

How primary and supplementary reviews affect consumer decision making? Roles of psychological and managerial mechanisms

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ARTICLE INFO

Keywords:

Supplementary reviews
Consistent reviews
Inconsistent reviews
Reviews truthfulness
Seller response
Heuristic-systematic model (HSM)

ABSTRACT

There exists evidence that online reviews in general and primary (or initial) reviews, in particular, are manipulated and biased by the sellers to increase their reputation. And, primary reviews may provide little information on consumers' experience of the products since most consumers provide them a few days after the purchase. To overcome the present weakness of primary reviews, such leading platforms as Taobao, the largest C2C marketplace globally, introduced a new type of review, i.e., supplementary (or additional) reviews, which consumers usually do not provide until the products are actually experienced. The present research explores how the interplay of primary reviews and supplementary ones influences consumer decision making, and what sellers should do to manage the ensued inconsistency and consistency by proposing an ambivalence–confidence framework based on the heuristic-systematic model. Moreover, it shows that truthfulness of online reviews and seller responses act as additional heuristics, which bias the systematic processing to mitigate the detrimental effects of inconsistent reviews. Accordingly, this research recommends that e-commerce platforms and sellers should facilitate unbiased reputation systems to encourage truthful reviews to mitigate the adverse effects of inconsistent reviews and strengthen the intention to buy in case of consistent reviews.

1. Introduction

Online reputation systems help businesses generate revenues and aid consumers in deciding what products and services to purchase. Both the reputation platforms and businesses thereon are convinced that online reviews are key drivers of effective reputation management and consumer decision making (Tadelis, 2016; Capoccia, 2018; Mintel, 2018; Gössling et al., 2019). As an illustration, Forbes reports that businesses are taking control of their online scores on online reputation platforms to attract new consumers (Capoccia, 2018). In another report, 47% of global consumers validate the promised product quality through online reviews, while this number is 54% for the Chinese (PricewaterhouseCoopers, 2017). Extant research also converges to the conclusion that these reviews influence consumer decision making (Lamberton and Stephen, 2016; Ismagilova et al., 2019) as they act as sales agents and a new element of marketing communication (Chen and Xie, 2008; Yi et al., 2019). Despite their salience and significant attention by the researchers, investigations of the underlying mechanisms, i.e., mediators, through which online reviews impact consumer decision making are

quite limited with only a few exceptions such as Mafael et al. (2016), Kupor and Tormala (2018), and Zhao et al. (2018). Hence, more research is needed to understand the nuances of the effects of online reviews on consumer responses.

Due to online reviews' salience to generate reputation, marketplaces have emerged that sellers can employ to fabricate and manipulate their reputation (Brown and Morgan, 2006; Malbon, 2013; Tadelis, 2016). There is growing evidence that sellers use financial incentives to generate positive online reviews (Brown and Morgan, 2006; Zhou and Li, 2017; Burtch et al., 2018; Khern-am-nuai et al., 2018), which result in a high volume of positive reviews compared to negative reviews in reality (Nosko and Tadelis, 2015; Tadelis, 2016). This incentivization has caused problems of online reviews manipulation and reviews fraud in e-commerce and hospitality (Mayzlin et al., 2014; Xu et al., 2015; Luca and Zervas, 2016; Chen et al., 2017; Gössling et al., 2018, 2019). For example, Porter Erisman, the former Vice-President at Alibaba Group, termed online review manipulation practices a threat to the reputation systems' ability to build trust between buyers and sellers. He asserted that 'the importance of having high ratings has also led to the

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<https://doi.org/10.1016/j.elerap.2021.101032>

Received 19 June 2020; Received in revised form 15 December 2020; Accepted 13 January 2021

Available online 21 January 2021

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widespread practice of “brushing,” whereby shop owners conspire with third parties who make fake orders online in order to enhance a merchant’s ratings’ (Erisman, 2017, p. 49). This practice used by sellers essentially is a way to fraudulently “buy” a reputation that they do not deserve and is present on platforms such as eBay and Alibaba (Tadelis, 2016). Besides “brushing,” another approach used by Taobao sellers is cashback incentive to entice positive reviews from the customers (Wang et al., 2016a; Chen et al., 2017).

To solve such problems, platforms are increasingly exploring new approaches so that customers can have unbiased feedback. For instance, Yelp uses a filtering algorithm to detect suspicious or fake reviews (Luca and Zervas, 2016). Taobao, a marketplace having more than 90% market share in China and the world’s largest consumer-to-consumer (C2C) marketplace (Li, Tadelis and Zhou, 2016), introduced a new type of online review called *supplementary (aka additional) review* to be appended to the existing *primary (aka initial) review*. Consumers usually post primary reviews a few days after the purchase, whereas they have a larger period to provide supplementary reviews. For instance, on Taobao/Tmall, they can provide supplementary reviews within 180 days of the transaction completion compared to 15 days in case of primary reviews. In general, supplementary reviews look more useful, objective, and realistic than the primary reviews (Wang et al., 2016a; Zhou and Li, 2017) as the former are usually provided after products are consumed while the latter are provided few days right after the purchase. However, prior research on online reviews tends to focus on the effects of either primary reviews (e.g., Lee and Youn, 2009; Zhu et al., 2010; Fan, Ju and Xiao, 2016), the differential effect of primary and supplementary reviews (Shen et al., 2015; Wang et al., 2016a), and the interplay of primary and supplementary reviews (Shen et al., 2015; Zhou and Li, 2017; Chen et al., 2019). Particularly, prior studies have not explored the underlying mechanisms through which this interplay affect consumer decision making. In other words, little is known about how consumers psychologically evaluate the interplay of a primary and supplementary review.

Moreover, this gap in the literature is strengthened by the market reality as well, whereby consumers are regularly exposed to both primary and supplementary reviews that may be consistent or inconsistent with each other, although the same reviewer writes them. This exposure can impede purchase decisions and negatively impact the seller performance as more consumers exhibit various concerns and even confusion on inconsistent reviews. Despite the salience of supplementary reviews over primary reviews as exhibited by prior research on the differential effect of these two types of reviews (Shen et al., 2015; Wang et al., 2016a), researchers almost know nothing about the underlying processes through which consistent and inconsistent primary and supplementary reviews influence consumers’ decision making. To address this gap, this research aims to explore the underlying psychological processes and the managerial mechanisms to reveal how platforms and sellers can manage the effects of online reviews.

Besides, although prior studies on traditional online reviews have explored reviews’ consistency and inconsistency (Keh and Sun, 2018), they focus on primary reviews only, and usually consider online reviews to be consistent when reviews from multiple reviewers exhibit similar opinion (Cheung, Sia and Kuan, 2012; Zhao, Stylianou and Zheng, 2018) and inconsistent (or mixed) when the reviews are dissimilar (Zhang et al., 2014b; Huang and Korfiatis, 2015; Vali et al., 2015). In addition, compared to consistent reviews, research on traditional inconsistent reviews is limited (Park and Han, 2008; Qiu, Pang and Lim, 2012; Zhang et al., 2014b; Kwon et al., 2015; Chang, 2016). Thus, there is a need to investigate traditional inconsistent reviews further. However, these traditional consistent and inconsistent reviews are entirely different from the consistent and inconsistent primary-supplementary reviews, which this study intends to explore. Specifically, the present research considers *reviews consistent* when both the primary and the supplementary review, posted by the same reviewer, have similar valence and *inconsistent* when both have different valence. In other words, consistent

reviews in this study, henceforth, refer to the primary and supplementary review having the same valence, while inconsistent ones denote the two reviews having different valence.

To address those real problems and reveal the whole picture of how online reviews, not only that of primary reviews, but also the new type, supplementary reviews, especially their interplay influence consumers’ decision making, the present research goes beyond the interplay of primary and supplementary reviews examined by three existing studies (Shen et al., 2015; Zhou and Li, 2017; Chen et al., 2019), and explores how this interplay impact consumers’ decision making by considering the roles of psychological and managerial mechanisms. In so doing, the present research articulates the underlying processes through which different primary-supplementary review combinations impact consumer decision making. Specifically, the present research considers three research questions: Firstly, do various combinations of primary and supplementary reviews influence consumer decision making differently (RQ1)? Secondly, how ambivalence and consumer confidence as underlying psychological mechanisms link inconsistent and consistent reviews and consumer decision making, respectively (RQ2)? Thirdly, how seller responses and the general perception of reviews truthfulness moderate the effects of inconsistent and consistent reviews (RQ3)? To answer these questions, this study proposes an ambivalence-confidence framework based on the heuristic-systematic model, i.e., HSM (Chaiken and Ledgerwood, 2012), to unveil the underlying psychological mechanisms for both inconsistent reviews and consistent ones. Furthermore, what sellers on online shopping platforms ought to do to manage inconsistent and consistent reviews is also investigated by proposing reviews truthfulness and seller response as potential managerial mechanisms to mitigate inconsistent reviews’ detrimental effects.

This research makes several contributions to the literature on online reviews, reputation systems, and information processing. Firstly, it re-defines the consistent and inconsistent online reviews (Park and Han, 2008; Qiu, Pang and Lim, 2012; Zhang et al., 2014b; Kwon et al., 2015; Vali et al., 2015; Chang, 2016) as consistent and inconsistent primary-supplementary reviews (Shen et al., 2015; Wang et al., 2016a; Zhou and Li, 2017) employed by more and more online shopping platforms to understand their impacts on consumer decision making, which is different from prior studies (Chen et al., 2019). Secondly, it adds to the persuasion and information processing literature that uses HSM (Chaiken and Ledgerwood, 2012) as a theoretical lens to explore the underlying psychological mechanisms. In case of inconsistent reviews, consumers undertake the systematic processing that results in ambivalence, which decreases the intention to buy. For consistent reviews, their consistency acts as a heuristic, and consumers form higher judgmental confidence in their purchase decision. Thirdly, the present research assists the platforms and sellers by establishing the efficacy of truthfulness of online reviews posted on online shopping platforms to mitigate the ambivalence caused by the inconsistent reviews. It also shows reviews truthfulness to increase the intention to buy in both cases of consistent reviews. To manage the detrimental effect of inconsistent reviews, this research recommends that sellers actively respond to consumer reviews. Lastly, this research examines the effects of consistency and inconsistency in an integrated framework atypical in the research stream of consistent and inconsistent reviews.

2. Literature review

Only a few research studies have investigated the supplementary review phenomenon (see Table 1). In general, this research stream found supplementary reviews to be more influential than the primary reviews, thus, showing the salience of the former (Shen et al., 2015; Wang et al., 2016a; Zhou and Li, 2017; Chen et al., 2019). The relatively limited literature on supplementary reviews can be classified into two broad categories. The first category focuses on the differential effects of primary and supplementary reviews (Shen et al., 2015; Wang et al., 2016a), while the second explores the interaction of primary and supplementary

Table 1

This study's comparison to literature investigating the effects of primary and supplementary reviews on consumer responses.

