hospitality and  
27 tourism literature (Choi and Mattila, 2015, 2014; Zhang, 2015; Zhang and Hanks, 2015).  
28 Previous research shows that personal sense of power can influence consumers' price  
29 perceptions (Choi and Mattila, 2014), approach behaviors (Choi and Mattila, 2015), responses  
30 toward preferential treatment (Zhang and Hanks, 2015) and review posting behaviors (Wu et  
31 al., 2016). Particularly tangent to the current research, Zhang (2015) found that personal sense  
32 of power shapes how consumers respond to online reviews that include the peripheral  
33 information cue of incidental similarity. The current study expands this literature by examining

1 how personal sense of power moderates the impact of another peripheral cue, temporal  
2 contiguity cue, on consumers' purchase intention toward a reviewed business.

3 As a coherent psychological construct, personal sense of power was demonstrated to influence  
4 one's communal vs agentic orientation in social interactions (Anderson et al., 2012; Rucker et  
5 al., 2012). Low levels of personal sense of power cause individuals to be communal-oriented,  
6 and high levels of personal sense of power make individuals to be agentic-oriented (Rucker et  
7 al., 2012). The behavioral manifestations of the powerful-agentic effect include powerful  
8 individuals' strong tendency to control other people's behaviors (Fiske, 1993), to dominate  
9 group decision-making (Gray-Little and Burks, 1983) and to act selfishly and disregard the  
10 needs of others (Rucker et al., 2011). Conversely, the communal-oriented powerless individuals  
11 tend to be more attentive to other people in social interactions; they are highly likely to spend  
12 money on other people, share resources and listen to other people's opinions (Keltner et al.,  
13 2003; Kraus et al., 2009; Mattila et al., 2016; Rucker et al., 2011).

14 Closely linked to the current research, previous research found that personal sense of power  
15 can influence individuals' trust vs distrust orientations in interpersonal interactions (Mooijman  
16 et al., 2015). Trusting other people can be perceived as a form of resource-sharing behavior  
17 (Mayer et al., 1995). While trusting others often implies that one expects his/her interests been  
18 taken into consideration by other people, distrusting others denotes the expectation that other  
19 people will only consider their own personal interests (Colquitt et al., 2007; Lewicki et al.,  
20 2006). Prior studies revealed that powerful individuals, who are agentic-oriented, tend to be  
21 distrustful in social interactions (Mooijman et al., 2015). Consequently, powerful people are  
22 highly likely to attribute other people's actions to be instrumental and selfish (Inesi et al., 2012;  
23 Lee and Tiedens, 2001), and such attributions further reduce powerful individuals' trust on  
24 other people (Larzelere and Huston, 1980; Mooijman et al., 2015; Wieselquist et al., 1999).

25 Conversely, powerless individuals, who are communally oriented, tend to be trustful and are  
26 highly willing to share resources and act for the interest of other people (Mooijman et al., 2015).

27 A school of studies found that powerless individuals are more prosocial in their perceptions of  
28 other people's motivations; powerless people are substantially willing to trust other people and  
29 exhibit positive responses toward others' kind acts (Inesi et al., 2012; Rucker et al., 2011).

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## 2.4 Interaction effect of temporal contiguity cue and consumers' personal sense of power

Temporal contiguity cue is typically perceived as an unusual piece of information in an online review, thereby gaining consumers' attention and eliciting elaborated attributional thoughts (Chen and Lurie, 2013). However, temporal contiguity cue may elicit different types of elaborations and attributions among different consumers (Chen and Lurie, 2013). Given that personal sense of power influences individuals' trust vs distrust orientations (Mooijman et al., 2015), this research posits that the same temporal contiguity cue should trigger opposing elaborations and attributions among powerless vs powerful individuals.

The reasoning for this interaction effect is following. Previous social psychology research indicates that powerless individuals are communal-oriented (Rucker et al., 2011, 2012). Being controlled by other people in social interactions, powerless individuals are cooperative in nature (Mooijman et al., 2015). As one form of cooperation, trusting others is commonly observed among powerless people (Mooijman et al., 2015; Rucker et al., 2011). In consequence of such trusting orientation, powerless individuals tend to make positive attributions out of other people's behaviors (Mooijman et al., 2015). For example, powerless people tend to attribute others' unsolicited help to pure kindness (Inesi et al., 2012). Such an idea would also apply in the context of the current research. When an online review includes a temporal contiguity cue, powerless consumers will be more likely to make positive attributions out of others' review posting behavior. As suggested by Chen and Lurie (2013), powerless individuals should attribute the inclusion of temporal contiguity cue to the genuine sharing of a good consumption experience – "the reviewer must really like the consumption experience and that is why he/she can't wait till the end of the trip to post the review" (Chen and Lurie, 2013; Mooijman et al., 2015; Rucker et al., 2011, 2012). Consequentially, powerless consumers are expected to exhibit considerably higher levels of trust inferences and purchase intentions toward online reviews that include (vs exclude) temporal contiguity cues.

