

ANTECEDENTS OF PERCEIVED USEFULNESS OF NEGATIVE REVIEWS AND PURCHASE INTENTION BASED ON THE SEM AND FSQCA APPROACHES

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ABSTRACT

This research aims to investigate the factors influencing consumers' perceived usefulness of online reviews and their purchase intentions on hotel booking websites. Grounded on the heuristic-systematic model (HSM), a research model is proposed. An online questionnaire was administered to 334 inbound tourists who had booked hotels in Beijing between February and April 2022. The findings reveal that trust, perceived credibility and risk, and anticipatory emotions significantly influence the perceived usefulness of negative reviews. Interestingly, a negative relationship is observed between the perceived usefulness of negative reviews and purchase intention. Moreover, the study confirms the mediating effect of perceived usefulness of negative reviews. Further analysis using fuzzy-set qualitative comparative analysis (fsQCA) demonstrates that trust, perceived credibility, and anticipatory emotions play pivotal roles as antecedents that trigger the perceived usefulness of negative reviews. This research contributes to the existing literature by shedding light on the substantial impact of negative reviews on consumer behaviours, an area that has been relatively under-researched. The study offers valuable insights for hoteliers, emphasizing the importance of mitigating the potential spread of negative reviews and taking corrective actions to bolster their reputation and gain a competitive advantage.

Keywords: *online hotel booking; perceived usefulness; online reviews; negative reviews; purchase intention; HSM model; fsQCA*

INTRODUCTION

Online reviews serve as a valuable feedback mechanism that can help individuals reduce uncertainty during their purchasing process, lower information search and transaction costs, and make more informed purchasing decisions. Industry research by Song et al. (2023) has shown that over 90% of consumers refer to online reviews before making a purchase, and 88% considered them more trustworthy compared to reviews received from the sellers. Despite the great benefits of online reviews, Wahyuni et al. (2022) indicated that only less than 10% of users would share their shopping experience, while more than 70% of users would never share their online consumption experience. This contradictory relationship between the strong willingness of potential consumers to check online reviews before making a purchase and the willingness of actual consumers to post online reviews after making a purchase has led potential consumers to believe highly diagnostic negative reviews and hold that negative reviews are more useful and

persuasive than positive ones. Although previous studies have focused on the influence of perceived usefulness of reviews on individual behaviour based on product types and the valence of positive reviews (Liu, Feng, & Hu, 2022), little research has been conducted on the perceived usefulness of negative reviews. This study aimed to fill this gap by constructing a model of the usefulness of negative reviews and exploring its antecedent factors. The ultimate focus of this study was to examine the impact of the usefulness of negative reviews on purchase intention in the context of hotel reservations.

In recent years, social media has gained significant attention in the hospitality and tourism industry. This is largely due to the rise of Web 2.0, which has led to an abundance of user-generated content websites where customers can share their opinions, reviews, and recommendations online (Schuckert, Liu, & Law, 2015; Zheng et al., 2023). Online reviews, which can be found on social networks, online travel communities, and review sites have a significant impact on the hotel business in the tourism industry (Hu & Yang, 2021). As the number of platforms and online reviews continues to increase, tourism managers have come to realise that consumer-generated content is a valuable source of data. According to a study by the SAS Institute Inc. (as cited by McGuire, 2013), driving revenue in the hospitality industry is no longer just about competing on price. Consumers are increasingly turning to user-generated content to inform their purchase decisions. Therefore, online reviews have become a crucial resource for effective management of the tourism sector and for achieving competitive advantages for tourism businesses.

Despite the unpredictable risks of COVID-19 in various countries, consumer willingness to travel has continued to rise. According to global data from SiteMinder, hotel bookings in May 2022 had recovered to 90% of pre-pandemic levels (as cited by Biswas, 2023). An increasing number of consumers have opted for going online when booking their accommodation during their vacations. The intangible nature of the hotel industry makes it particularly sensitive to digital word-of-mouth, where consumers would seek out the experiences of previous customers to reduce the risks and confusion associated with purchasing (Yu, 2020; Zeng et al., 2020). Previous research has shown that online customer reviews (positive and negative) have a significant impact on the occupancy rate (Liu, Wei, & Gao, 2022), perceived reliability (Le et al., 2022), and overall performance of hotels (Nilashi et al., 2021). Thus, another aim of this research was to provide hotel managers with a comprehensive understanding of the effects of online negative reviews, as well as appropriate actions and responses that they can take. Specifically, this study sought to examine the key factors that can influence consumers' perceptions of online negative reviews and their subsequent impact on purchase intention. By identifying these factors, hotel managers can better understand how to leverage online customer reviews to improve their business performance and contribute to the continued success of the hotel industry in this digital age.

The heuristic-systematic information processing model (HSM) is extensively used to study network information behaviour (Lee & Chung, 2019). It provides a strong persuasive effect in explaining how consumers' information decision-making behaviour can be altered by online reviews (Bigne et al., 2021). The principle of least effort in heuristic clues and the principle of sufficiency in systematic clues can explain the differences among individuals in processing information. In addition, both principles coexist and interact in the actual information-processing environment. This is consistent with rational and perceptual thinking patterns that appear alternately when individuals read negative reviews, which lays a reliable foundation for explaining the complex causal relationship generated by the usefulness of negative reviews. As a result, the HSM was deemed the most relevant to address the objectives of this study.

Considering the HSM, the antecedents proposed in this study have been divided into two aspects. First, trust and financial rewards were considered the heuristic cues, as they are considered as the rules of thumb in making decisions (Chaiken & Ledgerwood, 2012). Consumers will often rely on intuitive thinking to make quick decisions. Trust can trigger the knowledge availability, accessibility, and applicability of heuristic clues (Jin Ma & Lee, 2014), and can directly influence

judgement of information. As highlighted by Tong et al. (2013), economic rewards are quantifiable as a qualitative factor that is related to instrumental benefits. Consumers can be motivated to post and share their travel-related information, if they receive an economic reward in exchange (Medirors et al., 2022). Understandably, tourists must produce travel-related content to provide reliable and useful information to other guests who intent to spend their vacations at the same hotels.