Study	Focus	Independent variable (s)	Dependent variable(s)	Main effect(s)	Moderating effect(s)	Mediating effect(s)	Key research question (s)	Methodology & context
Wang, Lu and Ye (2016)	Differential effect of primary and supplementary reviews	Supplementary review; Primary review	Sales	Primary reviews are still influential, but supplementary reviews effectively gain consumer attention by increasing product sales.	N-A	N-A	- How primary and supplementary reviews affect product sales?	Econometric modeling; Digital camera
Shen et al. (2015)	Both the differential and interactive effect of primary and supplementary reviews	Supplementary review; Primary review; Consistent-positive, Consistent-negative, Inconsistent(+P,-S), and Inconsistent (-P,+ S) reviews	Purchase intension; attitude certainty; and after-sales service	Supplementary reviews had a better effect on purchase intention, attitude certainty, and after-sales service than the primary ones. No matter the primary reviews are positive or negative, positive supplementary reviews positively affect purchase intention while negative supplementary reviews impact it negatively. In addition, consistent-positive reviews have the most favorable impact on purchase intention. Conversely, consistent-negative reviews have the most unfavorable impact on it.	Product type and consumer involvement were not able to moderate the relationship across the two review types.	N-A	- What is the differential effect of primary and supplementary reviews? - What is the interactive effect of primary and supplementary reviews?	Experiment; books (search good) and food (experience good)
Zhou and Li (2017)	Interactive effect of primary and supplementary reviews	Consistent-positive, Consistent-negative, Inconsistent(+P,-S), and Inconsistent (-P,+S) reviews	Information adoption	When the primary review is positive, information adoption of inconsistent(+P,-S) reviews is greater than consistent-positive reviews. In contrast, when the primary review is negative, consistent-negative reviews are adopted more than inconsistent(-P,+S) reviews.	Consumers with prior high ambivalent attitudes pay more attention to negative supplementary reviews. In contrast, those having low ambivalent attitudes are more inclined to use positive supplementary reviews for their decisions.	N-A	- Which of the review combinations are more adopted? - Which types of supplementary reviews are adopted by high vs. low ambivalent attitude consumers?	Experiment; Suitcase
Chen et al. (2019)	Interactive effect of primary and supplementary reviews	The sequence of equivalent-quality contradictory primary and supplementary reviews [i.e., inconsistent(+P,-S) vs. inconsistent(-P,+S)]	Purchase intention	Purchase intention in inconsistent(-P,+S) reviews is significantly higher than inconsistent(+P,-S), showing the salience of supplementary reviews over primary ones (recency effect).	In the inconsistent(+P,-S) sequence, consumers with high product involvement have higher purchase intentions than those of low product involvement (primacy effect). On the contrary, in the inconsistent (-P,+S) sequence, consumers with low product involvement have higher purchase intentions than those with high product involvement (recency effect).	N-A	- What is the influence of the sequence of primary and supplementary reviews on purchase intentions? - Which effect (primacy or recency effect) is dominant in high vs. low product involvement consumers?	Experiment; Books
This study	Interactive effect of primary and supplementary reviews	Consistent reviews (consistent-positive and consistent-negative) and	Intention to buy	Compared to consistent-positive reviews, both inconsistent reviews do not influence intention to buy	Perception of low online reviews manipulation, i.e., reviews truthfulness, mitigates the ambivalence	Consistent reviews affect intention to buy through judgmental confidence compared to inconsistent	- Which factors mediate the relationship between consistent and	Experiments; Smartphone

(continued on next page)

Table 1 (continued)

Study	Focus	Independent variable (s)	Dependent variable(s)	Main effect(s)	Moderating effect(s)	Mediating effect(s)	Key research question (s)	Methodology & context
		inconsistent reviews [inconsistent(+P,-S) and inconsistent(-P,+S)]		directly. In contrast, consistent-positive reviews positively influence intention to buy compared to inconsistent reviews, whereas consistent-negative reviews negatively impact the intention to buy.	caused by inconsistent reviews and increases the intention to buy in consistent reviews. The other moderator, seller response to reviews, increases intention to buy in case of inconsistent reviews.	reviews, while inconsistent reviews influence intention to buy through ambivalence relative to consistent-positive reviews.	inconsistent reviews and consumer decision making? - What is the moderating effect of seller responses and reviews truthfulness on the effects of consistent and inconsistent reviews?	

reviews (Shen et al., 2015; Zhou and Li, 2017; Chen et al., 2019). Among the former, Shen et al. (2015) found supplementary reviews to have a better effect on consumer responses than primary reviews. And, Wang et al. (2016a) underscored the importance of supplementary reviews in solving the problem of online review manipulation and found supplementary reviews to be more influential in inducing product sales. This shows that supplementary reviews are more influential than the primary ones.

Studies in the second category exploring the interactive effect of primary and supplementary reviews (Shen et al., 2015; Zhou and Li, 2017; Chen et al., 2019) have used different terms to indicate the consistency and inconsistency of primary and supplementary reviews. To have a common vocabulary, this research proposes to consider *reviews consistent* when both the primary and supplementary review, posted by the same reviewer, have similar valence and *inconsistent* when both have different valence. This research considers valence in terms of the positive or negative opinion depicted by the reviewer in the review content (Ismagilova et al., 2019) in contrast to the valence defined traditionally as the positive or negative star rating assigned by reviewers (King, Racherla and Bush, 2014). It prefers valence's first definition due to three reasons. Firstly, sometimes the opinion reflected in the review content does not match the star rating provided (e.g., Wang et al., 2016a). Secondly, consumers providing supplementary reviews can not specify the star ratings due to the design of most reputation systems. Thirdly, consumers who read supplementary reviews are likely to be highly involved in the purchase and can discern the content's valence. Thus, in the context of this research, the former definition of valence, i.e., one centered on review content, makes more sense. Furthermore, consistent reviews have two further conditions: 1) consistent-positive when both reviews have a positive valence; and 2) consistent-negative when they have negative valence. Analogously, inconsistency also has two conditions: 1) inconsistent(+P,-S) reviews, where the primary review (P) is positive, and the following supplementary one (S) is negative; and 2) inconsistent(-P,+S) reviews, wherein the primary review is negative while supplementary one is positive. The matrix in Fig. 1 shows combinations of these reviews.

Perusing Table 1 reveals that neither of the three studies exploring the interplay of primary and supplementary reviews (Shen et al., 2015; Zhou and Li, 2017; Chen et al., 2019) has investigated the underlying psychological mechanisms, which go into the consumer mind while processing consistent and inconsistent reviews. In addition to having some shortcomings, their findings are inconsistent, too (see Table 1). For instance, Zhou and Li (2017), while investigating the interplay of these reviews on information adoption, find that the effect of supplementary review is contingent on the valence of the primary review. Moreover, they investigated the moderating effect of ambivalent attitude, formed after reading the product information, on consumers' choice of reviews and found that consumers with high ambivalent attitude pay more attention to negative supplementary reviews while their counterparts are more inclined to use positive supplementary reviews (Zhou and Li, 2017). However, what role inconsistent reviews themselves play in forming the attitudinal ambivalence caused by conflicting information in the reviews was not answered.

Shen et al. (2015) conclude that the primary reviews' valence is immaterial as it is the valence of the supplementary review that affects the purchase intention. However, Zhou and Li (2017) note the otherwise in that valence of the primary reviews is vital in determining which of the conditions of consistent and inconsistent reviews are more adopted. The third study, i.e., Chen et al. (2019), like the prior studies investigating the differential effects (see Table 1), found supplementary reviews to be more instrumental in forming the purchase intention in inconsistent reviews. Moreover, it investigated the moderating effect of product involvement on the relationship between inconsistent reviews and purchase intention. It found primacy effect (i.e., positive primary review in inconsistent(+P,-S) reviews positively impacts purchase intention) and recency effect (i.e., positive supplementary review in

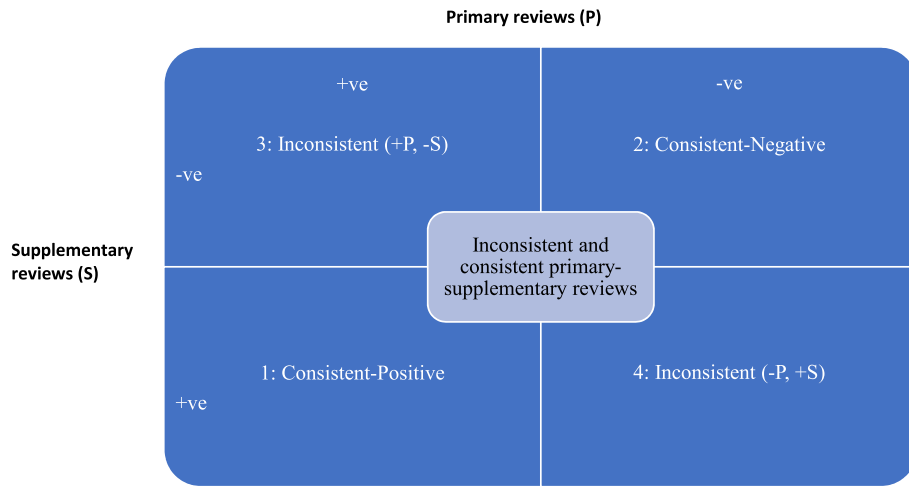


Fig. 1. Typology of inconsistency and consistency of primary and supplementary reviews.

inconsistent(-P,+S) reviews positively affects the purchase intention) to be dominant in high and low product involvement respectively. This study explored only the sequential effect of primary and supplementary reviews by ensuring that both reviews have similar review quality. In so doing, it answered when either of the effects, i.e., primacy and recency effects, becomes relevant in inconsistent reviews. However, primary and supplementary reviews seldom have equal review quality in reality, making interesting findings less relevant. This is where the present research unearths the underlying mechanisms and how sellers can influence them using managerially relevant mechanisms such as the general reputation of reviews truthfulness and seller response to the reviews.

Table 1 summarizes the relevant literature on the differential and interactive effect of primary and supplementary reviews and compares it with the present research. More specifically, unlike prior studies, the present research examines the interplay of primary and supplementary review in one integrated framework and further reveals the psychological and managerial mechanisms through which this interplay impact

consumer decision making. Identifying the underlying mechanisms is pertinent due to two reasons. Firstly, for prior studies that investigate online reviews in general, and fail to consider the influence of supplementary reviews, the majority of them have not sufficiently identified mediators between online review characteristics and consumer responses (for exceptions see, Mafael, Gottschalk and Kreis, 2016; Kupor and Tormala, 2018; Zhao, Stylianou and Zheng, 2018). For instance, Zhao, Stylianou and Zheng (2018) identify that online reviews exert their influence on decision quality and perceived usefulness of the Website by exerting informational and value-expressive influence. Mafael, Gottschalk and Kreis (2016) find perceived persuasiveness as a mediator between review content and behavioral intentions when consumers have a favorable attitude towards the focal brand. Kupor and Tormala (2018) show that perceived thoughtfulness and perceived accuracy mediates the relationship between deviatory reviews and behavioral intentions. Secondly, prior studies investigating the interactive effect of primary and supplementary reviews (Shen et al., 2015; Zhou and Li, 2017; Chen et al., 2019) have not explored the mediators

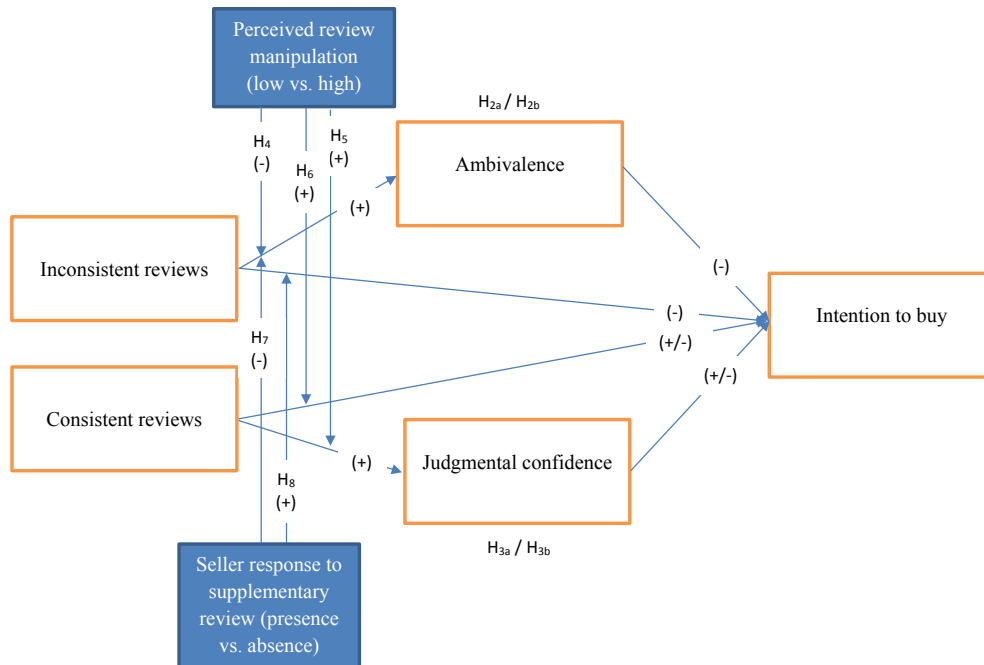


Fig. 2. The ambivalence–confidence framework of inconsistent and consistent primary–supplementary reviews.

between consistent and inconsistent reviews and consumer responses (see Table 1).