Meanwhile, powerful individuals are agentic-oriented (Rucker et al., 2011, 2012). In control of resources in social interactions, powerful individuals are motivated to maintain such control (Magee and Galinsky, 2008; Rucker et al., 2012; Willis and Guinote, 2011). As a result, powerful individuals focus on their own resources and are less likely to trust others, as trusting others potentially opens up opportunities of exploitation and power loss (Mooijman et al., 2015). As demonstrated in Inesi et al. (2012), powerful people tend to make cynical attributions about others' kind acts. That is, powerful people are more likely to make the inference that others help them only to gain access to their valued resources (Inesi et al., 2012). Such thinking would



1 also be applicable to the context of the current research. When a temporal contiguity cue is  
2 included in an online review, powerful consumers will more likely make cynical attributions  
3 about others' review posting behavior – “the reviewer must be getting something out of this  
4 post and that is why he/she has to post the review even before the trip ends” (Mooijman et al.,  
5 2015; Rucker et al., 2011, 2012). In addition, unlike powerless individuals, powerful  
6 individuals focus on people's competence (rather than warmth) in making evaluations (Cislak,  
7 2013). As temporal contiguity cue may, to certain degree, convey overexcitement and lack of  
8 expertise (Inesi et al., 2012; Mooijman et al., 2015; Rucker et al., 2012), powerful consumers  
9 may be more likely to question the trustworthiness of the reviewer. Therefore, powerful  
10 consumers are expected to show significantly lower levels of trust inferences and purchase  
11 intentions toward reviews that include (vs do not include) temporal contiguity cues.

## 12 **2.5 Power-moderated underlying psychological mechanism – perceived trustworthiness** 13 **of online reviews**

14 Perceived trustworthiness of online reviews is proposed to account for the power-moderated  
15 effects of temporal contiguity cue on consumers' purchase intentions toward the reviewed  
16 business. The perceived trustworthiness of an online review reflects the degree to which  
17 consumers believe that the online review truthfully depicts the consumption experience (Pan  
18 and Chiou, 2011). Previous studies demonstrated that the perceived trustworthiness of an online  
19 review is a key indicator of the purchase intention of consumers toward the reviewed business  
20 (Chen and Xie, 2008; Pan and Chiou, 2011). Given the contextual importance of the variable,  
21 assessing the perceived trustworthiness of an online review as an underlying psychological  
22 mechanism provides meaningful theoretical insights into research on online reviews.

23 In the online reviews context, the motivational attributions of review posting directly influence  
24 consumers' attitudes and behavioral responses toward the review (Brown et al., 2007). In this  
25 research, the same temporal contiguity cue is perceived distinctively by powerful vs powerless  
26 individuals. As argued in the earlier section, while the distrustful powerful individuals tend to  
27 make cynical attributions out of others' review posting behaviors, the trustful powerless  
28 individuals are likely to attribute the same behavior to the genuine sharing of a positive  
29 consumption experience. Prior research suggests that the motivational attribution of a behavior  
30 can affect the trust inferences toward the action taker (Barasch et al., 2014; Inesi et al., 2012;  
31 Mooijman et al., 2015). In the current context, perceiving others' review posting behavior as  
32 driven by genuine motivation of sharing vs selfish motivation such as financial gains will shape

1 how consumers trust the online review, namely, the reviews' perceived trustworthiness  
2 (Barasch et al., 2014; Inesi et al., 2012).

3 Therefore, this study proposes that the perceived trustworthiness of online reviews accounts for  
4 the distinct effects of temporal contiguity cues on powerless vs powerful consumers' purchase  
5 intention toward the reviewed business. When temporal contiguity cue is included in an online  
6 review, the cynical reasoning of powerful consumers and the attribution of review posting to  
7 selfish motivations will lower their perceptions of review trustworthiness, thereby further  
8 reducing their purchase intention toward the business. Meanwhile, including temporal  
9 contiguity cues will make powerless consumers attribute review posting to the genuine sharing  
10 of positive consumption experiences. Such positive motivational attributions will make  
11 powerless consumers perceive the online review as highly trustworthy. Thus, powerless  
12 consumers are expected to exhibit considerably higher levels of purchase intention toward the  
13 reviewed business. Altogether, the following hypotheses are proposed:

14

15 H1. Consumer's personal sense of power will moderate the effect of a temporal contiguity cue  
16 on consumers' purchase intention toward a reviewed business.

17 H1a. For consumers with low levels of personal sense of power, the presence (vs absence) of a  
18 temporal contiguity cue in the online review will significantly enhance their purchase intention  
19 toward the reviewed business.

20 H1b. For consumers with high levels of personal sense of power, the presence (vs absence) of  
21 a temporal contiguity cue in the online review will significantly lower their purchase intention  
22 toward the reviewed business.

23 H2. Perceived trustworthiness of the online review will mediate the effect of temporal  
24 contiguity cue on powerful and powerless consumers' purchase intention toward a reviewed  
25 business.