Second, this study is proposing that perceived credibility, perceived risk, and anticipatory emotions are cognitive strategies for systematic information processing. However, research in the field of online negative reviews have shown that not all reviews are perceived equally. Certain aspects of reviews would appear more credible to certain consumers. The credibility of a review refers to the believability that a consumer has in the review they are reading (Jha & Shah, 2021). Reviews that are perceived as credible are expected to have a positive impact on consumers and enhance the overall trust of online platforms, such as a company's website or Google reviews (Cheung et al., 2012). In the context of tourism and hospitality, perceived risk can significantly affect travel decisions (Yadav, Verma, & Chikhalkar, 2023). Perceived risk refers to the uncertainty consumers face when they are unable to anticipate the results of their buying decision. Similarly, Manes and Tchetchik (2018) opined that service industries, such as hotels, hospitality, and travel suffer from information asymmetry due to inadequate consumer evaluations. They added that the larger the information asymmetry, the greater the possibility of uncertainty reduction with the help of online reviews. Therefore, it is reasonable for this study to include perceived risk as one of the systematic cues that can affect the perceived usefulness of negative reviews. In addition, uncertainty regarding a prospective purchase is quite common, especially when purchase involvement is high and potential outcomes are not easily assessed (Gilovich & Gallo, 2020). Uncertain purchase situations will elicit anticipatory emotions that can influence consumer attitudes and behaviours (Ding, 2018). Since emotion can affect the efficacy of an individual in the stage of prospective consumption, this study predicted that anticipatory emotions are another systematic processing cues that could affect the perceived usefulness of negative reviews.

Subsequently, this study would be contributing to the existing body of literature, as discussed as follows. First, this study could extend the applicability of the HSM by exploring consumers' perceptions towards the usefulness of negative reviews of hotels. Second, this study has assessed the mediating effect of perceived usefulness of reviews on consumers' purchase intention. Third, the findings of this study offer valuable and holistic insights to the body of knowledge and practitioners (hotel service providers) by drawing the results from two different approaches, namely partial least squares structural equation modelling (PLS-SEM) and fuzzy-set qualitative comparative analysis (fsQCA).

The remainder of this paper is organised as follows. First, previous research studies on perceived usefulness of negative reviews and the background of the HSM are discussed. Then, the hypotheses development and methodology of this study are discussed. The next sections will discuss the results obtained from both PLS-SEM and fsQCA. Finally, the main findings, implications, and conclusion are discussed.

LITERATURE REVIEW

Prior research on perceived usefulness of online reviews

Perceived usefulness refers to “the degree to which an individual believes that using an information system will increase their work efficiency” (Davis, 1989). The “perceived usefulness of online reviews” refers to the phenomenon in which online reviews published by consumers who have purchased a product can help readers understand the product. This perception can have a

significant impact on consumers' decision to accept the review content (Mudambi & Schuff, 2010).

As online reviews become more pervasive, several researchers conducted seminal studies to understand two key questions: "why do consumers trust, and use information provided by others?" and "how do consumers parse the wealth of reviews to find the information they want and are willing to trust?" (Racherla & Friske, 2012). These studies can be categorised into two groups based on the type of data, namely archival data (i.e., consumer reviews, and sales and pricing data) collected from online shopping websites, such as Amazon.com and Ebay.com (Shi, Wang, & Yi, 2020; Raffaele, Elisabetta, & Claudio, 2018) and attitudinal data collected using surveys and experiments (Wang & Gao, 2018; Moloi, Quaye, & Saini, 2022).

For instance, Mudambi and Schuff (2010) explored consumers' perceptions of review helpfulness using data from Amazon.com. They examined the impacts of several variables that can influence the usefulness of reviews, such as the length of the textual portion in reviews and the numerical ratings of the products. Yang and Mai (2010) studied the impact of users' reviews on video games sales. They found that negative reviews usually have a greater effect on sales and the number of reviews associated with a product was typically used as a heuristic by consumers to assess the general quality of the product. Mamgold and Smith (2012) conducted an experiment with students as test subjects to understand consumers' preference for peer versus expert reviews of experiential products. The findings of their study showed that in general, consumers trust peer reviews more than expert reviews. By integrating two theories, namely the HSM and the elaboration likelihood model, Wei and Watts (2008) demonstrated that argument quality and perceived source credibility were two salient factors that can affect the adoption of online information. From the perspective of negative emotions, Shi et al. (2020) and Chen, Ying, Bi, and Yang (2021) showed that emotions in negative reviews have a significant positive correlation with review usefulness.

Although studies on online reviews have contributed significantly towards understanding consumer behaviour, there are still important aspects of information adoption that remain unexplored. Many studies have only examined the overall effects of product or service reviews but fail to capture the nuances of online interactions. Zhu, Liu, and Dong (2022) have noted that simple numerical ratings can be insufficient in conveying important details. Additionally, most studies have focused on products rather than services, which are becoming increasingly important in the realm of online reviews (Racherla & Friske, 2012). This observation supported the aims of this study, as it is important to conduct a separate study that takes a more comprehensive approach to exploring consumer perceptions of online reviews, with a specific focus on services, for example, hotel bookings.

Heuristic-systematic model of information processing

The HSM is a widely used research framework for studying information processing. It can explain the impact of different factors on the usefulness of specific information, and it plays a crucial role in facilitating effective communication of group opinions (Cheung, Luo, Sia, & Chen, 2009). This study has chosen the HSM as the research framework because it can be applied to a wide range of validation situations. Unlike theoretical models with fixed structures and specific variables, the HSM provides a general framework and behavioural paradigm for studying decision-making processes (Lee & Chung, 2019).

The HSM distinguishes between heuristic and systematic information processing paths. Heuristic processing relies on intuitive judgments and unconscious thoughts to make decisions, thus, requiring fewer cognitive and mental resources. Systematic processing involves deep processing of information based on logical thinking, thus, resulting in a slower acquisition of information. The quality of review content determines the information processing path that would be taken

(Lee & Kim, 2020). Systematic processing is used to objectively process subjective content (Shi et al., 2020). Several studies have applied the HSM to explore the factors and mechanisms that are affecting review usefulness. Shi et al. (2020) examined the factors that are influencing hotel review usefulness. Li, Xu, and Ngai (2021) investigated the impact of review usefulness. Liu and Li (2021) studied search-based products to confirm the mediating mechanism of review usefulness in accordance with the HSM.

Based on the HSM, potential consumers may make different attributions to negative reviews depending on the research scenario, which can affect the impact on review usefulness. This study has adopted the research frameworks of Liu and Park (2015), and Shi et al. (2020), whereby trust and economic rewards were used as heuristic clues, while perceived risk, credibility, and anticipatory emotions were used as systematic clues. The PLS-SEM and fsQCA approaches were also adopted to identify the multifactor combination paths that can trigger the perceived usefulness of negative reviews and to further expand the research on the impact of purchase intention.