Table 1 and the prior discussion of the studies exploring the interplay of primary and supplementary reviews show that both Shen et al. (2015) and Chen et al. (2019) explored the moderating role of consumer/product involvement. The former did not find the moderating role of consumer involvement across the two review types. However, the latter identified the moderating effect of product involvement in two reviews' sequences: inconsistent(+P,-S) and inconsistent(-P,+S) reviews. In addition, Shen et al. (2015) could not identify the contingent effect of product types across the two review types. Another study (Zhou and Li, 2017) identified the moderating role of the ambivalent attitude formed after reading the product information but before reading the reviews (see Table 1). Nevertheless, despite the salience of these moderators—product/consumer involvement and prior ambivalent attitude—to understand the interplay of two review types, they are not managerially manipulative. Thus, identification of the managerially-relevant moderators is pertinent to manage the effects of consistent and inconsistent reviews. In this regard, the present research proposes two moderators, i.e., online reviews truthfulness and seller response, with the first requiring strategic efforts both by the focal platform and the sellers, while the second can be readily employed by the sellers provided the focal reputation system provides this feature, which is provided by almost all the platforms.

3. Theoretical framework

Theoretically, the present research draws on the heuristic-systematic model, i.e., HSM (Chen and Chaiken, 1999; Chaiken and Ledgerwood, 2012), to build the conceptual framework of the present research: the ambivalence–confidence framework (see Fig. 2). The heuristic processing mode of HSM assumes that people tend to form their judgments based on a single or few available informational cues as suggested by the least effort principle of the model, which indicates that people rely on heuristics, shortcuts, short decisional rules, and tend to exert little cognitive effort. In contrast, people undertaking systematic processing attempt to understand the available information by thoroughly paying careful attention, elaborate thinking, and intensive reasoning (Chaiken and Ledgerwood, 2012). This model assumes that dual-process thinking, i.e., heuristic and systematic processing, coexist, and both the processes affect each other in complex ways. In contrast, the elaboration likelihood model (Petty and Wegener, 1999) treats the two processes as mutually exclusive. Due to relatively less research on the former, researchers have stressed the need to explore HSM further (Zhang et al., 2014a).

Generally, congruent information is considered more credible than incongruent information (Cialdini, 2001). In research on online reviews, traditional consistent reviews, i.e., similar opinion expressed by multiple reviewers, are considered more credible than inconsistent ones (Cheung, Sia and Kuan, 2012; Zhao, Stylianou and Zheng, 2018; Lo and Yao, 2019). In addition, the ensued reviews credibility, in turn, has a significant impact on reviews' adoption (Cheung et al., 2009). From a theoretical perspective, consistent reviews elicit heuristic processing since information consistency in itself is a heuristic cue (Cheung, Sia and Kuan, 2012; Zhang and Watts, 2016). Thus, consumers exposed to consistent reviews can be more confident in their purchase decisions than those exposed to inconsistent ones. The ensued confidence, in turn, can form the intention to buy and not to buy when consumers are exposed to consistent-positive and consistent-negative reviews, respectively. The present research calls this mediating mechanism a *confidence hypothesis*. Conversely, due to the conflicting information arising from inconsistent reviews, consumers can undertake systematic processing (Todorov, Chaiken and Henderson, 2012). Furthermore, building on the cognitive consistent theories (Abelson et al., 1968; Gawronski and Strack, 2012), this research argues that consumers exposed to the inconsistent reviews can form an ambivalent attitude towards the focal

product and, consequently, can form less intention to buy compared to consistent reviews. This research calls this mediating mechanism an *ambivalence hypothesis*.

The two hypotheses can be explained using HSM's heuristic and systematic processing, respectively. HSM posits that heuristic and systematic processing can overlap and co-occur (Chaiken and Ledgerwood, 2012). Specifically, the co-occurrence of the two paths can be explained using three extensions of the model: (1) the additivity effect, which argues that both systematic and heuristic processing produce independent impacts on consumer decision making, but this effect is difficult to discover; (2) the attenuation effect, which explains how the systematic mode of persuasion may weaken the heuristic mode; and (3) the bias effect, i.e., heuristic processing can bias the systematic processing by affecting individual judgments (Chaiken, Liberman and Eagly, 1989; Chaiken and Ledgerwood, 2012). The present research applies HSM and its extensions to develop the conceptual framework of inconsistent and consistent reviews in Fig. 2. It proposes that consistent information shown to consumers, irrespective of its valence, leads to the use of heuristic processing owing to information consistency acting as a heuristic cue. Further, HSM's additivity effect is reflected in a mediating mechanism of confidence due to corroborating information in the consistent reviews eliciting the heuristic processing. In particular, this research argues that information consistency increases consumer confidence in the decision potentially because of the credibility of the consistent information presented, which, in turn, is associated with reviews adoption (Cheung, Sia and Kuan, 2012).

In contrast to the confidence hypothesis, exposure to inconsistent information prompts a psychological state of ambivalence due to the ability of conflicting information to elicit systematic processing (Jonas, Diehl and Brömer, 1997). Owing to the very nature of inconsistent cues, information processing here demands more elaborative thinking and might require additional cues to reach a decision. In the absence of any additional cues, the systematic processing elicited by inconsistent cues can prompt ambivalence resulting in lesser intention to buy. However, making the appropriate cues available in these situations can bias the systematic processing in line with HSM's bias effect (Chaiken and Ledgerwood, 2012). For instance, the extrinsic positive cues and the positive review itself from the inconsistent reviews' conditions can corroborate to decrease the ambivalence or increase the intention to buy in case of inconsistent reviews. The role of either of the positive primary or supplementary reviews from inconsistent reviews to positively influence the purchase intention has recently been documented by Chen et al. (2019). Thus, the extrinsic positive cues and positive reviews from inconsistent reviews can corroborate to play their role in aiding consumers in their decision-making by reducing consumers' cognitive burden even in case of inconsistent reviews. This role becomes especially relevant as extant research has called for using different strategies to reduce the discomfort and imbalance caused by conflicting information (Ruiz-Mafe et al., 2018). To address this, the present research proposes truthfulness of online reviews and seller responses as managerial strategies to assuage the ensued conflict. Thus, it is argued that they act as additional positive cues to strengthen the judgmental confidence due to consistent reviews and mitigate the adverse effects, i.e., ambivalence or intention not to buy, of inconsistent reviews.

In summary, the two moderators work as additional heuristics to alter consumer judgment indirectly by biasing the systematic processing elicited by inconsistent reviews. As a result of this interaction, the ensued ambivalence can decrease or intention to buy can increase. In the case of consistent reviews, the reviews truthfulness and seller response acting as heuristics can further the already heuristic processing elicited by consistent reviews in line with HSM's additivity effect. Importantly, while consistent-positive reviews positively impact the intention to buy through increasing the judgmental confidence to buy the focal product, consistent-negative reviews negatively influence the intention to buy through engendering confidence not to buy the product. In line with the arguments presented in this and the preceding section, Fig. 2 shows the

proposed conceptual framework for this research grounded in extant literature and HSM. The following section develops hypotheses for multiple studies of this research.

4. Hypotheses development

By and large, existing research on user-generated content converges to the conclusion that positive content has a positive impact, whereas negative content has a negative influence on consumer responses and performance (Yoo, Sanders and Moon, 2013; Tang, Fang and Wang, 2014; Zablocki, Schlegelmilch and Houston, 2019). At the same time, reviews consistency is positively related to their usefulness, which is positively related to intention to buy (Ismagilova et al., 2019) contingent on the reviews' valence. Thus, consistent-positive reviews should be more persuasive in forming a favorable intention to buy while consistent-negative reviews should be instrumental in forming an unfavorable intention to buy.

In line with the arguments presented in the last section, it is predicted that the consistent reviews can be more persuasive relative to inconsistent reviews due to the consumers undertaking the heuristic information processing as consistency in itself acts as heuristic and affects decision making (Cheung, Sia and Kuan, 2012; Huang and Korfiatis, 2015). Furthermore, HSM's additivity assumption (Chen and Chaiken, 1999; Zhang et al., 2014b) suggests that heuristic and systematic processing have their independent persuasion effects. The basic decisional rule "consensus implies correctness" of HSM implies that consistent reviews can elicit heuristic processing by providing corroborating information (Maheswaran and Chaiken, 1991). In contrast, inconsistent reviews due to the conflicting information require costly systematic processing (Maheswaran and Chaiken, 1991; Ruiz-Mafe et al., 2018), which can likely result in less intention to buy. In addition, the two subsequent conditions of inconsistent reviews, i.e., inconsistent(+P,−S) and inconsistent(−P,+S), may exhibit differential impact on intention to buy due to more diagnostic negative reviews. In the context of this research, it is reasonable to expect that different configurations of primary and supplementary reviews (i.e., the four conditions in Fig. 1) can have different levels of persuasion depending on the kind of information cues each cell furnishes. Thus, it is proposed that these conditions can exhibit different behavioral intentions. Formally,

H1. Consumers exhibit different intentions to buy when exposed to different conditions pertaining to consistent and inconsistent reviews, i.e., consistent-positive, consistent-negative, inconsistent(+P,−S), and inconsistent(−P,+S).

Testing H1 is essential to perform the manipulation checks for the present research. The pilot study supports H1; therefore, the following discussion assumes that the manipulation is successful.

4.1. Effects of inconsistent and consistent reviews

Information inconsistency increases consumers' cognitive load and, therefore, promotes cognitive elaboration (Erber and Fiske, 1984; Karmarkar and Tormala, 2010). In general, existing literature makes opposing predictions on the relationship between information inconsistency and attitude strength (Sengupta and Johar, 2002). The first research stream, focused on reconciliation-driven elaboration, suggests that information inconsistency increases the attitude strength. For instance, Jonas, Diehl and Brömer (1997) indicate the moderating effect of systematic processing on the relationship between attitude and behavioral intention, such that there is greater consistency of attitude and behavioral intention in the ambivalent condition than the non-ambivalent condition. The second stream, focused on goal-driven elaboration, shows that preventing such elaboration encourages the maintenance of inconsistencies resulting in a weakening effect (Bargh et al., 1992; Thompson and Zanna, 1995).

In addition, cognitive consistency theories (Abelson et al., 1968;

Gawronski and Strack, 2012) indirectly posit that incongruent information cues form an ambivalent attitude, especially if the consumer is unable to resolve the ensued attitudinal ambivalence (Conner and Sparks, 2002; B.Zajonc, 2017), which is likely to deter intention to buy. This argument is in line with the first stream of research. Consistent with this view, evidence has shown that ambivalent attitude holders go through effortful systematic processing (Jonas, Diehl and Brömer, 1997; van Harreveld et al., 2012; van Harreveld, Nohlen and Schneider, 2015). Thus, online shoppers consulting with inconsistent reviews can go through systematic processing due to incongruent information from primary and supplementary reviews. As a result, shoppers can likely form less intention to buy in both conditions of inconsistent reviews relative to consistent-positive reviews. However, a question arises as to whether the two specific conditions of inconsistent reviews differing in the order of valence, i.e., inconsistent(+P,−S) and inconsistent(−P,+S), vary in terms of their impact on intention to buy?