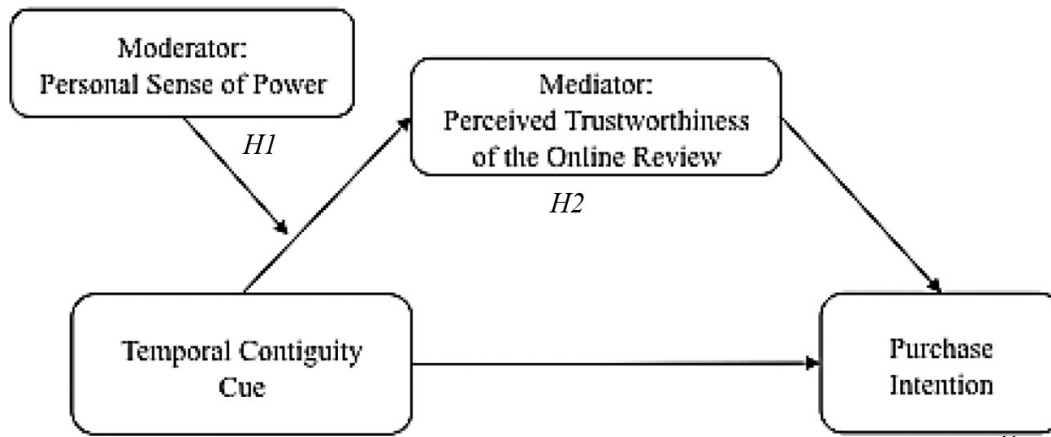
26 H2a. For consumers with low levels of personal sense of power, perceived trustworthiness of  
27 the review will mediate the positive effect of temporal contiguity cue on purchase intention.

28 H2b. For consumers with high levels of personal sense of power, perceived trustworthiness of  
29 the review will mediate the negative effect of temporal contiguity cue on purchase intention.

30 The aforementioned hypotheses are visualized in the conceptual diagram for this study (Figure  
31 1).

32

33



9 Figure 1. Conceptual model

10

11

### 12 3. Methodology

#### 13 3.1 Design

14 To test the proposed hypotheses, a 2 X 2 quasi-experiment was conducted where temporal  
 15 contiguity cue was manipulated as a between-subject factor (temporal contiguity cue: absent vs  
 16 present), whereas personal sense of power was measured. Sharing the similarities with  
 17 traditional experimental designs, a quasi-experiment estimates the causal impact of an  
 18 intervention with the lack of treatment control over one or more specific variables (Fong et al.,  
 19 2016). In the current research, the moderating variable, personal sense of power, is a naturally  
 20 occurring variable (i.e. a trait variable) to which participants cannot be randomly assigned. As  
 21 such, the current study adopted a quasi-experiment design in which the presence vs absence of  
 22 temporal contiguity cue was manipulated, whereas personal sense of power was measured.

23 The variable of temporal contiguity (absent vs present) was manipulated, and the manipulation  
 24 technique was adopted from previous research (Chen and Lurie, 2013). The variable of personal  
 25 sense of power was measured using a well-established and pervasively used eight-item scale  
 26 (adopted from Anderson et al., 2012; for example, “I can get people to listen to what I say”; 1  
 27 – strongly disagree, 7 – strongly agree; Cronbach’s  $\alpha = 0.93$ ). The proposed mediating variable,  
 28 perceived trustworthiness of the online review, was measured as well. Measurement scales used  
 29 for personal sense of power and perceived trustworthiness of the online review are both attached  
 30 as Appendix 2.

#### 31 3.2 Study procedure and manipulations

32 The procedure of the research was as following. First, the participants were instructed to fill out  
 33 a personal sense of power measure. Second, the participants were directed to read a scenario

1 which instructed them to imagine selecting a hotel for an upcoming trip. Based on random  
2 assignment, the participants read an online hotel review that either includes or does not include  
3 a temporal contiguity cue (scenario was adapted from Kronrod and Danziger, 2013). The  
4 temporal contiguity cue was manipulated through present tense wording and phrases that imply  
5 the closeness between the time of consumption and the time of review posting: We just  
6 checked-in and the Palms Resort is great! The room is very spacious. The view is excellent.  
7 The service is very professional. In sum, a great place to stay at.  
8 In the no temporal contiguity cue condition, the review reads as: “The Palms Resort was great!  
9 The room was very spacious. The view was excellent. The service was very professional. In  
10 sum, a great place to stay at”. This manipulation was adapted from Chen and Lurie (2013).  
11 Please see Appendix 1 for the experiment scenarios. Last but not least, after exposure to the  
12 experimental scenarios, participants were directed to fill out a questionnaire (please refer to  
13 Section 3.4 for details of the questionnaire).

### 14 **3.3 Sample**

15 A total of 159 US-based adult consumer participants were recruited on Amazon Mechanical  
16 Turk (MTurk) in 2015 for this study. The sampling technique is non-probability sampling.  
17 MTurk is a validated and widely adopted online panel for experimental consumer research  
18 (Buhrmester et al., 2011; Goodman et al., 2013). It was stated in the recruiting message that as  
19 a requirement for participation, the participants must have stayed at a resort hotel for at least  
20 once in the past 12 months. A resort hotel is defined as a full-service lodging establishment that  
21 offered various relaxation and recreation services and amenities, beyond lodging and dining  
22 services. Participants were compensated with US\$0.50 for participation.