HYPOTHESES DEVELOPMENT

Heuristic clues and perceived usefulness of reviews

Trust refers to an individual's willingness to depend on reviews, with a sense of relative security that they will receive reliable information (Ridings, Gefen, & Arinze, 2002; Banerjee & Chua, 2019). Mannan, Ahamed, and Zaman (2019) have shown that the purchasing intent of potential consumers depends on the credibility of online reviews. Andre, Sihombing, Sfenrianto, and Wang (2019) proposed that trust can affect and increase the confidence of consumers when choosing online reservations. When customers perceive the reviews as credible, they will more likely make decisions accordingly and share positive word-of-mouth about the product or service (Filieri, Acikgoz, Ndou, & Dwivedi, 2020). This study will argue that consumers who trust the negative reviews will use them as heuristic information cues to reduce the risks and uncertainties that could arise in their buying process. Hence, the following hypothesis was proposed:

H1: Trust has a positive influence on perceived usefulness of negative reviews.

Economic rewards refer to incentives for consumers to publish their opinions online (Sun, Fang, & Lim, 2014; Yan, Jiang, & Chang, 2011). Rewards could include direct monetary rewards and discount coupons (Qiao, Lee, Whinston, & Wei, 2021). Fradkin et al. (2018) found that economic rewards are one of the important factors in favour of customers' intention to post/share reviews on the Airbnb platform. Cabral and Li (2015) noted that economic rewards have a positive effect on the perceptions of online reviews on the eBay platform. On this basis, it was considered that economic rewards could encourage consumers to publish opinions with great authenticity. Therefore, the following hypothesis was proposed:

H2: Economic rewards have a positive influence on perceived usefulness of negative reviews.

Systematic Clues and Perceived Usefulness of Reviews

Perceived credibility can influence user perceptions of online reviews (McKnight & Choudhury, 2006; DeWitt, Nguyen, & Marshall, 2008). The perception of information credibility is an antecedent factor of review adoption (Cheung et al., 2009) and purchase intention (Chakraborty, 2019; Filieri, 2016). Zhang, Li, and Zhao (2017) noted that perceived credibility has a positive impact on the usefulness of reviews. Shen and Xu (2021) illustrated that consumers tend to rely on reviews that they perceive as credible. Pavlou (2003) showed that consumers will have a stronger trust in the competence, honesty, and goodwill of merchants when they perceive the credibility of online reviews more. Based on these results, this study has also expected that perceived credibility can positively influence the perceived usefulness of hotel online reviews. Therefore, the following hypothesis was proposed:

H3: Perceived credibility has a positive effect on the perceived usefulness of negative reviews.

Perceived risk refers to potential consumers' perceived consequences of uncertain decisions on products or services that they plan to purchase online (Wang, Wang, & Liu, 2018). The uncertainty reduction theory suggests that potential consumers will actively search for information related to products or services, or even interact with other consumers to obtain more information to reduce the uncertainty of purchase (Smith, Ferrara, & Witte, 2007). Hence, perceived risk is usually associated with the reverse psychology of potential consumers during the purchase process. The utility value of perceived risk may be higher, especially when potential consumers are willing to look for the attribution of negative reviews. For instance, Wu, Huang, and Yuan (2020) showed that the risk directly perceived by an individual is often higher than other external factors. Similarly, when booking for a hotel, most consumers may encounter a high level of perceived risk due to the intangible nature of this product. In line with the previous studies, this study has expected that when consumers react to negative reviews, they will actively seek useful clues to avoid risks and reduce the uncertainty of expected decisions. Therefore, the following hypothesis was proposed:

H4: Perceived risk has a positive effect on the perceived usefulness of negative reviews.

Anticipatory emotions refer to emotions that are generated during the decision-making process in the anticipation of decision choices, which can affect decision-making behaviours (Bagozzi, Dholakia, & Basuroy, 2003; Bagozzi et al., 2016; Baumgartner et al., 2008). To be specific, anticipatory emotions are classified into anticipatory and anticipated emotions (Baumgartner, Pieters, & Bagozzi, 2008). The former refers to the feelings of individuals during the decision-making process. This term mainly focuses on the phenomenon of the lag in decision-making caused by worry, fear, and other emotions resulting from "emotional trade-off difficulties" (Zheng, Zhou, & Nie, 2010). The latter refers to individuals' expectations of outcome emotions (Loomes & Sugden, 1986), which has a relationship with information valence (Bagozzi, Belanche, Casaló, & Flavián, 2016). Anticipated emotions may include anticipated rejoicing, happiness, disappointment, and regret (Zeelenberg, van Dijk, & Manstead, 1998). In this research, worry, disappointment, anxiety, and regret were used as the latent variables of prospective emotions for investigation.

Information overload refers to the inability of individuals to make optimal choices due to constraints on their cognitive resources (Sagi & Friedland, 2007; Schwartz, 2000). When faced with many negative reviews, consumers may experience "cognitive difficulties," which can lead to decreased efficiency in decision-making and the production of negative emotions, such as anxiety, worry, disappointment, and regret (Townsend & Kahn, 2014; Iyengar & Lepper, 2000). These negative emotions have been found to reduce purchase intention and decision-making confidence (Moser, Phelan, Resnick, Schoenebeck, & Reinecke, 2017). Hence, it would be reasonable to assume that the occurrence of anticipatory emotions will have a positive effect on

the perceived usefulness of negative reviews but will also reduce the purchase intention of potential consumers. Based on this reasoning, the following hypotheses were proposed:

H5a: Anticipatory emotions have a positive effect on the perceived usefulness of negative reviews.

H5b: Anticipatory emotions have a positive effect on purchase intention.

Perceived Usefulness of Negative Reviews on Purchase Intention

Purchase intention refers to a consumer's motivation to purchase goods or services, which is typically formed prior to the actual purchase (Korzan, 2003). Due to the ease and low cost of information search, online reviews are highly valued by consumers as a means of mitigating the effects of information asymmetry in product and service information. Filieri, Hofacker, and Alguezaui (2018) have shown that the perceived usefulness of online reviews has a significant influence on consumers' purchase intention.

On the other hand, negative reviews have been shown to decrease the trust of potential consumers in products and purchase motivation, thereby, reducing their perceived usefulness and ultimately affecting their purchase intention. For example, Ventre and Kolbe (2020) conducted an online survey among 380 online shoppers in Mexico City and concluded that the usefulness of online reviews can impact trust and online purchase intention. Similarly, Filieri et al. (2020) found that the perceived usefulness of online reviews has a positive impact on user satisfaction, which in turn affects their willingness to continue consuming content on user-generated content platforms. In another study, Von Helversen, Abramczuk, Kopeć, and Nielek (2018) investigated the differences in the perceived usefulness of online reviews among different consumer groups and found that the elderly was more likely to be swayed by negative reviews. Based on these findings, the following hypothesis was proposed:

H6: Perceived usefulness of negative online reviews is negatively correlated with purchase intention.