To seek an answer to this question, these authors look into the literature on cue diagnosticity and negativity bias. Existing research shows that consumers generally consider supplementary reviews more useful than primary reviews (Shen et al., 2015; Wang et al., 2016a; Zhou and Li, 2017). This makes supplementary reviews to be more diagnostic than the primary reviews. A cue is diagnostic if it can correctly predict product quality (Slovic and Lichtenstein, 1971). Thus, the supplementary review's valence should influence the intention to buy more than the primary review. Existing research investigating the differential effect of the two review types (summarized in Table 1) also provides evidence for this proposition (Shen et al., 2015; Wang et al., 2016a; Chen et al., 2019). Building on this logic, inconsistent(−P,+S) reviews should be able to form more intention to buy than inconsistent(+P,−S) reviews. On the contrary, negativity bias suggests that neutral consumers consider negative reviews more salient than positive reviews (Rozin and Royzman, 2001; Miyazaki, Grewal and Goodstein, 2005; Tang et al., 2014). This later reasoning suggests that both inconsistent(+P,−S) and inconsistent(−P,+S) reviews should be able to form less intention to buy due to higher diagnostic negative reviews. As can be seen, there is a discrepancy between the two rationales.

Contrary to these reasonings, the present research advances an alternate proposition that both conditions of the inconsistent reviews can exhibit less intention to buy. The reasoning is that inconsistent reviews, due to the conflicting information, elicit systematic processing conducive for consumer ambivalence. Absent the extrinsic positive cues to bias the systematic processing, the ensued ambivalence can decrease the intention to buy. This rationale is in line with HSM (Chaiken and Ledgerwood, 2012) and ambivalence literature (Conner and Sparks, 2002; van Harreveld et al., 2012; van Harreveld, Nohlen and Schneider, 2015; B.Zajonc, 2017). Thus, building on this reasoning, it is proposed that consumers exposed to both inconsistent reviews conditions can form less favorable intention to buy relative to consistent-positive reviews primarily due to the engendered ambivalence.

H2a. Inconsistent(+P,−S) reviews result in less favorable intention to buy through engendering ambivalence relative to consistent-positive reviews condition.

Similarly,

H2b. Inconsistent(−P,+S) reviews result in less favorable intention to buy through engendering ambivalence relative to consistent-positive reviews condition.

As discussed, inconsistent reviews can impede intention to buy as reflected by H2a and H2b; how the two conditions of consistent reviews influence intention to buy is another pertinent question worthy of exploration. Research suggests that under consistent conditions, product evaluation is primarily formed based on the extrinsic cues more than the intrinsic product attributes (Maheswaran and Chaiken, 1991). From the perspective of HSM, online shoppers can undertake heuristic processing when faced with consistent cues (consistent-positive and consistent-negative reviews) mediated by the heuristic of "consensus implies correctness" (Maheswaran and Chaiken, 1991; Chaiken and Trope, 1999;

Chaiken and Ledgerwood, 2012). In addition, the ability of consistent cues to act as an aggregated simple cue (Cheung, Sia and Kuan, 2012) makes consumers less likely to obtain additional information (Zhao, Stylianou and Zheng, 2018). As a result, they can have greater confidence in their decisions.

In addition, the sufficiency principle of HSM contends that efficient information processors maintain a balance between minimizing their processing efforts and maximizing judgmental confidence (Maheswaran and Chaiken, 1991). Thus, the ensued heuristic processing can decrease the uncertainties, and consequently, confidence in the purchase decision making can increase due to the experience of the past consumers (Ginsburg, Petra Schubert, 2000) reflected in reviews. Building on the above research evidence and the HSM, it is predicted that consumers exposed to consistent reviews can likely have a relatively lower sufficiency threshold. Thus, such consumers can have higher confidence in their judgments of choosing or not choosing the product depending on the type of reviews, i.e., consistent-positive or consistent-negative, they process. Existing research has generally found a positive relationship between judgmental confidence and intention to buy (Laroche et al., 1995, 1996; Teng and Laroche, 2007; Sun, Keh and Lee, 2012; Chaxel, 2016). The arguments advanced above for the positive relationship between consistent reviews and judgmental confidence and the latter's relationship (positive or negative) with the intention to buy, suggest that consistent-positive reviews relative to inconsistent ones can increase the confidence in the chosen product, and, consequently, the consumer can likely form favorable intention to buy. Formally,

H3a. Consistent-positive reviews result in favorable intention to buy through engendering confidence in the decision made relative to inconsistent reviews.

Similarly, consistent-negative reviews can increase the confidence of not choosing the product and consequently can form unfavorable intention to buy the product. The following hypothesis tests this assertion,

H3b. Consistent-negative reviews result in unfavorable intention to buy through engendering confidence in the decision made relative to inconsistent reviews.

4.2. Moderating effect of the truthfulness of online reviews

Apart from their importance in aiding consumers in their decision making, online reputation systems have their downsides. On the dark side, online review manipulation and fraud are pretty widespread across platforms (Hu, Liu and Sambamurthy, 2011; Malbon, 2013; Luca and Zervas, 2016), for instance, in tourism (Gössling, Hall and Andersson, 2018; Gössling et al., 2019) and online shopping (Hu et al., 2012). Furthermore, market research reports have shown its incidence across multiple domains (PricewaterhouseCoopers, 2017; Mintel, 2018). The ensued negative perception makes them less informative and untrue (Hu, Liu and Sambamurthy, 2011; Hu et al., 2012) and can likely result in consumers abandoning using them if such a practice becomes pervasive.

On the plus side, for instance, consumers consider online reviews (i.e., peer nonexpert reviews) more reliable, impartial, and useful than professional expert reviews (Mintel, 2018). This is because online reviews, as operationalized in the present research, come from peer consumers who do not have any vested interests in the focal brands or commercial intentions (Keh and Sun, 2018), whereas expert reviews may be financially motivated and thus consumers might see them with suspicion (Racherla and Friske, 2012; Zhang, Ko and Carpenter, 2016). In online shopping platforms, the context of this research, peer consumers post their reviews on the relevant reputation system. Most of these platforms do not explicitly cater to professional reviews. Thus, consumers generally use online peer reviews posted on these platforms to make their purchase decisions. From this perspective, online peer reviews seem less likely to be manipulated. However, these authors contend that the role online reviews play in consumer decision making is

contingent on whether consumers perceive online reviews as authentic or suspicious. Apart from this, all consumers might not see online reviews with suspicion; instead, they may consider online reviews to be accurate, i.e., they perceive reviews truthfulness as high and can score low on perceived online reviews manipulation.

In the case of a high perception of online reviews' manipulation, consumers process reviews with suspicion (Sher and Lee, 2009; Zhang, Ko and Carpenter, 2016). As a result, they can undertake systematic processing for their decision making (Jiang et al., 2016). Conversely, perception of low review manipulation, i.e., high online reviews truthfulness, can stimulate heuristic processing (Sher and Lee, 2009) because consumers consider online reviews as objective. Consequently, they can have a pre-established positive attitude towards online reviews, which can bias the systematic processing caused by inconsistent reviews in line with HSM's bias effect (Chaiken, Liberman and Eagly, 1989; Chaiken and Ledgerwood, 2012). As a result, the ensued attitudinal ambivalence can decrease.

Additionally, existing research has found the truthfulness of online reviews to positively affect the seller's reputation such that, given the truthfulness of online reviews, an additional positive review increases the seller's reputation (Chen et al., 2017). Therefore, consumers may perceive the seller honest, reputable, and reviews accurate. In the present research, the authors do not manipulate the seller's reputation. However, they contend that when consumers perceive online reviews as accurate, the mere perception of truthfulness may have an impact similar to that of seller reputation, as found by Chen et al. (2017). This way, reviews truthfulness can directly bias the systematic processing elicited by inconsistent reviews prompting ambivalence to decrease. Formally,

H4. When consumers perceive the overall online reviews manipulation to be low (high reviews truthfulness), showing the consumers inconsistent reviews decreases their ambivalence towards those reviews.

The previous arguments leading to H3a and H3b suggest that consistent reviews can influence intention to buy through the confidence in the decision made. To clarify the contingent role of online reviews truthfulness in increasing judgmental confidence, this research again applies HSM. In this regard, its additivity assumption, sufficiency, and least effort principles guide us. The additivity assumption of HSM (Maheswaran and Chaiken, 1991; Akdeniz, Calantone and Voorhees, 2013) suggests that if online reviews, in general, are considered authentic, then the confidence ensued should be strengthened due to corroborating cues (consistent reviews and review truthfulness). Importantly, consistency of reviews and the additional cue of review truthfulness can aggregate to form a simple cue (Cheung, Sia and Kuan, 2012; Zhao, Stylianou and Zheng, 2018), which can result in increased judgmental confidence. In addition, HSM's sufficiency principle asserts that consumers sometimes undertake an additional cognitive effort to reach a certain level of judgmental confidence. However, the required cognitive effort level is contingent on the confidence gap, i.e., the difference between actual confidence and desired confidence (or sufficiency threshold). The larger the confidence gap, the higher can be the required cognitive effort. Together, the sufficiency and least effort, i.e., consumers being cognitive misers, principles suggest that consumers engage in systematic processing only if the heuristic processing mode does not yield sufficient judgmental confidence (Chaiken and Ledgerwood, 2012). Due to the corroborating cues of consistent reviews and reviews truthfulness, the confidence gap can be short, and the cues can elicit heuristic processing. As a result, the corroborating cues can

Table 2
Summary statistics of participants.

	Pilot study	Study 1	Study 2
Age (years)	22	22	21.2
Female	57%	60%	43.3%
Number of participants	90	204	134

Table 3
Definition of constructs, measures, and their reliability measures.

Stimuli/Construct	Items	Source	Cronbach's α
Consistent and inconsistent reviews	The stimuli were designed to represent the four conditions: consistent-positive, consistent-negative, inconsistent(+P,-S), and inconsistent (-P,+S) reviews. See Appendix for the used stimuli. The product description is common across all the experimental conditions.	Used actual reviews from Tmall	N-A
Seller response	A boiler-point seller response was provided to the supplementary review in the above experimental conditions.	Used actual seller responses from Tmall	N-A
Intention to buy	(1) I would intend to buy the phone (2) I would consider buying the phone (3) I would expect to buy the phone (4) I would plan to buy the phone	Chen et al. (2016)	$\alpha = 0.824$ (pilot study) $\alpha = 0.827$ (study 1) $\alpha = 0.839$ (study 2)
Ambivalence Definition: "The simultaneous existence of positive and negative evaluations of an attitude object" (Conner and Sparks, 2002).	(1) I have conflicting thoughts about this smartphone after reading the above reviews (2) I have mixed feelings about this smartphone after reading the above reviews (3) My thoughts and feelings about this smartphone are conflicting	Conner and Sparks (2002)	$\alpha = 0.837$ (study 1) $\alpha = 0.874$ (study 2)
Confidence Definition: Confidence in judgment refers to the degree of certainty people hold about the optimality of their decisions (Thomas and Menon, 2007).	(1) Please indicate how confident you feel about your decision given the reviews you read (5-point scale anchored "Not at all confident" and "Extremely confident") (2) Please indicate how certain you feel about your decision given the reviews you read ("Not at all certain" and "Extremely certain")	Chaxel (2016) Keh and Sun (2018)	$\alpha = 0.811$ (study 1) $\alpha = 0.874$ (study 1)
Manipulation of online reviews Definition: Consumers question the truthfulness of online reviews when they become suspicious of online reviews (Zhang, Ko and Carpenter, 2016).	(1) We can hardly depend on getting the truth from most online reviews (2) Online reviews are not generally truthful (3) In general, online reviews do not reflect the true picture of a subject	Measured through truthfulness subscale of reviews skepticism scale (Zhang, Ko and Carpenter, 2016).	$\alpha = 0.742$ (study 1)

engender judgmental confidence in the purchase decision. More formally,

H5. When consumers perceive the overall online reviews manipulation to be low (high reviews truthfulness), showing the consumers consistent reviews increases their confidence in their decision.