23 The sample of the study comprises 48 per cent female and 52 per cent male participants. The  
24 average participant age is 38 years. Approximately 79 per cent of the participants were  
25 Caucasian, and 56 per cent of the sample hold a bachelor’s degree. According to their report,  
26 all of the participants have stayed at a resort hotel for at least once in the past 12 months.

### 27 **3.4 Questionnaire**

28 The questionnaire consists of five sections. Section 1 of the survey measured participants’  
29 purchase intention toward the reviewed business. Section 2 of the survey assessed perceived  
30 trustworthiness of the online review. Section 3 of the survey consists of manipulation check  
31 questions. Section 4 of the survey asked about perceived realism of the study scenarios. Last  
32 but not least, Section 5 of the survey includes demographic questions.

1 Purchase intention measurement was adapted from an established three-item and seven-point  
2 semantic scales (Karmarkar and Tormala, 2010) (e.g. “How much are you inclined to stay at  
3 this hotel?”; 1 – not at all, 7 – very much; Cronbach’s  $\alpha = 0.96$ ). The complete scale is attached  
4 as Appendix 2.

5 Perceived trustworthiness of the online review was measured with a seven-point semantic scale  
6 adopted from Pan and Chiou (2011) (e.g. “To what extent do you believe that the review is  
7 trustworthy?”; “1 – not at all, 7 – very much”;  $r = 0.86$ ,  $p\text{-value} = 0.000$ ). The complete scale  
8 consists of two items and is attached as Appendix 2.

9 Both purchase intention and perceived trustworthiness of the online review were measured with  
10 multi-item scales. In a multi-item scale, questions typically have similar meanings as they are  
11 supposed to reflect the same conceptual definition (Bearden et al., 2011; Blair et al., 2013).  
12 Multi-item scales are advocated to be used in social science research and consumer behavior  
13 and marketing research, as they are less likely to be associated with measurement errors in  
14 comparison to single-item measures (Blair et al., 2013).

15 Manipulation for temporal contiguity cue was checked with a true or false recall question:  
16 “Were the phrases ‘We just checked-in’ and ‘the resort is great’ included in the hotel online  
17 review?” Participants who failed to correctly answer the question were filtered out from further  
18 data analysis.

19 Perceived realism of the experimental scenarios were assessed with two questions: “The  
20 situation described in the scenario was very realistic” (1 – strongly disagree, 7 – strongly agree)  
21 and “It was very easy for me to imagine myself in the scenario” (1 – strongly disagree, 7 –  
22 strongly agree). The results suggest that the participants perceived the scenarios to be both  
23 realistic ( $M = 5.22$ ) and comprehensible ( $M = 5.25$ ) across experimental cells.

24 Finally, demographic questions, including those pertaining to age, gender, ethnicity and  
25 education, were asked.

26

## 27 **4. Results**

28 Descriptive statistics of the major variables such as personal sense of power, purchase intention  
29 and review’s perceived trustworthiness are summarized in Table I.

30

### 31 **4.1 Test of the interaction effect of temporal contiguity cue and consumers’ personal** 32 **sense of power (test of H1a and H1b)**

1 H1a and H1b posit a power-moderated effect of temporal contiguity cue on consumers’  
 2 purchase intentions toward the reviewed business. Specifically, it is argued that temporal  
 3 contiguity cue would increase powerless consumers’ purchase intentions but lower powerful  
 4 consumers’ purchase intentions. Traditionally, such a moderation effect is tested via a median-  
 5 split approach in which researchers arbitrarily dichotomize the measured continuous variable  
 6 (e.g. personal sense of power in this research). The median-split analytical approach, however,  
 7 is no longer a viable solution, as median splits can cause various limitations such as a substantial  
 8 loss of statistical power (Irwin and McClelland, 2003; MacCallum et al., 2002; Spiller et al.,  
 9 2013). Instead, floodlight analysis is proposed as the recommended approach to analyze the  
 10 interaction effect between a continuous variable and a dichotomous variable (Spiller et al.,  
 11 2013). Floodlight analysis pinpoints area(s) of significance for the simple effect of the  
 12 dichotomous variable along the axis of the continuous moderating variable (Spiller et al., 2013).  
 13 In particular, floodlight analysis with the Johnson–Neyman technique is recommended to be  
 14 used when all three following conditions are satisfied: first, the moderating variable is  
 15 continuous by nature; second, the moderating variable is measured on an arbitrary scale for  
 16 which values are not meaningful by themselves; third, the moderating variable is not measured  
 17 on a coarse scale where only a few values are possible (Spiller et al., 2013). Detailed  
 18 information for this analytic method can be found in Spiller et al. (2013).