Mediating Effect of Perceived Usefulness of Online Review

Online reviews are a valuable source of information for consumers to assess the quality of products or services and reduce purchase uncertainty, ultimately contributing to their purchase decision-making process (Moloi et al., 2022). The persuasive effect of online reviews on information processing is well established in the literature, with higher perceived usefulness leading to a more convincing effect on consumers' purchase decision-making process (Qiu, Xiao, & Pang, 2019).

The HSM posits that individual differences when processing persuasive information can affect potential consumers' purchase intention. In relation to heuristic clues, potential consumers may process negative review information based on intuition and quick judgments according to single information processing cues, and relying on accessible information paths, such as the characteristics of information sources (Hu & Zhou, 2022). Consequently, they may be more willing to make a purchase. In contrast, systematic clues require more mental and physical resources and cognitive load, leading to higher perceived usefulness of negative reviews and greater weight given to decision-making, which ultimately leads to lower purchase intention of potential consumers (Liu & Li, 2021).

Empirical evidence supports the influence of online negative word-of-mouth on consumer attitudes, with rational negative reviews being perceived as more credible (Al-Adwan et al., 2022). Rv and Varshney (2022) further demonstrated the mediating effect of review usefulness on the interactive negative impact of the mode of presentation and discrete emotions on purchase intention. Based on these findings, this study proposed that heuristic clues, namely trust and economic rewards will trigger the perceived usefulness of negative reviews, leading to higher

purchase intentions. Conversely, systematic clues, namely perceived credibility, and risk, as well as anticipatory emotions will trigger the perceived usefulness of negative reviews, leading to lower purchase intention. Therefore, the following hypotheses have been developed:

H7a: Perceived usefulness of negative reviews mediate the path between trust and purchase intention.

H7b: Perceived usefulness of negative reviews mediate the path between economic rewards and purchase intention.

H8a: Perceived usefulness of negative reviews mediate the path between perceived credibility and purchase intention.

H8b: Perceived usefulness of negative reviews mediate the path between perceived risk and purchase intention.

H8c: Perceived usefulness of negative reviews mediate the path between anticipatory emotions and purchase intention.

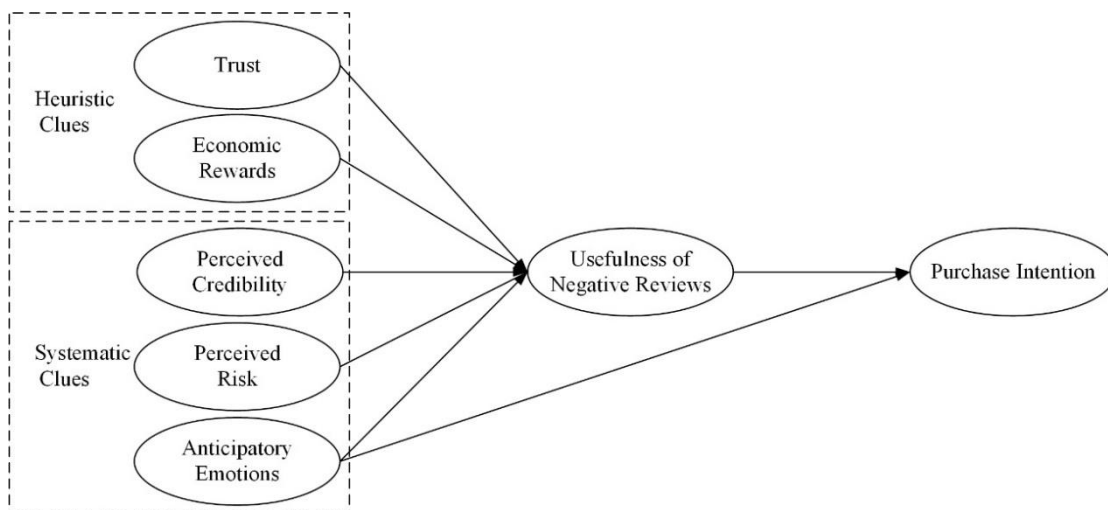


Figure 1: Research model

METHODS

Data collection procedures

In this study, online hotel reviews were chosen as the research object for two primary reasons. First, hotels are experience goods and potential consumers may attach greater importance to the feelings embedded in review content when searching for information on experience goods online. This importance may be due to their more intense perceived experiences. Therefore, online hotel reviews are more beneficial for potential consumers to make relatively accurate judgments on products. Second, online hotel reviews are easy to search for, with stability and continuity, making them a popular subject of study for scholars.

To ensure that respondents possess sufficient understanding of the topic of this study, a filter question was included at the beginning of the survey. This filter ensured that the respondents were inbound visitors who have booked to stay or have stayed overnight in at least three-star hotels in Shanghai. This selection requirement aligns with previous studies that examined the impact of hotel reviews on consumer behaviour (Akhtar et al., 2020; Ahmad & Sun, 2018). To collect data, an online survey was designed using Wenjuanxing and a link to this survey was distributed through various social media platforms, such as WeChat and MicroBlog from

February to April 2022. A total of 472 filled questionnaires were received. Finally, 334 valid questionnaires were obtained after the exclusion of those with short response time and more than 70% of repeated options.

Appendix A1 presents the demographic profile of respondents, which consisted of 246 (73.70%) females and 88 (26.30%) males. In terms of age, 262 participants (78.40%) were in the 18 to 30-year-old age group, 46 of them (13.80%) were in the 31 to 40-year-old group, 20 of them (6.90%) were 40 years old and above, and 3 of them (0.90%) were 18 years old and below. Regarding their occupation, most of them were students ($n = 183$, 54.80%), followed by enterprise staff ($n = 89$, 26.60%), teachers ($n = 25$, 7.50%), civil servants ($n = 24$, 7.20%), doctors ($n = 5$, 1.50%), and others ($n = 8$, 2.40%). With respect to the highest level of education, most of them graduated with a bachelor's degree ($n = 205$, 61.40%), followed by a master's degree and above ($n = 95$, 28.40%), junior college ($n = 24$, 7.20%), and technical secondary school or high school and below ($n = 10$; 3.00%). The distribution of online shopping experiences included more than 3 years ($n = 301$, 90.10%), 1 to 3 years ($n = 32$, 9.60%), and less than one year ($n = 1$, 0.30%). Most of the respondents ($n = 226$, 67.70%) have never written a negative review on any hotel reservation platform, while 32.30% ($n = 108$) of them have previously done it.