Apart from the proposed influence of corroborating cues of consistent reviews and reviews truthfulness to increase judgmental confidence, the present research also proposes that these cues can directly affect the intention to buy. The potential reasons include (1) consistent reviews, being corroborating and powerful cues, can directly influence intention to buy independent of their effect on confidence; (2) reviews truthfulness, in itself, can positively influence the intention to buy. While the current research does not identify the underlying mechanism through which reviews truthfulness impact intention to buy, it can positively influence intention to buy through increasing the seller reputation as suggested by Chen et al. (2017). Specifically, they simulated sellers' reputation in a C2C e-commerce platform, i.e., Taobao, using a Bayesian model and suggested that it is the platform, as a third-party beneficiary, which ought to offer rebates to solicit honest feedback and not the sellers. Accordingly, if sellers do not offer rebates for positive reviews, consumers are more likely to consider online reviews as true and may not consider reviews as manipulated. There is research consensus that consumers, in general, prefer to buy from the reputable sellers due to the trust these sellers can foster (Cabral and Hortaçsu, 2010; Tadelis, 2016). Thus, building on this rationale, the present research contends that reviews truthfulness and consistent reviews interactively can increase intention to buy directly independent of the latter's effect on the mediating mechanism of confidence as proposed in H3a and H3b.

As discussed earlier, HSM's sufficiency principle suggests the sufficiency threshold (i.e., desired confidence) to be low in consistent reviews. As a result, consumers may not be motivated to exert additional cognitive effort to increase their actual confidence, owing to the already small confidence gap (Chaiken and Ledgerwood, 2012). That is, the heuristic mode of information processing is sufficient for decision making due to the corroborating cues, i.e., consistent reviews. In addition, in the presence of the additional heuristic of consumers' perception of reviews truthfulness, the sufficiency threshold can further reduce. Thus, based on the above reasoning, the present research posits that the interactive effect of reviews truthfulness and consistent reviews on the intention to buy can be more pronounced irrespective of the valence of consistent reviews. Particularly, even in the case of consistent-negative reviews, the interactive effect of reviews truthfulness and consistent-negative reviews can be such that intention to buy can improve compared to consistent-negative reviews alone due to reviews truthfulness' contribution to influence the intention to buy. For consistent-positive reviews, the already positive relationship between them and the intention to buy can further strengthen. Thus, in both cases of consistent reviews, i.e., consistent-positive and consistent-negative ones, intention to buy improves when reviews truthfulness is considered high. Formally,

H6. When consumers perceive the overall online reviews manipulation to be low (high reviews truthfulness), showing the consumers consistent reviews increases their intention to buy.

4.3. Moderating effect of the seller response

Research suggests that consumers should be able to share their negative experiences directly, and businesses should respond and solve their complaints quickly (Ismagilova et al., 2019). Despite such complaints handling mechanisms, negative online reviews on platforms are pervasive and have well-documented negative influences on consumer responses and business performance (van Noort and Willemsen, 2012; Tang et al., 2014). The public nature of online reviews leaves businesses with few options to deal with negative reviews (van Noort and Willemsen, 2012). This is where the feature of seller responses becomes

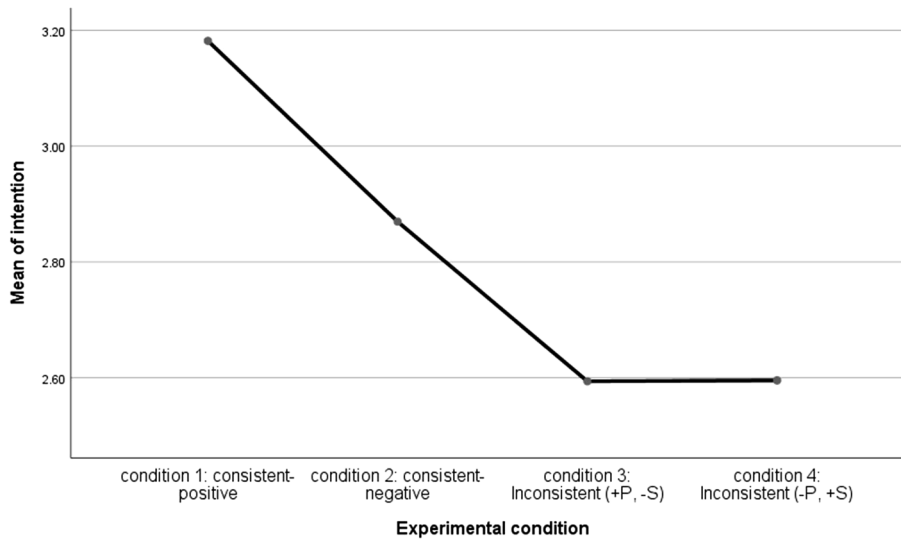


Fig. 3. The differential effect of combinations of primary–supplementary reviews on the intention to buy.

pertinent as it enables businesses to respond to the reviews providing them the ability to offer their perspective. Due to the predictor of performance (Xie, Zhang and Zhang, 2014), this feature is widespread in hospitality reputation systems and is gaining traction in e-commerce’s reputation platforms.

The evidence from hospitality shows the efficacy of the managerial responses in mitigating the determinantal effects of negative reviews. Specifically, when managerial responses are provided to the negative reviews on online travel Websites, the subsequent reviews are likely to be positive, provided the responses are observable at the time of reviewing (Wang and Chaudhry, 2018). Apart from hospitality, most e-commerce platforms also offer online shoppers a two-sided perspective by enabling (1) posting online reviews (i.e., consumer perspective), and (2) the sellers’ responses to the reviews (i.e., seller perspective). This way, sellers on these platforms can manage online reviews, especially negative ones, by responding to the posted reviews. Evidence shows that consumers favorably evaluate those brands that reply to negative online reviews compared to those, which remain silent (van Noort and Willemssen, 2012). Similarly, a recent study investigating the effect of seller

response to negative online reviews has suggested that seller response mitigates negative reviews’ adverse effects resulting in product purchase intentions (Brunner, Ullrich and De Oliveira, 2019). Thus, sellers can use seller responses as a low-cost intervention to positively influence consumers’ decision making.

The arguments presented for the development of H2a and H2b contend that inconsistent reviews, due to information incongruity, have a detrimental effect on the intention to buy through ambivalence. So, it is pertinent to identify the managerial mechanisms to mitigate the ensued ambivalence. The present research postulates in H4 that reviews truthfulness can assuage ambivalence. However, inculcating the perception of reviews truthfulness, though highly desirable, is a strategic decision in that it requires concerted efforts by both the platforms and the sellers. Thus, other managerial mechanisms, such as seller responses, become essential in assuaging the detrimental effects of inconsistent reviews.

Applying HSM, the present research contends that seller responses can act as heuristics to help readers in their systematic processing elicited by inconsistent reviews. As mentioned earlier, the responses

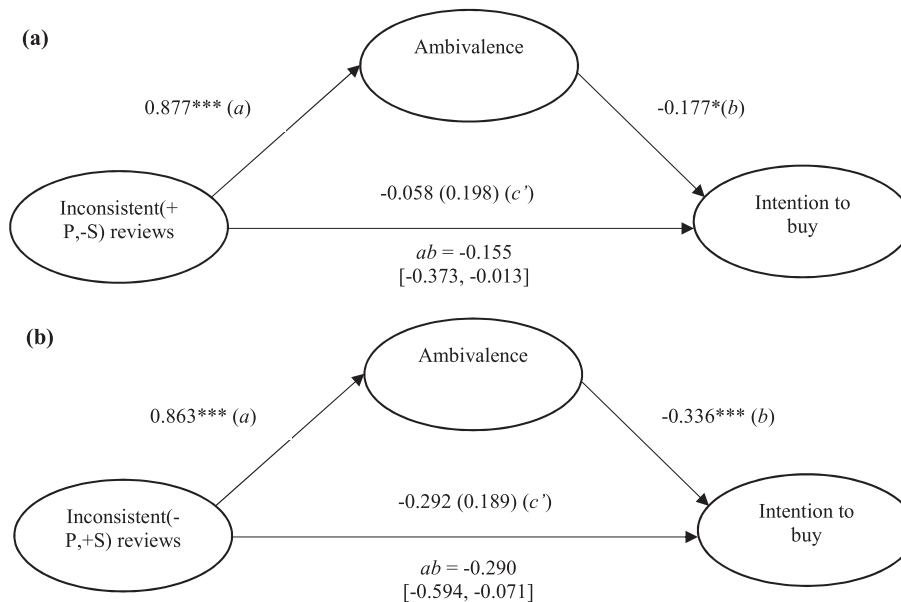


Fig. 4. Mediation analysis—ambivalence as mediator (Study 1). *** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$.

provide a seller perspective alternative to that of consumer perspective reflected in online reviews. In line with the theoretical extension “bias effect” of HSM (Eagly and Chaiken, 1993; Chaiken and Ledgerwood, 2012), the present research suggests that the ensued heuristic processing due to seller response can bias systematic processing by influencing the inferences about the validity of the arguments in both the inconsistent reviews and seller responses. Furthermore, evidence shows that the bias effect is more pronounced when arguments presented are relatively ambiguous and can have multiple interpretations (Chen and Chaiken, 1999). In case of inconsistent reviews, consumers can have diverse interpretations due to the differing valence of primary and supplementary reviews. Thus, seller response by acting as heuristic can reduce ambivalence caused by inconsistent reviews. More formally,

H7. Inconsistent reviews having seller response decrease the ambivalence relative to those inconsistent reviews where no such response is provided.

At the same time, heuristic processing facilitated by the seller response can bias the systematic processing, and the consumers might also form higher intention to buy directly irrespective of the ability of seller response to mitigate the ambivalence as posited in H7. Again, employing HSM’s bias effect, this research suggests that seller responses acting as heuristics can bias the systematic processing elicited by inconsistent reviews. As a result, inconsistent reviews with seller responses can be more instrumental in increasing the intention to buy than those without seller responses. Thus, this research proposes the following hypothesis,

H8. Inconsistent reviews having seller response increase the intention to buy relative to those where no such response is provided.

5. Method

5.1. Sample

Three experimental studies, having between-subjects factorial design, were conducted. The population of the study consisted of online shoppers in China. As students constitute a significant portion of this population, 428 undergraduate students (see Table 2 for sample characteristics) were recruited for these experiments at a major university in China. They were compensated for their participation.

5.2. Procedure

Following the advice by Hauser, Ellsworth and Gonzalez (2018), the pilot study, acting as a pretest and manipulation check, tested consistency and inconsistency of reviews on the intention to buy. Study 1, then, tested the ambivalence-confidence framework of inconsistent and consistent reviews and the moderating effect of online reviews’ truthfulness. The follow-up study 2 explored the moderating effect of seller response in reducing the ambivalence and increasing the intention to buy in case of inconsistent reviews. For all studies, the smartphone was chosen as the focal product as most consumers own one, have already purchased one, or have high intention to buy one in a survey of Mintel Group (Mintel, 2018). What is more, existing research has used the smartphone while investigating online reviews (Qi et al., 2016; Wilson, Giebelhausen and Brady, 2017).

Across all studies, participants received a standard stimulus regardless of their experimental condition, i.e., a Webpage showing brand-disguised pictures, product details, and technical specifications of an Android-based smartphone (see Appendix). After reading the information in the stimulus, participants read relevant online reviews depending on the condition they were randomly put in (see Fig. 1). In study 2, an additional stimulus was provided in the form of seller responses to the reviews. After reading the common stimulus, online reviews (primary and supplementary reviews), and seller response to the reviews, participants provided their responses to their confidence, ambivalence, and intention to buy (see Table 3).