19

20 Table I. Descriptive statistics (N = 159)

	Personal sense of power	Purchase intention	Perceived trustworthiness of the review
Mean	4.68	5.52	4.84
SD	1.20	1.13	1.44

21

22 As the above three conditions are all satisfied in the current research, floodlight analysis  
 23 following the Johnson–Neyman technique was used to decompose the significant personal  
 24 sense of power by temporal contiguity cue interaction effect. Following Spiller et al.’s (2013)  
 25 recommendation, Model 1 in Hayes’ PROCESS procedure (Hayes, 2013) was used for this  
 26 analysis[1]. Hayes’ PROCESS procedure (Hayes, 2013) with the Johnson–Neyman technique  
 27 can help illuminate the entire range of the continuous moderating variable, personal sense of  
 28 power, to clearly highlight the areas of significance (Hayes, 2013; Spiller et al., 2013). Put in  
 29 simple words, this analytic procedure can help identify the numerical values on the personal

1 sense of power scale where the temporal contiguity effect is significantly positive and  
2 significantly negative. Those numerical values indicating the boundary of area of significance  
3 are termed as Johnson–Neyman points (Spiller et al., 2013).

4 Regressing purchase intention on temporal contiguity cue (present = 0, absent = 1), personal  
5 sense of power (M = 4.68, SD = 1.20, Min = 1.50, Max = 6.88) and the interaction effect  
6 revealed a significant interaction effect ( $t = -3.33$ ,  $p\text{-value} = 0.001$ ). Table II presents the  
7 regression output.

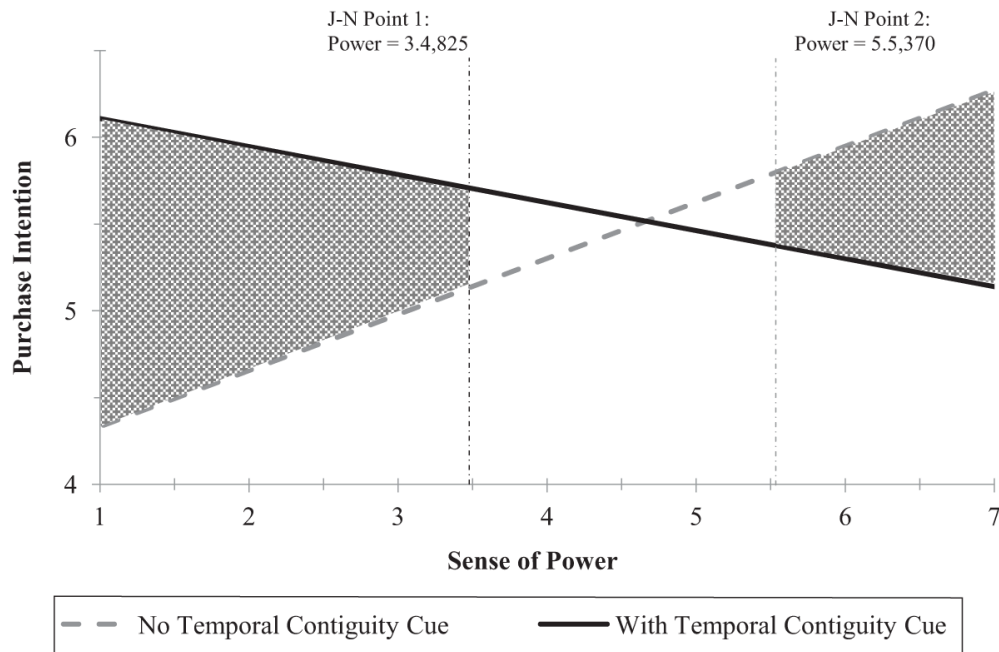
8 To decompose the significant power by temporal contiguity cue interaction effect, flood  
9 analysis following the Johnson–Neyman technique was used to identify areas of significance  
10 for the simple effect of temporal contiguity cue along the axis of the personal sense of power  
11 variable. Results of this analysis identified two Johnson–Neyman points. The first Johnson–  
12 Neyman point was power = 3.4825, which identifies the borderline of significance for the first  
13 area of significance. As visualized in Figure 2, the presence of temporal contiguity cue  
14 significantly enhances the purchase intentions of participants who scored below 3.4825 on the  
15 personal sense of power measure (i.e. those who hold relatively low levels of personal sense of  
16 power). The other Johnson–Neyman point was power = 5.5370, which indicates the borderline  
17 of significance for the second area of significance. Figures 2 and 3 clearly demonstrate that for  
18 participants who scored above 5.5370 on the personal sense of power measure (i.e. those who  
19 hold relatively high levels of personal sense of power), reviews with temporal contiguity cue  
20 lead to significantly lower levels of purchase intentions. Therefore, both H1a and H1b are  
21 supported.