Design of questionnaire

The questionnaire used in this research was divided into three parts, namely screening, demographic variables, and the measure of latent variables. The first part aimed to screen out samples that fit the research context. The second part collected demographic variables, while the third part measured latent variables, including independent, dependent, and mediating variables. Independent variables included trust, economic rewards, perceived risk, and credibility, as well as anticipatory emotions. Purchase intention was the dependent variable, while the usefulness of negative reviews was the mediating variable. To ensure the validity and reliability of the scale, the measurement items for the latent variables were obtained from existing research, and mature domestic and foreign research scales.

Three items were used to measure trust (Ridings, Gefen, & Arinze, 2002), economic rewards (Sun, Fang, & Lim, 2014; Yan, Jiang, & Chang, 2011), perceived credibility (McKnight & Choudhury, 2006; DeWitt, Nguyen, & Marshall, 2008), perceived risk (Wang, Wang, & Liu, 2018), and purchase intention (Korzan, 2003). Meanwhile, four items were used to measure anticipatory emotions (Bagozzi, Dholakia, & Basuroy, 2003; Bagozzi et al., 2016; Baumgartner et al., 2008) and two items were used to measure usefulness of negative reviews (Sen & Lerman, 2007).

All variables in this study were measured using the 7-point Likert scale, with 1 to 7 representing the range from "very low" to "very high" or from "strongly disagree" to "strongly agree". Appendix A2 presents the content of the measurement items.

FINDINGS

Common method variance

Common method factors were used in this study to address concerns relating to common method variance (Podsakoff & Organ, 1986). Thus, a two-factor model was established, and a method factor was added as a global factor based on originally designed factors (Gu & Wen, 2017). According to the test criteria, the changes in root mean square error of approximation (RMSEA) and standardised root mean square residual (SRMR) should be less than 0.05, while both comparative fit index (CFI) and Tucker-Lewis index (TLI) should be less than the threshold of 0.01 (Wen, Huang, & Tang, 2018). The results obtained in this study indicated that all the metrics

($\Delta\text{RMSEA} = 0.01$, $\Delta\text{SRMR} = 0.019$, $\Delta\text{CFI} = 0.018$, and $\Delta\text{TLI} = 0.019$) met the test criteria. Therefore, it can be concluded that common method variance was not significant in the existing data.

Results of structural equation modelling (SEM)

Measurement model

A confirmatory factor analysis was performed using AMOS 23.0 to assess the measurement model. The results of this study indicated that the Chi-square/DOF ratio was $2.065 < 3$ and $\text{RMSEA} < 0.08$, while CFI, incremental fit index (IFI), TLI, goodness-of-fit index (GFI), and normed fit index (NFI) were all greater than 0.9, indicating good internal consistency (Wen, Hau, & Herbert W., 2004). Next, all constructs have average variance extracted (AVE) scores of higher than the standard value of 0.5, and the composite reliability (CR) value was higher than 0.7, while the factor loading of each item was greater than 0.4 (Wen et al., 2018) (see Appendix A3). Thus, it can be concluded that all constructs have satisfactory convergent validity. Discriminant validity is shown in Appendix A4. The results of the Fornell-Larcker criteria indicated that the square root of AVE values exceeded the correlation coefficients between the different variables, demonstrating distinctiveness among all constructs.

Structural model

As shown in Figure 2 and Table 1, the results of the structural model indicate that trust (beta: 0.225; $p < 0.01$), perceived risk (beta: 0.409; $p < 0.001$), and anticipatory emotions (beta: 0.22; $p < 0.01$) exhibit positive influences on the perceived usefulness of negative reviews. Thus, H1, H4, and H5a were supported. A negative relationship was found between perceived usefulness of online reviews and purchase intention (beta: -0.291; $p < 0.001$), thus verifying H6. In contrast with the prediction made in this study, an insignificant relationship was found between perceived credibility (beta: -0.133, $p < 0.05$) and economic rewards (beta: -0.046, $p < 0.05$) on perceived usefulness, as well as for the path between anticipatory emotions and purchase intention (beta: -0.057, $p < 0.05$). Hence, H2, H3, and H5b were rejected.

Mediating effect

The bootstrap technique was used to test the mediating effect of the usefulness of negative reviews. As shown in Table 1, three significant mediation paths have been found between (i) trust -> perceived usefulness of negative reviews -> purchase intention ($p < 0.05$); (ii) perceived risk -> perceived usefulness of negative reviews -> purchase intention ($p < 0.001$); and (iii) anticipatory emotions -> perceived usefulness of negative reviews -> purchase intention ($p < 0.05$). Hence, H7a, H8b, and H8c were supported. On the other hand, two insignificant paths were found between (i) economic rewards -> perceived usefulness of negative reviews -> purchase intention ($p > 0.05$) and (ii) perceived credibility -> perceived usefulness of negative reviews -> purchase intention ($p > 0.05$). Hence, H7 and H8a were rejected.

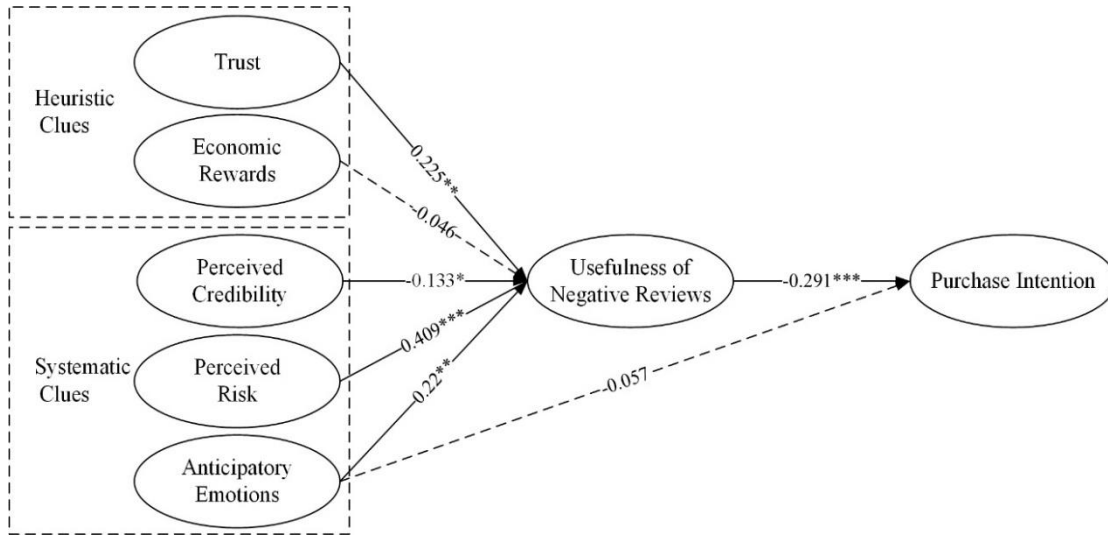


Figure 2: Path Model Diagram (Standardized Coefficients)