5.3. Controlling for the potential confounding effects

The common stimulus, depicting seller generated content, was provided in all studies to untangle the pristine effect of online reviews since product presentation can influence the consumer responses (Wang et al., 2016b). The smartphone’s brand name was intentionally hidden to control its effects as brand equity can influence purchase decisions regardless of the reviews (Ho-Dac, Carson and Moore, 2013). While research in hospitality shows the high temporal distance, i.e., authoring a review after lengthy delay followed by restaurant experience, to affect review characteristics (Huang et al., 2016), anecdotal evidence regarding primary/supplementary reviews also suggests that consumers expect those supplementary reviews to be more persuasive, which are appended after sufficient time has elapsed since the product purchase

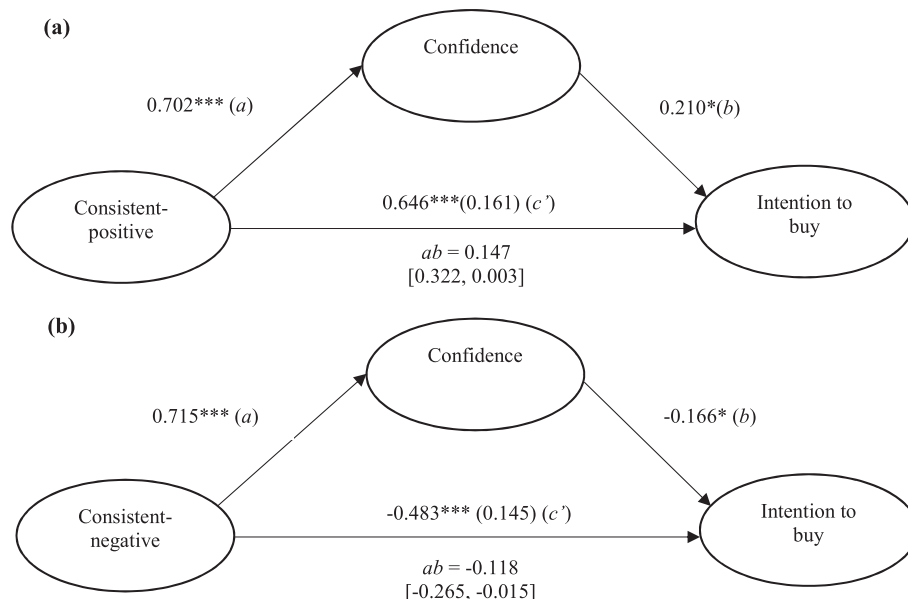


Fig. 5. Mediation analysis—confidence as mediator (Study 1). *** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$.

(Shen et al., 2015). Thus, to control its potential effect, the present research showed participants the temporal distance between the transaction completion and writing of supplementary reviews to be a fixed period of 78 days across all the conditions. Product *price* can also influence consumer decision making. It was controlled by making it part of the common stimulus. Finally, since *platform reputation* can influence consumer responses, participants were explicitly told that the smartphone had been launched on a leading online shopping Website in China without naming the platform to control for the potential platform effects. Table 2 summarizes demographic statistics for all the three studies conducted.

5.4. Pilot study: Testing the interplay of primary–supplementary reviews

5.4.1. Procedure

Participants of this study were randomly assigned to a 2 (primary review: positive vs. negative) \times 2 (supplementary review: positive vs. negative) between-subjects design. None of the participants identified the disguised brand of the smartphone except one. This participant was excluded from further analysis. The experiment started with participants reading the common stimulus, i.e., seller generated content followed by online reviews (see Appendix). Finally, their responses on the intention to buy the smartphone were captured (see Table 3).

5.4.2. Results

A one-way analysis of variance (ANOVA) on intention to buy revealed a significant effect of four combinations of primary-supplementary reviews ($F(3, 86) = 3.63, p = 0.02, \text{ and } r = 0.32$). This evidence supported H_1 that proposed that intention to buy differs across four experimental conditions. Gabriel was employed to perform multiple posthoc analysis comparisons as our sample sizes across the conditions are slightly different (Toothaker, 2012). It revealed that both groups of inconsistent reviews, i.e., inconsistent(+P, -S) and inconsistent(-P, +S), differed significantly at $p = 0.030$ and $p = 0.040$ respectively relative to consistent-positive reviews group, ($M_{\text{inconsistent}(+P, -S)} = 2.594 (0.667)$, $M_{\text{inconsistent}(-P, +S)} = 2.595 (0.850)$, $M_{\text{consistent}+} = 3.182 (0.646)$, and $M_{\text{consistent}-} = 2.870 (0.593)$). Additionally, the consistent-negative group was not significantly different from either of the groups. Fig. 3 shows the mean score of intention to buy across the four experimental conditions.

5.4.3. Discussion

Overall, the multiple comparisons indicate that intention to buy is relatively higher in consistent reviews than inconsistent reviews. This shows that consistent reviews are relatively more effective in forming the intention to buy than inconsistent ones suggesting consistent and inconsistent reviews affect the intention to buy potentially through different mechanisms. The counterintuitive finding of the relatively higher mean score of intention to buy in a consistent-negative condition than inconsistent reviews can be attributed to the detrimental effect of

inconsistent information on persuasion. Another potential reason for this could be the nature of the product used, i.e., a smartphone. Since smartphone purchase is a search good, consumers might have discounted the negative review information in consistent-negative reviews as seller-generated information might have provided a detailed account of the smartphone's specification and features in the common stimulus.

Moreover, the results reveal an adverse effect of inconsistent reviews compared to the consistent ones. This is consistent with a pattern of a heightened ambivalent attitude towards the focal product after reading inconsistent reviews (Conner and Sparks, 2002). Potentially, the ensued ambivalence causes a dissonance in the mind of the potential consumers, and the purchase intention deteriorates as a result. In the next section, study 1 tests the proposed ambivalence-confidence framework to determine the underlying mechanisms between inconsistent and consistent reviews and intention to buy.

5.5. Study 1: Ambivalence-confidence framework of inconsistent and consistent reviews

5.5.1. Procedure

Like the pilot study, participants were randomly assigned to a 2 (primary review: positive vs. negative) \times 2 (supplementary review: positive vs. negative) between-subjects design. After the participants read the information given in the common stimulus and online reviews showing consistent and inconsistent reviews, their responses on confidence, ambivalence, and intention to buy the smartphone were captured (see Table 3). Apart from measuring the mentioned constructs, participants' perception of the truthfulness of online reviews, in general, was also captured. Specifically, this study tapped the overall perception of all the online reviews posted on online shopping Websites regarding these reviews *not* being generally true. As shown in Table 3, the perception of online review manipulation was measured on the truthfulness subscale of the reviews skepticism scale (Zhang, Ko and Carpenter, 2016). To clarify, a higher score on the truthfulness subscale means online reviews to be less true and vice versa. As such, a higher score on the truthfulness subscale means high online review manipulation while the lower score means low manipulation (but high online reviews truthfulness). It is important to note that the present study measured the truthfulness of all the online reviews. To ensure this, the authors clearly instructed participants to assess online reviews typically posted on the online shopping Websites and *not* the focal online reviews shown to them in the study. Later, online reviews manipulation was dummy coded as "1" = high ($>$ mean score) and "0" = low (\leq mean score). In short, it was a non-manipulated moderating variable.

To test the mediating hypotheses proposed in the last section, this study employed multiple regression. Specifically, bias-corrected bootstrap confidence interval mediation analysis (Hayes, 2013) was used to test for the mediation by running mediation models.

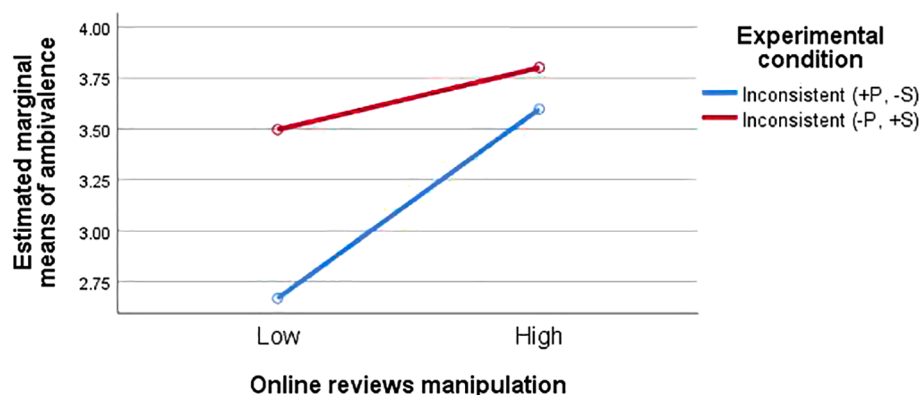


Fig. 6. The effect of online reviews truthfulness to mitigate ambivalence across inconsistent reviews.

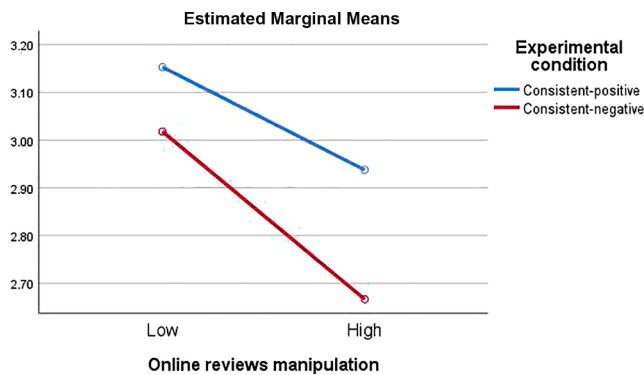


Fig. 7. The effect of online reviews truthfulness on the intention to buy across consistent reviews.

5.5.2. Results for the effect of inconsistent reviews

In Study 1, we conducted separate mediation analyses for the inconsistent(+P,-S) and inconsistent(-P,+S) reviews conditions to test the mediating effect of ambivalence using consistent-positive reviews condition as the base condition partialling out the effects of demographics (gender, age, and monthly family income). In both conditions, ambivalence mediated the effect of inconsistent reviews on the intention to buy. Specifically, a 95% bootstrap CI for the indirect effect (PROCESS Model 4, Hayes, 2013) using 10,000 bootstrap samples did not include zero (95% CI: [-0.373, -0.013]), confirming that ambivalence mediated the effect of inconsistent(+P,-S) reviews on intention to buy (Fig. 4a), supporting H2a. Likewise, for inconsistent(-P,+S) reviews, a 95% bootstrap CI for the indirect effect did not include zero (95% CI: [-0.594, -0.071]). This confirms that ambivalence mediated the effect of inconsistent(-P,+S) reviews on intention to buy (Fig. 4b), supporting H2b.

5.5.3. Discussion for the effect of inconsistent reviews

The results show that the inconsistent reviews affect intention to buy through engendering ambivalence due to inconsistency of primary and supplementary reviews. As such, inconsistent reviews deteriorate persuasion due to systematic processing absent any positive extrinsic cues. This finding has significant theoretical and practical implications. Identification of the underlying mechanism of ambivalence adds to the literature on persuasion, ambivalence, and online reviews. This is important since inconsistent reviews do not directly influence the intention to buy, but they do so through an indirect effect on ambivalence. As already mentioned, the supplementary review phenomenon's academic treatment is scarce (see Table 1). Particularly, marketers know little about how supplementary reviews, especially in interaction with primary reviews, influence consumer decision making. Practically, by unearthing ambivalence as a mediator between inconsistent reviews and consumer decision making, the authors hope that marketers can be in a better position to manage and mitigate this ambivalence. To this end, this study also found that the perception of online reviews truthfulness mitigates the ambivalence caused by inconsistent reviews (see Section 5.5.6).

5.5.4. Results for the effect of consistent reviews

This study also conducted a mediation analysis for the effect of consistent reviews on the intention to buy partialling out the effects of demographics (gender, age, and monthly family income). In both conditions, confidence mediated the effect of consistent reviews on the intention to buy compared to inconsistent reviews. For consistent-positive reviews condition, a 95% CI for the indirect effect (PROCESS Model 4, Hayes, 2013) using 10,000 bootstrap samples did not include zero (95% CI: [0.322, 0.003]), confirming that confidence mediated the effect of consistent-positive reviews on intention to buy (Fig. 5a), supporting H3a. Similarly, the same procedure revealed that confidence mediated the effect of consistent-negative reviews on the intention to buy (95% CI:

[-0.265, -0.015]), supporting H3b (Fig. 5b). Unlike the effect of inconsistent reviews on the intention to buy only through ambivalence, consistent reviews were also able to directly influence the intention to buy apart from their effect through confidence (Fig. 4 and Fig. 5).