22

23 Table II. Regression output for floodlight analysis

	Coefficient	SE	t	p-value	LLCI	ULCI
Constant	4.01	0.49	8.24	0.000	3.05	4.97
Testing variables						
Temporal contiguity cue	2.26	0.70	3.21	0.002	0.87	3.65
Personal sense of power	0.32	0.10	3.20	0.002	0.12	0.52
Interaction effect	-0.48	0.15	-3.33	0.001	-0.77	-0.20
Model summary						
	R	R <sup>2</sup>	F	df1	df2	p-value
	0.27	0.08	4.21	3	155	0.0068

24 Note: Dependent variable: purchase intention



1 Figure 2. Floodlight analysis plot for purchase intention

2

### 3 **4.2 Test of the power-moderated underlying psychological mechanism – perceived** 4 **trustworthiness of online reviews (test of H2a and H2b)**

5 Moderated mediation tests were performed to find statistical evidence for the proposed  
 6 underlying psychological mechanism via perceived trustworthiness of the online review (i.e. to  
 7 test H2a and H2b). If H2a were true, then the positive effect of temporal contiguity cue on  
 8 powerless consumers' purchase intention could be caused by the fact that temporal contiguity  
 9 cue enhances the online review's perceived trustworthiness among powerless consumers. If  
 10 H2b were true, then the negative effect of temporal contiguity cue on powerful consumers'  
 11 purchase intention could be due to the fact that temporal contiguity cue reduces the online  
 12 review's perceived trustworthiness among powerful consumers. Such hypotheses reflect a  
 13 moderated-mediation effect (Muller et al., 2005), which can be tested using Hayes' PROCESS  
 14 procedure with the recommended bootstrap technique (Hayes, 2013; Zhao et al., 2010).  
 15 Specifically, this analysis of the current research adopted PROCESS model 8 (see Hayes, 2013  
 16 for model specification) where purchase intention was specified as the dependent variable (Y  
 17 variable), presence of temporal contiguity cue as the independent variable (X variable),  
 18 review's perceived trustworthiness as the mediator (M variable) and personal sense of power  
 19 as the moderator (W variable).

20 The perceived trustworthiness of a review positively mediates the effect of temporal contiguity  
 21 cue on the purchase intention of powerless individuals ( $b = 0.45$ ; 95 per cent bootstrap interval:



1 0.1008, 0.8765; H2a is supported), which is consistent with the theoretical predictions. The  
2 perceived trustworthiness of the review negatively mediates the effect of temporal contiguity  
3 cue on purchase intention ( $b = -0.44$ ; 95 per cent bootstrap interval:  
4  $-0.8617, -0.0416$ ; H2b is supported) of powerful individuals. Furthermore, the direct effect of  
5 temporal contiguity cue on purchase intention was not significant ( $b = -0.01$ ;  $t = -0.12$ ,  $p$ -value  
6  $= 0.90$ ) after considering the indirect effect via the perceived trustworthiness of the review.  
7 Statistically, these results suggest that the perceived trustworthiness of the review fully  
8 mediates the temporal contiguity effect on the purchase intention for both powerless and  
9 powerful consumers. These results support the proposed underlying psychological mechanism,  
10 as stated in H2a and H2b.

11 In summary, the findings of this study revealed an interaction effect of temporal contiguity cue  
12 and consumers' personal sense of power on their purchase intention toward the reviewed  
13 hospitality business. Evidence from a quasi-experiment study supported the theoretical  
14 prediction that the effect of temporal contiguity depends on the consumers' personal sense of  
15 power. While the presence (vs absence) of a temporal contiguity cue significantly enhances the  
16 purchase intention of powerless consumers toward the reviewed business (H1a is supported),  
17 temporal contiguity cue significantly reduces the purchase intention of powerful consumers  
18 (H1b is supported). This study also revealed the underlying psychological mechanism that  
19 explains the power-moderated temporal contiguity cue effect. The findings suggest that for  
20 consumers with low personal sense of power, temporal contiguity cue enhances a review's  
21 perceived trustworthiness and therefore increases the consumers' purchase intention toward the  
22 reviewed business (H2a is supported). For consumers with high personal sense of power,  
23 temporal contiguity cue lowers a review's perceived trustworthiness and therefore decreases  
24 the consumers' purchase intention toward the reviewed business (H2b is supported).

25

## 26 **5. Theoretical contributions**

27 Social media is becoming an increasingly important ground for theoretical consumer research  
28 in hospitality and tourism. Different from other marketing channels, social media platforms  
29 heavily rely on consumer participation in the processes of content generation and information  
30 sharing (Leung et al., 2013). The constant advancement of smartphone technology further  
31 reshapes the way consumers share information (Gretzel et al., 2015). Combined, scholarly  
32 research is urgently needed to bring new insights on customer-to-customer influence processes  
33 in online information sharing (Leung et al., 2013). Joining such a mega trend of social media

1 research in the contemporary hospitality literature, the current study examines a new  
2 phenomenon of consumer information sharing on social media websites: posting reviews  
3 during rather than after a travel experience. Although consumers are more and more likely to  
4 share information online during (vs after) a travel experience, it is not necessarily beneficial for  
5 hospitality firms. Arising from such a background, an important question that must be answered  
6 is: will online reviews posted during (vs after) a travel experience lead to higher levels of  
7 consumers' purchase intentions? Addressing this timely topic, the current research examines  
8 how the presence (vs absence) of temporal contiguity cue in a review changes consumers'  
9 purchase intention toward the reviewed business. Although highly relevant in the contemporary  
10 social media environment, the factors of linguistic cues and temporal information are largely  
11 ignored in the extant body of hospitality marketing literature. As such, the current research  
12 makes important contributions that advance the theoretical knowledge of online review  
13 management and customer-to-customer influence processes in the social media era.