Table 1: Results of direct and indirect effects

Path relationship	Std. coefficient	Std. error	Confidence interval	p-value
Direct effect				
H1: Trust → PUNRs	0.225	0.086	[0.017, -0.154]	0.003**
H2: Economic rewards → PUNRs	-0.046	0.038	[0.068, -0.019]	0.386
H3: Perceived credibility → PUNRs	-0.133	0.061	[-0.055, -0.213]	0.030*
H4: Perceived risk → PUNRs	0.409	0.065	[-0.055, -0.213]	0.000***
H5a: Anticipatory emotions → PUNRs	0.220	0.087	[-0.009, -0.171]	0.003**
H5b: Anticipatory emotions → PIT	-0.057	0.115	[0.130, -0.234]	0.409
H6: PUNRs → PIT	-0.291	0.098	[-0.190, -0.427]	0.000***
Indirect effect				
H7a: Trust → PUNRs → PIT	-0.065	0.035	[-0.154, -0.017]	0.002**
H7b: Economic rewards → PUNRs → PIT	0.013	0.021	[-0.019, 0.068]	0.437
H8a: Perceived credibility → PUNRs → PIT	-0.119	0.031	[0.000, 0.118]	0.056
H8b: Perceived risk → PUNRs → PIT	0.039	0.038	[-0.213, -0.055]	0.000***
H8c: Anticipatory emotions → PUNRs → PIT	-0.064	0.041	[-0.171, -0.009]	0.016*

Note: PIT (Purchase intention); PUNRs (Perceived usefulness of negative reviews)

RESULTS OF FSQCA

This study used SEM to verify the linear relationships between heuristic-systematic clues as the antecedent factors, and the usefulness of negative reviews and purchase intention as the outcome variables. However, SEM was unable to reveal the complex causal relationships between multiple factors in the research model (Du, Li, Liu, Zhao, & Chen, 2021). To address this limitation, further data analysis was performed on the causal relationships between the configuration conditions of each antecedent variable and the outcome variables using fsQCA. This approach allowed for a holistic analysis of different configurations to obtain an equivalent configuration scheme and

causal conclusion affecting the results (Du & Jia, 2017). This study has focused on the causal relationships of the configuration conditions of trust, economic rewards, perceived credibility, risk, and anticipatory emotions with the usefulness of negative reviews. This method was previously applied in the research of consumer behaviour and information system behaviour, among others (Fang, Shao, & Wen, 2016; Tan, Benbasat, & Cenfetelli, 2016). The research process included calibration, and other necessary and sufficient condition analyses (configuration analysis).

Data calibration

Data calibration was performed according to the standards proposed by Ragin (2009): 0.95, 0.5, and 0.05 were taken as three qualitative break points, namely full membership, cross membership, and no membership points, respectively. The anchor points corresponding to each variable were trust (6.67, 5.00, 3.33), economic rewards (6.67, 4.33, 1.00), perceived credibility (6.33, 4.67, 2.00), risk (7.00, 5.33, 3.00), anticipatory emotions (7.00, 5.75, 4.00), the usefulness of negative reviews (7.00, 6.00, 3.50), and purchase intention (6.33, 3.66, 1.00).

Necessity analysis

Next, the necessary conditions were analysed using two indicators (consistency and coverage) of single variables. Consistency is an indicator used to determine whether a conditional variable is a sufficient or necessary condition. For example, X can be considered a necessary condition for Y when its consistency is greater than 0.9. Coverage is an indicator that describes the explanatory power of a variable. The larger the value of coverage is, the stronger its explanatory power. The results in Table 2 show that the necessity and consistency of variables are less than 0.9 in the usefulness of reviews, indicating the weak explanatory power. Therefore, necessary conditions did not exist.

Table 2: Results of Necessity Analysis

Antecedent variable		The usefulness of negative reviews	
		Consistency	Coverage
Heuristic clues	Trust	0.75	0.74
	~ Trust	0.54	0.63
	Economic rewards	0.68	0.69
	~ Economic rewards	0.60	0.69
	Perceived credibility	0.64	0.69
Systematic clues	~ Perceived credibility	0.65	0.71
	Perceived risk	0.72	0.79
	~ Perceived risk	0.59	0.62
	Anticipatory emotions	0.73	0.82
	~ Anticipatory emotions	0.58	0.60

Notes: “~” represents “not” in logical operations. The addition of “~” before a variable indicates that the variable does not exist or belong to other variables.

Configuration Analysis of Antecedent Variables

To conduct the configuration analysis, a truth table was built with each row representing a possible combination of conditions, namely configurations. As proposed by Ragin (2009), and Du and Jia (2017), consistency, case number, and PRI consistency thresholds were set as 0.8, 1 by default, and 0.70, respectively. The configuration analysis was performed on the five external variables of the perceived usefulness of negative reviews, and a complex causal model was constructed. Thus, three paths have been constituted, as shown in Table 3.

Subsequently, three solutions, namely parsimonious, intermediate, and complex solutions were generated. Among them, the intermediate solution was found to be relatively optimal. If an antecedent condition appears in parsimonious and intermediate solutions, it is deemed the core condition and plays an important role in the outcome variables. If it only appears in the intermediate solution, it is an edge condition and has an auxiliary effect on the outcome variables (Du & Jia, 2017).