5.5.5. Discussion for the effect of consistent reviews

Apart from identifying the mediating effect of confidence, this study also established the direct effect of consistent-positive and consistent-negative reviews on the intention to buy independent of their effects on confidence. Thus, future research should investigate the relationship between consistent reviews and consumer responses further. Moreover, it should also identify: (1) the boundary conditions governing this relationship; and (2) other potential underlying mechanisms between consistent reviews and consumer responses, e.g., the intention to buy and actual behavior. In this regard, a potential boundary condition can be seller generated content in that well-designed content can strengthen the positive effect of consistent-positive reviews. At the same time, it can even mitigate the detrimental effect of consistent-negative reviews on decision making.

In a similar vein, a potential mediator between consistent reviews and intention to buy can be reviews credibility as existing research on traditional consistent reviews has found its mediating effect between traditional reviews' consistency, i.e., reflected in similar opinion from multiple reviewers, and reviews adoption (Cheung, Sia and Kuan, 2012). Still, another mediator can be review skepticism. For example, both conditions of consistent reviews, i.e., consistent-positive and consistent-negative reviews, can decrease the focal reviews' skepticism due to their consistency. However, how the ensued reduction in skepticism influences intention to buy in both these cases can be a potentially fruitful future research direction. Prior literature is indicative of the other potential mediators between consistent reviews and purchase intention. These include attitude (Chen et al., 2016), social influence (Zhao, Stylianou and Zheng, 2018), and trust (Mavlanova, Benbunan-Fich and Lang, 2016).

5.5.6. Results for the effect of reviews truthfulness to reduce ambivalence

A two-way 2 (inconsistent reviews: inconsistent(+P,-S) vs. inconsistent(-P,+S)) \times 2 (review manipulation: low vs. high) analysis of covariance (ANCOVA) controlling for confidence, intention, and demographics (gender, age, and monthly family income) on ambivalence indicated a main effect of inconsistent reviews conditions ($F(1, 100) = 10.627, p = 0.002, \eta^2 = 0.105$) such that inconsistent(-P,+S) reviews condition showed more ambivalence ($M = 3.653$) than the inconsistent(+P,-S) condition ($M = 3.153$). It also showed a main effect of online review manipulation ($F(1, 100) = 10.627, p = 0.002, \eta^2 = 0.105$) such that when the online review manipulation is low (i.e., high reviews truthfulness), the resultant ambivalence is low across inconsistent reviews ($M_{\text{inconsistent}} = 3.153$) relative to when it is high ($M_{\text{inconsistent}} = 3.653$). Particularly, the similar pattern emerges in each condition of inconsistent reviews in that when participants consider online review manipulation to be low, ambivalence reduces compared to when manipulation is high (low manipulation: $M_{\text{inconsistent}(+P,-S)} = 2.696, M_{\text{inconsistent}(-P,+S)} = 3.543$; high manipulation: $M_{\text{inconsistent}(+P,-S)} = 3.543, M_{\text{inconsistent}(-P,+S)} = 3.783$). However, the interaction effect of inconsistent reviews conditions and online review manipulation was not substantiated, $F(1, 100) = 3.647, p = 0.059, \eta^2 = 0.039$. These results, overall, support H4, which hypothesizes the contingent effect of online review manipulation such that when this manipulation is perceived low, ambivalence mitigates.

5.5.7. Discussion for the effect of reviews truthfulness to reduce ambivalence

As hypothesized, the positive primary or supplementary reviews in inconsistent reviews conditions and the truthfulness of online reviews all being positive cues aggregate to elicit heuristic processing that bias the systematic processing caused by inconsistent reviews resulting in a

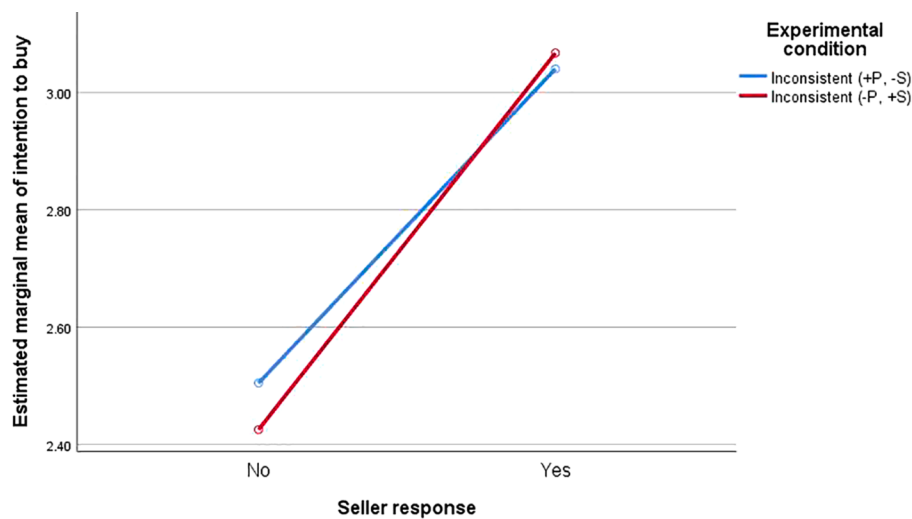


Fig. 8. Moderating effect of seller response on the intention to buy.

reduction in ambivalence. This is in line with the bias effect, a theoretical extension of HSM (Chaiken, Liberman and Eagly, 1989; Chaiken and Ledgerwood, 2012). Fig. 6 shows that ambivalence reduces to a more considerable extent in the case of inconsistent(+P, -S) reviews than the inconsistent(-P, +S) ones when online reviews are considered generally true.

This finding can have multiple justifications. First, this pattern can be attributed to more considerable skepticism and, thus, the smaller decrease in ambivalence in case of inconsistent(-P, +S) reviews as participants might have thought that the subsequent supplementary review is positive due to the probable reason of sellers' efforts of online reviews manipulation. However, this assertion of the interactive effect of skepticism and ambivalence in case of inconsistent(-P, +S) reviews should be investigated by future research due to supplementary reviews being less susceptible to online reviews manipulation.

Second, the more significant reduction of ambivalence in case of inconsistent(+P, -S) reviews compared to inconsistent(-P, +S) ones, can be attributed to the primacy effect (Haugtvedt and Wegener, 1994). This reasoning is probable because recent research investigating the influence of the sequential effect of the equivalent primary and supplementary reviews on the purchase intention found the incidence of primacy effect, i.e., the positive effect of inconsistent(+P, -S) reviews on purchase intention, when consumer's level of product involvement is high (Chen et al., 2019). Thus, the greater reduction of ambivalence in inconsistent(+P, -S) reviews can be attributed to the purchase of a smartphone as a high involvement endeavor in the present research. Nonetheless, future research is needed to corroborate this reasoning.

5.5.8. Results for the effect of reviews truthfulness to strengthen confidence

To test H5 (online reviews truthfulness to increase the confidence in case of consistent reviews), the same procedure was employed, which tested H4. The only difference was that the reviews shown this time to the participants were consistent reviews rather than inconsistent ones. A two-way 2 (consistent reviews: consistent-positive vs. consistent-negative) \times 2 (review manipulation: low vs. high) analysis of covariance (ANCOVA) on confidence controlling for ambivalence, intention, and demographics (gender, age, and monthly family income) revealed none of the main effects or interaction effect to be significant ($ps > 0.15$). Therefore, there is not enough evidence to support H5.

5.5.9. Discussion for the effect of reviews truthfulness to strengthen confidence

This finding suggests that an additional heuristic, i.e., the truthfulness of online reviews, might not be needed if existing cues are sufficient

to bridge the confidence gap between actual and desired confidence to form judgmental confidence (Chaiken and Ledgerwood, 2012). This finding is in line with recent evidence, which indicates that perceived review consistency does not contribute to the informational influence of the reviews. Furthermore, the same evidence argues that consistent reviews aggregate to form a simple cue. As a result, consumers are less likely to obtain additional information other than that provided by the consistent cues (Zhao, Stylianou and Zheng, 2018).

Collectively, the evidence supporting H4 and not supporting H5 dictates that online reviews' truthfulness mitigates the ambivalence caused by inconsistent reviews, but it does not further strengthen the confidence in the purchase decision made in case of consistent reviews. The statistically insignificant effect of reviews truthfulness in strengthening the confidence can be attributed to the observation that with a high perception of reviews generally being true, consumers might expect mixed reviews, whereas the participants were shown consistent reviews. This exposure might have caused confidence not to get strengthened enough to be statistically significant. The evidence does not support the moderating effect of reviews truthfulness to increase the judgmental confidence, but what about its influence to increase the intention to buy directly, as proposed in H6? The following section shows results for the contingent effect of reviews truthfulness to increase intention to buy.

5.5.10. Results for the effect of reviews truthfulness to increase intention to buy

To test H6, a 2 (consistent reviews: consistent-positive vs. consistent-negative) \times 2 (perceived review manipulation: low vs. high) analysis of covariance (ANCOVA) on the intention to buy controlling for ambivalence, confidence, and demographics (gender, age, and monthly family income) indicated the main effect of perceived truthfulness of online reviews ($F(1, 104) = 4.706, p = 0.032$) such that when online reviews manipulation is perceived as low, intention to buy increases ($M_{\text{high-online-review-manipulation}} = 2.775, M_{\text{low-online-review-manipulation}} = 3.094$). However, the interaction effect of both conditions of consistent reviews and online review manipulation was not substantiated, $p = 0.604$. The increase in intention to buy in case of low perceived reviews manipulation supports H6 (see Fig. 7).

5.5.11. Discussion for the effect of reviews truthfulness to strengthen confidence and intention to buy

Support for H6 strengthens this study's argument that if consumers believe online reviews to be generally true, they are more likely to form higher intention to buy due to their positive disposition towards the reputation systems. However, future research should further investigate

the statistically non-significant results for reviews truthfulness to increase the confidence (H5) but its significant effect on increasing the intention to buy (H6) to investigate the rationale for these results. In this regard, prior literature can shed some light. For instance, a recent meta-analysis on electronic word of mouth finds that negative electronic word of mouth does not always jeopardize sales, but high variability does. That is, when the opinion of posters of electronic word of mouth diverges, sales decline (Babić Rosario et al., 2016). In the present research, the authors showed the participants in consistent reviews conditions, either consistent-positive or consistent-negative reviews, as cues wherein variability is low, thus positively influencing the decision making. This positive influence further strengthens when online reviews posted on online shopping platforms are generally considered true. Future empirical investigations should identify the boundary conditions influencing the relationship between consistent reviews and decision-making to corroborate this reasoning. For instance, it should investigate the moderating effect of other extrinsic cues such as product information and brand reputation (Kim, 2020); consumer/product involvement (Park, Lee and Han, 2007; Zhang and Watts, 2016); information source, i.e., peer vs. expert review vs. expert peer review, (Keh and Sun, 2018); product type, e.g., search vs. experience (Mudambi and Schuff, 2010), and information quality on this relationship.

5.6. Study 2: Reducing ambivalence (or increasing intention to buy) through the seller responses

5.6.1. Procedure

Like study 1, participants of this study were randomly assigned to a 2 (inconsistent reviews: inconsistent(+P, -S) vs. inconsistent(-P, +S)) × 2 (seller response: presence vs. absence) between-subjects design. It is different from study 1 because the seller responses to supplementary reviews were provided for the experimental groups.

5.6.2. Results

A 2 (inconsistent reviews: inconsistent(+P, -S) vs. inconsistent(-P, +S)) × 2 (seller response: presence vs. absence) analysis of covariance (ANCOVA) on ambivalence controlling for intention to buy and demographics (gender, age, and monthly family income) revealed none of the main effects and the interaction effect to be significant, $p = 0.290$ (seller response), $p = 0.056$ (condition: inconsistent reviews), and $p = 0.147$ (interaction of condition and seller response). This evidence does not support H7.

However, a 2 (inconsistent reviews: inconsistent(+P, -S) vs. inconsistent(-P, +S)) × 2 (seller response: presence vs. absence) analysis of covariance (ANCOVA) on intention to buy controlling for ambivalence and demographics (gender, age, and monthly family income) revealed the main effect of seller response ($F(1, 134) = 14.398, p < 0.001$) such that when seller response is present, intention to buy increases ($M_{\text{seller-response-present}} = 2.898, M_{\text{seller-response-absent}} = 2.607$) as shown in Fig. 8. The interaction effect of both conditions of inconsistent reviews and seller response was not substantiated, $p = 0.677$. This evidence supports H8, which hypothesized that seller response increases the intention to buy in case of inconsistent reviews.