14 In the online review's context, the current study assessed the joint effect of temporal contiguity  
15 cue and consumers' personal sense of power on the purchase intentions of consumers.  
16 Extending previous marketing literature (Chen and Lurie, 2013), the current research revealed  
17 the mixed effects of temporal contiguity cue. Previous studies demonstrate that temporal  
18 contiguity cue positively affects the perceptions and behaviors of consumers. The current  
19 research demonstrated that the positive effect of temporal contiguity cue does not hold for  
20 everyone. In fact, the inclusion of temporal contiguity cue in online reviews can be a double-  
21 edged sword for a business. While enhancing powerless consumers purchase intentions toward  
22 the reviewed business, the presence of temporal contiguity cue in an online review lowers the  
23 purchase intentions of powerful consumers. The negative influence of temporal contiguity cue  
24 was not explored in previous studies. Thus, the findings of the current study complement  
25 existing knowledge of the effect of temporal contiguity on consumer perceptions and behaviors.  
26 Moreover, the current research supports the notion that personal sense of power shapes  
27 the trust vs distrust mindset of individuals (Mooijman et al., 2015), thereby contributing to the  
28 stream of research on consumers' personal sense of power. Findings of this study further  
29 demonstrate that consumers' personal sense of power also influences their motivational  
30 attributions in the online review's context, thereby further affecting their perceptions of the  
31 trustworthiness of an online review. Such results are consistent with those of previous studies  
32 (Inesi et al., 2012; Lee and Tiedens, 2001; Mooijman et al., 2015; Rucker et al., 2011).  
33 Specifically, consumers' personal sense of power influences their attribution of the review

1 posting behavior of others to either selfish or selfless motivations. Although agentic-powerful  
2 consumers cynically attribute the behavior of other people to selfish motivations, communal  
3 and powerless consumers likely attribute the review posting behavior of others to selfless  
4 reasons. This variation in attribution causes the powerless (powerful) consumers to perceive  
5 the online review that includes a temporal contiguity cue as more (less) trustworthy, thereby  
6 exhibiting higher (lower) levels of purchase intention toward the reviewed business.  
7 Finally, the current research revealed another psychological mechanism that explains why the  
8 presence of a temporal contiguity cue influences consumers' purchase intentions toward a  
9 reviewed business. As theorized in the current research, the perceived trustworthiness of the  
10 online review mediates the temporal contiguity cue effect on the pre-purchase evaluations of  
11 consumers. In the online review's context, the perceived trustworthiness of the online review  
12 was demonstrated as an important factor that influences the pre-purchase evaluations of the  
13 consumers (Brown et al., 2007; Pan and Chiou, 2011). Previous studies found that selfish  
14 motivation significantly affects the trust inferences of individuals toward the action taker  
15 (Barasch et al., 2014; Inesi et al., 2012). Supporting this stream of research, this study found  
16 that as temporal contiguity cue shifts the attribution of powerful (powerless) individuals toward  
17 (away from) selfish motivations, and the perceived trustworthiness of the online review for  
18 powerful (powerless) consumers is enhanced (lowered). The mediation test results confirmed  
19 that the effect on the review's perceived trustworthiness explains why the presence of temporal  
20 contiguity cue in an online review enhances the purchase intention of powerful (lowers  
21 powerless) consumers toward the business.

## 22 **6. Managerial implications**

23 The findings of this study also provide important implications for practitioners in the  
24 contemporary hospitality industry. In the contemporary global hospitality industry, social  
25 media is becoming an increasingly important information source (Chung and Koo, 2015).  
26 Online reviews posted on such social media websites can greatly influence consumers' buying  
27 behavior (Leung et al., 2013). Thus, managing online reputation, that is, managing what  
28 consumers post and the reviews other customers are exposed to, becomes the key for the  
29 survival of many hospitality businesses. The results of this research identify new managerial  
30 focus for firms' online marketing practices, namely, the timing of consumers' review posting  
31 and the inclusion of temporal contiguity cue in reviews.

32 This research found that conveying when the review was posted, specifically how close the  
33 timing of the post was to the timing of consumption, can significantly influence the purchase

1 intentions of consumers toward the reviewed business. In certain contexts (e.g. businesses that  
2 target powerless consumers, such as fast food chains), firms should engage consumers in review  
3 posting during a consumption experience. In other contexts (e.g. businesses that target powerful  
4 consumers, such as luxury hotels), firms should encourage consumers to post reviews after the  
5 consumption experience. To encourage in-experience review posting, firms may utilize mobile  
6 applications to send consumers review invitations via push messages. Companies may even  
7 consider using promotional rewards to encourage in-experience review posting. Moreover,  
8 companies need to effectively manage the timing of review posting and guide consumers to  
9 explicitly convey the timing of their posts in the review. For example, social media websites,  
10 travel forums or hospitality firms may provide review templates for consumers to provide  
11 information regarding the timing of consumption and timing of review posting.