FsQCA analysis of the usefulness of negative reviews as an outcome variable

As presented in Table 3, the overall consistency model of the usefulness of negative reviews is at 0.88 and the configuration consistencies of all antecedent conditions are higher than 0.9. Meanwhile, the overall coverage was 0.59, indicating that the model has a good explanatory effect. Based on these results, two configuration modes that triggered the usefulness of negative reviews can be summarised as follows:

(1) Mode 1: The antecedent configuration of N1 was (“~ perceived credibility and risk, as well as anticipatory emotions”), and mode 2: The antecedent configuration of N3 was (“trust and economic rewards, ~ perceived credibility and anticipatory emotions”). Both Modes 1 and 2 showed that a high level of trust and economic rewards, combined with a strong perceived risk and anticipatory emotions, will trigger the perceived usefulness of negative reviews when the perceived credibility was low. The SEM findings also verified that economic rewards acted as a single antecedent and not a condition for triggering the perceived usefulness of negative reviews. It has been suggested that economic rewards are the motive that motivates consumers to post reviews (Burtch et al., 2018). The results of this study showed that the usefulness of negative reviews may depend on not only trust, perceived risk, and anticipatory emotions, but also on high economic rewards. Thus, the usefulness of negative reviews can have the largest effect under the collaborative drive of heuristic and systematic clues.

Table 1: Reliability and convergent validity

Antecedent variable	N1	N2	N3
Trust		●	●
Economic rewards			●
Perceived credibility	⊗		⊗
Perceived risk	●	●	
Anticipatory emotions	●	●	●
Consistency	0.92	0.90	0.93
Original coverage	0.44	0.49	0.33
Only coverage	0.08	0.13	0.03
Consistency of solutions		0.88	
Coverage of solutions		0.59	

Notes: ● indicates that the core condition exists; ⊗ indicates that the core condition is missing; blank space indicates that the core condition is dispensable.

(2) Mode 3: The antecedent configuration of N2 was “trust, perceived risk, and anticipatory emotions”. When there were a high level of trust, perceived risk, and anticipatory emotions, the level of perceived usefulness became higher. Trust and perceived risk were found to be interdependent, as trust has a direct influence on perceived risk and the attitudes of consumers towards websites (Zhao & Ji, 2010). The findings of this study have highlighted the importance of anticipatory emotions in shaping consumers’ trust and perceived risk. According to the emotion-as-information hypothesis, consumers often rely on their emotional responses when

reviewing experience goods, for example, hotel reservations when making decisions. However, when there is a discrepancy between the anticipatory emotions evoked by the reviews and the actual emotional experiences of the product or service, potential consumers' perceived risk can increase, leading to suboptimal decision-making (He, 2013). Therefore, higher levels of anticipatory emotions are likely to result in a higher perceived risk among potential consumers when reading negative reviews. These antecedent configurations can guide consumers' information processing and decision-making, ultimately shaping the usefulness of negative reviews.

DISCUSSION AND IMPLICATIONS

First, the results of the SEM analysis indicated that the usefulness of negative reviews was positively influenced by trust in heuristic clues but was insignificantly affected by economic rewards. This observation is consistent with the results reported by Wei and Wang (2022). They suggested that economic rewards were not an antecedent factor affecting the usefulness of negative reviews. In contrast, the usefulness of negative reviews was significantly and positively affected by perceived risk and anticipatory emotions, but significantly and negatively affected by perceived credibility. These findings demonstrated that the HSM constructed in this study was suitable for studying the usefulness of reviews. However, the main effect of anticipatory emotions on purchase intention was not significant, which may be due to the limitations in sample size and research methods. Additionally, the usefulness of negative reviews has a significant negative influence on purchase intention, which is in line with the research conclusion of Liu and Zhang (2022).

Second, the analysis results of the mediating effect showed that trust, perceived risk, and anticipatory emotions can indirectly influence the purchase intention of potential consumers through the usefulness of negative online reviews. However, economic rewards and perceived credibility have no significant influence on purchase intention via negative reviews. Thus, the usefulness of negative online reviews was an important intermediary variable of potential consumer behaviour and one of the key conditions for individuals to have purchase intention.

Third, the results of the fsQCA showed that the usefulness of negative reviews was triggered by three modes, with N2 having a stronger explanatory power than the other two. In these modes, anticipatory emotions, perceived risk, and trust became core factors, which also corroborated the SEM analysis structure and thus, deserving special focus.

Lastly, a comparison between SEM and fsQCA analysis results showed that trust, perceived risk, and anticipatory emotions have positive influences on the usefulness of negative reviews in the SEM path analysis. In contrast, economic rewards have no significant impact on these variables. However, based on the fsQCA analysis, economic rewards as a heuristic clue were combined with trust, perceived risk, and anticipatory emotions to form an antecedent configuration, directly triggering the usefulness of negative reviews. It is worth noting that high economic rewards may have a biased effect, which may indirectly change the judgments of individuals through biased systematic clues (Bakshi, Dogra, & Gupta, 2019; Gonçalves, Silva, & Martins, 2018). Nonetheless, the usefulness of negative reviews was still triggered by the symbiosis mode of heuristic and systematic clues, where high cognitive load of the usefulness of negative reviews, together with other systematic clues, triggered the usefulness of negative reviews.

Theoretical Implications

This study aimed to offer several important contributions to the research on the usefulness of reviews. First, this study used SEM and fsQCA to identify multiple key influencing factors and to reveal the complex causal relationships between them. The resulting framework based on the

HSM can help platform operators better understand the mechanisms of the usefulness of negative reviews and provide reliable purchase decisions for potential consumers. Second, this study has introduced new variables from the perspective of reverse psychology, including the cognitive and emotional states of potential consumers during their information processing period. This framework was expanded to include anticipatory emotions as antecedent variables, providing a novel insight into the decision-making process. This study has revealed the mediating effect of the usefulness of negative reviews on the purchase intention of potential consumers, as well as the internal mechanism of the influence of anticipatory emotions on the processing of online review information. This theoretical expansion can contribute towards improving our understanding of the relationship between emotions and the usefulness of negative reviews.

Managerial Implications

This study offers crucial implications for hotel management practitioners, particularly in effectively managing the potential impacts of online consumer reviews. To mitigate the negative influence of unfavourable reviews on potential consumers, hotel management must approach negative feedback thoughtfully and professionally. Encouraging genuine positive reviews and showcasing them on official websites and social media platforms can counterbalance the impact of negative feedback and reduce the perceived risk of false reviews.

Transparency plays a vital role, and clear communication about hotel amenities, services, and limitations can minimize the chances of negative surprises leading to unfavourable reviews. Building trust and credibility are paramount, and timely responses to negative reviews demonstrate a genuine commitment to guest satisfaction. Expressing appreciation for guest feedback and empathizing with their concerns helps establish trust with both current and prospective guests. Furthermore, highlighting improvements resulting from negative reviews showcases the hotel's dedication to continuous enhancement, further enhancing credibility. Subsequently, minimizing anticipatory emotions in potential guests is crucial. The management should proactively monitor online review platforms and social media channels to promptly address negative reviews. By doing so, they can alleviate apprehensions and uncertainties that potential guests may have.