5.6.3. Discussion

The results show that seller responses to online reviews do not mitigate ambivalence, but they do increase intention to buy. This is in contrast to the truthfulness of online reviews' ability to reduce ambivalence and in agreement with its ability to increase intention to buy (study 1). This means that despite their inability to mitigate ensued ambivalence caused by inconsistent reviews, they somehow persuade consumers to buy from the focal seller. This suggests the presence of other potential mediating mechanisms between inconsistent reviews and intention to buy. Overall, the results show the efficacy of seller responses to influence consumer decision making. However, how they influence needs further research.

6. General discussion

6.1. Summary of findings

Using lab experiments, the present research addresses RQ1, RQ2, and RQ3 in the context of online shopping platforms, which provide the feature of posting primary and, subsequently, the supplementary review. Through three experiments, this research identifies the underlying mechanisms between consistent and inconsistent reviews and consumer decision-making. Further, the present research suggests that seller responses to online reviews and reviews truthfulness can mitigate inconsistent reviews' detrimental effects. Using 428 participants in one pilot study and two experimental studies, this research investigates the influence of four configurations of consistent and inconsistent reviews on consumer decision making. Specifically, the present research identifies that consistent reviews impact decision making through judgmental confidence, while inconsistent reviews affect it through ambivalence. Afterward, it analyzes the moderating effect of reviews truthfulness and seller response to the reviews to manage the detrimental effect of inconsistent reviews. As such, online reviews truthfulness increases the intention to buy in both cases of consistent reviews, i.e., consistent-positive and consistent-negative reviews. It also mitigates the ambivalence caused by inconsistent reviews. While seller response does not mitigate ambivalence, it does reduce the adverse effect of inconsistent reviews by increasing the intention to buy.

6.2. Theoretical and practical implications

The present research builds on and extends the literature on information processing in the substantive domain of online reputation systems. This way, it provides multiple theoretical contributions. First, this research extends the concept of traditional consistent reviews (Cheung, Sia and Kuan, 2012; Zhao, Stylianou and Zheng, 2018) and inconsistent ones (Zhang et al., 2014b; Huang and Korfiatis, 2015; Vali et al., 2015) to the circumstances where online shoppers face different sets of primary-supplementary reviews. In contrast to the traditional information convergence sense wherein reviews posted by multiple reviewers either converge (consistent reviews) or diverge (inconsistent reviews) (Babić Rosario et al., 2016; Keh and Sun, 2018), each set of primary-supplementary reviews is posted by the same reviewer in the context of this research. Second, departing from existing research that portrays review valence as a systematic factor (Ismagilova et al., 2019), the present research provides evidence that valence consistency is a heuristic while valence inconsistency is a systematic factor in that the former elicits heuristic processing while the latter prompts systematic processing. This way, it shows that HSM can be used as a theoretical lens in investigating the interplay of primary and supplementary reviews.

Third, this research identifies the respective underlying psychological mechanisms of ambivalence and confidence between inconsistent and consistent reviews and consumer decision-making. These mechanisms reflect what undergoes in the mind of consumers when faced with inconsistent and consistent reviews. HSM provides the theoretical rationale for these mechanisms. Specifically, when cues are consistent, i.e., primary and supplementary reviews are congruent, online shoppers put less effort to process the given information by processing reviews heuristically. As a result, the given information's consistency makes them more confident in their purchase decisions, which implies that consumers exposed to consistent reviews form higher intention to buy relative to inconsistent reviews. Even in the case of consistent-negative reviews, the intention to buy is better than inconsistent reviews, which implies that inconsistent reviews are more detrimental than consistent-negative reviews as the former confuse the customers by providing them with a conflicting opinion expressed by the same reviewer. The present research revealed this confusion in the form of ambivalence, and due to this ambivalent attitude, intention to buy significantly decreases.

Fourth, to resolve the ensued ambivalence due to inconsistent

reviews, customers undertake systematic processing and make extensive effort to decide. As a result, online shoppers form less intention to buy due to the high cognitive resources required to process the conflicting information owing to the attitudinal ambivalence. While this research did not test the effect of inconsistent reviews on shopping cart abandonment, the inability to process the inconsistent reviews can result in abandoning the shopping trip, especially if there are insufficient intrinsic (e.g., product attributes) and extrinsic cues (e.g., seller reputation). On top of this, purchases made after processing the conflicting information are more prone to cognitive dissonance. As this dissonance can cost the seller a lot in warranty claims, reshipment, and dissatisfaction (Vali et al., 2015), sellers should institutionalize pertinent managerial mechanisms to reduce the ambivalence.

To guide sellers, the present research suggests that sellers can reduce these additional costs by managing inconsistent and consistent reviews. To do this, platforms and sellers should play their role. Accordingly, this research suggests that platforms should: (1) design bias-free reputation systems also suggested by existing research (Malbon, 2013; Tadelis, 2016; Chen et al., 2017); and (2) provide the feature of sellers or managerial responses to the reviewers posted by posters. In other words, sellers should: (1) not manipulate online reviews to increase the global perception of reviews truthfulness as manipulation does more harm than benefits; and (2) respond to online reviews to provide the seller's perspective on the reviews. This research advances the above suggestions as it finds that online reviews' truthfulness mitigates the ambivalence caused by inconsistent reviews. Moreover, the provision of the managerial mechanism of seller response could overcome the detrimental effect of inconsistent reviews by significantly increasing the intention to buy. Potentially, the seller response feature not only provides the seller's perspective on the posted reviews but also shows the seller's concern and service promise for the consumers (Chevalier, Dover and Mayzlin, 2018). This is a crucial finding as sellers can use it as a *low-cost strategy* to manage inconsistent reviews. It agrees with recent research on the effectiveness of seller response to manage negative reviews' detrimental effects (Wang and Chaudhry, 2018; Brunner, Ulrich and De Oliveira, 2019). However, what else sellers can do to mitigate the ambivalence needs further investigations? For instance, providing pertinent seller generated content can help in reducing this ambivalence.

Lastly, consumers' perception of the truthfulness of online reviews, in general, mitigates ambivalence caused by inconsistent reviews and increases the intention to buy in both cases of consistent reviews, i.e., consistent-positive as well as consistent-negative reviews. Through this finding, this research suggests that the detrimental effect of inconsistent reviews can be less pronounced provided platforms design unbiased reputation systems, and sellers do not try to manipulate the online reviews resulting in improvement in the general truthfulness of online reviews. This way, sellers can manage the conflicting information reflected in inconsistent reviews. Furthermore, this improvement can not only mitigate the ambivalence, but it can also assuage the other negative psychological mechanisms, such as discomfort, caused by inconsistent reviews. Despite the import of online reviews, the literature points out that consumers also consider online reviews with suspicion (Zhang, Ko and Carpenter, 2016; Kupor and Tormala, 2018). Thus, the finding on the effectiveness of online reviews' truthfulness in mitigating ambivalence caused by inconsistent reviews and increasing intention to buy in case of consistent reviews becomes especially relevant for the design of reputation systems that encourage honest and candid feedback. Existing evidence also points to the efficacy of an unbiased feedback mechanism that encourages truthfulness of online reviews by showing that truthfulness increases seller reputation (Chen et al., 2017), which helps consumers buy from the reputable seller (Pavlou and Dimoka, 2006).

In sum, by identifying the moderating effect of seller responses and reviews truthfulness, the present research indicates how sellers can persuade consumers to buy from them. Specifically, by not manipulating online reviews, sellers can increase their reputation and contribute to

forming consumers' perception of reviews truthfulness. In so doing, they can mitigate ambivalence caused by inconsistent reviews and increase intention to buy in both conditions of consistent reviews. In addition, by responding to online reviews posted by past consumers, sellers can persuade consumers to buy from them even when primary and supplementary reviews are inconsistent.

6.3. Limitations and future research

Almost all online shopping platforms in China have already adopted supplementary reviews as part of their reputation systems to solve multiple problems. Platforms in other countries can also adopt this practice. To this end, future research can explore the contingent effect of culture and other contextual factors. Due to the limited research on supplementary reviews, especially their interplay with primary reviews, future research should further explore the interplay. This exploration is vital as (1) motivations to write supplementary reviews are different from the primary ones, (2) consumers perceive the two types differently, (3) and the research done so far on primary reviews is not directly applicable to the supplementary ones. To guide future research, the present research points to the potential moderators and mediators while discussing its studies' results.

While the focus of present research is on the effect of inconsistent and consistent reviews on other consumers' responses, future research should also focus on the consequences of writing a supplementary review on the reviewer's own buying behavior as existing evidence points to the emotional review's effect on the reviewer's impulsivity (Chevalier, Dover and Mayzlin, 2018; Motyka et al., 2018). Thus, a potential useful future research area is to explore the influence of posting a supplementary review on the reviewer's subsequent impulse buying behavior.

Apart from its contributions, this research has limitations. A limitation is that it uses only one primary and supplementary review across the four conditions (see Fig. 1) to understand the influence of inconsistent and consistent reviews. Even though existing research has shown the effectiveness of a single consumer review in forming positive product-related attitudes (Ziegele and Weber, 2015), consumers may process multiple combinations of primary and supplementary reviews. Thus, future experimental research should focus on more than one combination. Another limitation is that this research did not include a neutral condition for the primary and supplementary reviews due to its delineated scope. Future research should expand the proposed framework to include the neutral reviews resulting in nine rather than four conditions (Fig. 1). This can make the experimental design relatively complicated. Nonetheless, it can provide further insights into the interplay of supplementary and primary reviews. In addition, seller response's inability to mitigate the ambivalence caused by inconsistent reviews, but instrumentality to positively influence the intention to buy suggests that there might be other underlying mechanisms such as reviews skepticism not identified in this research influencing the intention to buy. Thus, subsequent investigations should identify other mediators between inconsistent and consistent reviews and consumer responses.

The present research used experiments with students who make a sizable portion of the youth, which is the largest online shopping market segment. Thus, the findings of this research apply to online shoppers. Nonetheless, this research should be replicated with other samples to generalize its findings. Furthermore, this research tested the framework for only one product category, i.e., smartphones; future research should test it across multiple product categories to understand the predictive ability of the proposed framework across the product categories (Nelson, 1970; Zhu et al., 2010; Ismagilova et al., 2019). In addition, while existing research has found the relationship between personality and ambivalence (Thompson and Zanna, 1995), the moderating effect of personality traits on the relationship between inconsistent reviews and ambivalence or intention to buy should be further investigated. An equally crucial future research area can be to test this framework with a

multitude of reviews' contents—e.g., functional, emotional, service failure information, information on core functionalities, technical aspects, and aesthetics (Ahmad and Laroche, 2017; Ismagilova et al., 2019) of supplementary and primary reviews. Finally, while the present research controlled for the effect of seller generated content, brand name, the temporal distance between transaction completion and posting a supplementary review, and platform reputation, future research should investigate their direct and moderating role on the effects of consistent and inconsistent reviews.

6.4. Conclusion

This research's main contribution lies in understanding the interplay of primary and supplementary reviews in how different configurations of primary—supplementary reviews affect consumer decision-making through the underlying mechanisms of ambivalence and confidence. Another contribution is understanding the moderating effect of online reviews truthfulness and the seller response to online reviews. This way, the present research endeavors to solve the problem of ambivalence caused by inconsistent reviews by proposing that sellers should not manipulate the online reviews. In addition, the ensued online reviews truthfulness positively influences the intention to buy in both conditions of consistent reviews. Apart from this, this research depicts the efficacy of the seller response in strengthening the intention to buy in inconsistent reviews. Thus, sellers can employ seller response as a low-cost strategy to manage inconsistent reviews to persuade consumers to buy from them. In short, the results of this research, these authors hope, can pave the way for further investigations at the interplay of primary and supplementary reviews.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.elerap.2021.101032>.

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