12 This study also revealed that temporal contiguity cue exerts distinct influences on powerless vs  
13 powerful consumers. Thus, when implementing the managerial suggestions of this study,  
14 companies should cautiously assess the profiles of their target consumers, specifically the  
15 factors related to the consumers' personal sense of power. Previous studies suggest that  
16 individuals' personal sense of power can be determined by their socioeconomic status,  
17 managerial roles at work, trait factors (e.g. self-admiration) and feelings of social priority  
18 (Anderson et al., 2012; Bourdieu, 1985; Rucker et al., 2012). Recent research suggests that a  
19 review forum's helpful votes system and reviewer ranking system can significantly influence  
20 reviewers' personal sense of power (Wu et al., 2016). Reviewers with high helpful ratings or  
21 elite reviewer status are typically powerful consumers, whereas reviewers with low helpful  
22 ratings or junior reviewer status are typically powerless consumers (Wu et al., 2016). In addition,  
23 powerful vs powerless consumers often exhibit different review posting behaviors and language  
24 usage preferences (Wakslak et al., 2014; Wu et al., 2016). Such knowledge can help firms  
25 identify powerless vs powerful consumers. In addition, firms can tailor their promotional  
26 messages to include different types of reviews when targeting powerless vs powerful consumers.  
27 Specifically, in their promotional emails to powerful vs powerless consumers, firms may  
28 highlight online reviews that either include or exclude temporal contiguity cues. According to  
29 the findings of the current study, such targeted promotion would be another effective technique  
30 for managers to influence consumers' purchase intentions on social media websites. The current  
31 study demonstrates that this approach would be another technique for managers to effectively  
32 influence the purchase behavior of consumers on social media websites.

33

1 **7. Limitations and future research**

2 There are limitations and opportunities for future research to be acknowledged for the current  
3 research. Although temporal contiguity cue may assume numerous forms, the current research  
4 follows previous studies and examines only the explicit and linguistic forms of temporal  
5 contiguity cues (e.g. “We just checked-in and the resort is great!”). Hence, this question should  
6 be answered: Do temporal contiguity cues in other forms (e.g. implicitly conveyed by date of  
7 consumption and date of review posting) generate similar effects? Future research may assess  
8 this possibility. Second, the current research focuses on a generic type of hospitality business  
9 without differentiating the business type. Hospitality consumptions are significantly different  
10 in terms of temporal duration. Although certain consumptions last over two weeks (e.g. cruise  
11 trip), other consumptions may last for only several hours (e.g. restaurant dining experience).  
12 Future research could identify whether the temporal duration of hospitality consumption further  
13 complicates the effect of temporal contiguity cue. Finally, the current study did not assess the  
14 influence of the consumer– reviewer relationship. The temporal contiguity effect could be  
15 considerably stronger when the consumer and reviewer share more (vs less) similarity. This  
16 could be another potential topic for future research.

17

18

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#### 15 **Further reading**

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19

#### 20 Appendix 1

##### 21 Study scenarios

22 Scenario adapted from Kronrod and Danziger, 2013; manipulation of temporal contiguity cue  
23 adapted from Chen and Lurie, 2013.

24 You are browsing on your favorite travel forum to select a hotel for an upcoming trip. While  
25 you are searching for hotel information, you notice the following hotel review:

26 (1) With temporal contiguity cue

- 27 • We just checked-in and the Palms Resort is great! The room is very spacious. The view is  
28 excellent. The service is very professional. In sum, a great place to stay at”.

29 (2) No temporal contiguity cue

- 30 • The Palms Resort was great! The room was very spacious. The view was excellent. The  
31 service was very professional. In sum, a great place to stay at”.

32

#### 33 Appendix 2

1 Measurement scales

2 (1) Personal sense of power (adopted from Anderson et al., 2012; 1 – strongly disagree, 7 –  
3 strongly agree; Cronbach's  $\alpha = 0.93$ ):

- 4 • I can get people to listen to what I say;
- 5 • I can get others to do what I want;
- 6 • I think I have a great deal of power;
- 7 • If I want to, I get to make the decisions;
- 8 • My wishes do not carry much weight (reversely coded);
- 9 • Even if I voice them, my views have little sway (reversely coded);
- 10 • My ideas and opinions are often ignored (reversely coded); and
- 11 • Even when I try, I am not able to get my way (reversely coded).

12 (2) Purchase intention (adapted from Karmarkar and Tormala, 2010; Cronbach's  $\alpha = 0.96$ ):

- 13 • How much are you inclined to stay at this hotel? (1 – not at all, 7 – very much)
- 14 • How likely would you stay at this hotel? (1 – not at all, 7 – very much)
- 15 • How willing are you to stay at this hotel? (1 – not at all, 7 – very much)

16 (3) Perceived trustworthiness of the online review (adapted from Pan and Chiou, 2011;  $r =$   
17 0.86,

18  $p\text{-value} = 0.000$ ):

- 19 • To what extent do you believe that the review is trustworthy? (1 – not at all, 7 – very much)
- 20 • To what extent do you believe that the review reflects the reality of the hotel? (1 – not at  
21 all, 7 – very much)