Based on the findings, this study also suggests that hotel management should implement a proactive guest engagement strategy to address potential issues before they escalate into negative reviews, ultimately fostering desirable purchase behavior. One effective step is to send pre-arrival surveys to guests to understand their preferences and special requests. Additionally, real-time guest feedback systems can be utilized during their stay to quickly identify and resolve any concerns they may have. To ensure comprehensive feedback, the hotel should provide multiple channels for guests to voice their opinions, such as direct communication with hotel staff, in-room feedback forms, or mobile apps.

Moreover, investing in training for hotel staff is crucial to handle guest complaints and issues with empathy and efficiency. Empowering staff members who can resolve problems on the spot can turn a potentially negative experience into a positive one, significantly impacting guest satisfaction and loyalty. In cases where guests express dissatisfaction, the hotel management should offer sincere apologies and provide appropriate compensation or incentives to encourage them to give the hotel a second chance.

CONCLUSION

To build the HSM, this study has investigated the factors that can influence the usefulness of reviews in the hotel booking systems and its subsequent influence on purchase intention. Despite the interesting findings, this study has some limitations.

First, the survey sample mostly consisted of college students, which may not represent the overall characteristics of online consumers. Thus, future research should expand the scope of sample subjects. Second, this study used a questionnaire survey to collect data, which may not accurately represent situations where consumers are browsing online reviews. Future research can use consumer neuroscience tools, such as eyeball tracking, electroencephalography, and functional magnetic resonance imaging to gain more insights.

Finally, this study did not consider time series and levels of individual interpretation when dividing the heuristic and systematic clues. The influence and triggering mechanism of clues on the same path on different individuals may differ to varying degrees. A more methodical heuristic-systematic theoretical model should be constructed in the future by considering multiple context settings and individual-level differences.

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APPENDICES

A1: Respondent Profile (N = 334)

Variable	Description	Frequency	Percentage
Gender	Male	88	26.30%
	Female	246	73.70%
Age	18 and below	3	0.90%
	18-30	262	78.40%
	31-40	46	13.80%
	40 and above	23	6.90%
Occupation	Student	183	54.80%
	Teacher	25	7.50%
	Doctor	5	1.50%
	Enterprise staff	89	26.60%
	Civil servant	24	7.20%
	Other	8	2.40%
Education level	Technical secondary school or high school and below	10	3.00%
	Junior college	24	7.20%
	Undergraduate	205	61.40%
	Master's degree and above	95	28.40%
Years of online shopping	Less than 1 year	1	0.30%
	1-3years	32	9.60%
	More than 3years	301	90.10%
Have you ever written a negative review on a hotel reservation platform?	Yes	108	32.30%
	No	226	67.70%

A2: List of Measurement Items

Trust*(Ridings, Gefen and Arinze, 2002)*

T1: I think many user reviews on hotel reservation websites are trustworthy.

T2: I think other users of hotel reservation websites will not act inappropriately on my reviews.

T3: I think most users of hotel reservation websites are harmless.

Economic Rewards*(Sun, Fang and Lim, 2014; Yan, Jiang and Chang, 2011)*

ER1: I will post reviews on a platform for money (like cashback for five-star reviews).

ER2: I hope to be rewarded by community platforms after responding to the reviews of other users (like upgrading my membership level).

ER3: I hope to get rewards from community platforms for posting online reviews (like points and coupon discounts).

Perceived credibility*(McKnight and Choudhury, 2006; DeWitt, Nguyen and Marshall, 2008)*

PC1: I believe that the goods/services provided by merchants are reliable.

PC2: I believe that merchants can help us to solve problems during our stay.

PC3: I believe that merchants can correctly handle negative reviews and listen to users.

Perceived risk*(Wang, Wang and Liu, 2018)*

PR1: I am worried that review information on hotel reservation platforms is false.

PR2: I am worried about poor hotel service quality, like poor reception service attitude and sanitary conditions.

PR3: I am worried that consumers may be misled by hotel reservation platforms. For instance, pictures shown in the reviews of platforms are inconsistent with the actual living environment.

Anticipatory emotions*(Bagozzi, Dholakia and Basuroy, 2003; Bagozzi et al., 2016; Baumgartner et al., 2008)*

AE1: When reading negative reviews, I am worried that the same will happen to me.

AE2: I will be anxious when reading negative reviews and need to make a decision quickly.

AE3: I will be disappointed to read negative reviews when planning to book a hotel.

AE4: I will regret my current choice when reading the negative reviews about a hotel to be booked.

Usefulness of negative reviews*(Sen and Lerman, 2007)*

RU1: Overall, online negative reviews help me to judge hotel service quality.

RU2: Overall, online negative reviews help me to decide whether to book a hotel.

Purchase intention*(Korzaan, 2003)*

PIT1: I will consider it if planning to book a hotel.

PIT2: I will recommend this hotel to my friends.

PIT3: I will give priority to booking the hotel if planning to travel there in the future.

A3: Results of Validity and Reliability of Variables

Variable	Item	Factor loading	AVE	CR
Trust	T1	0.738		
	T2	0.638	0.505	0.753
	T3	0.750		
Economic Rewards	ER1	0.705		
	ER2	0.926	0.717	0.883
	ER3	0.893		
Perceived Credibility	TP1	0.828		
	TP2	0.882	0.698	0.874
	TP3	0.794		
Perceived Risk	PR1	0.608		
	PR2	0.720	0.518	0.761
	PR3	0.816		
Anticipatory Emotions	AE1	0.676		
	AE2	0.669		
	AE3	0.888	0.565	0.837
	AE4	0.753		
Perceived Usefulness of Negative Reviews	NRU1	0.943		
	NRU2	0.870	0.823	0.903
Purchase Intention	PIT1	0.845		
	PIT2	0.929	0.815	0.929
	PIT3	0.931		

A4: Fornell and Larcker's criteria for discriminant validity

Variable	1	2	3	4	5	6	7
Trust	0.710						
ER	0.156	0.847					
PC	0.33***	0.242***	0.835				
PR	0.105	0.146	-0.02	0.720			
AE	0.442***	0.128	-0.082	0.431***	0.752		
NRU	0.321***	0.053	-0.083	0.527***	0.502***	0.907	
PIT	0.113	0.276***	0.590***	-0.079	-0.208***	-0.32***	0.903

Notes: (i) The values on the diagonal are the square root of AVE, and the remaining values are the correlation coefficients with other factors.