

# **The framing effect on purchase intention in hotel booking websites: The role of review breadth, numbers of review's recommendation and brand familiarity**

## **旅館預訂網站中框架效應對購買意願的影響：評論廣度、評論推薦數量和品牌熟悉度的角色**

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**Abstract:** This study investigates the framing effect on purchase intention in hotel booking websites and utilizes three moderating variables: review breadth, number of reviews' recommendation and brand familiarity. Two experimental studies were designed on a total of 12 sample groups consisting of 558 valid questionnaires. The results reveal that a positive framing message can lead to higher purchase intention than a negative framing message, although it is not statistically significant with a high number of reviews' recommendation and familiar brand. The findings show mitigating effect of those three moderating variables on the framing effect influence on the purchase intention. This study contributes to tourism and hospitality researches while also providing insights for marketers and managers in order to develop more effective marketing strategies.

**Keywords:** Framing effect, review breadth, numbers of review's recommendation, brand familiarity, purchase intention.

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**摘要：**本研究探討旅館預訂網站中的框架效應對購買意願的影響，並利用三個調節變數：評論廣度、評論推薦數量和品牌熟悉度。本研究設計了兩個實驗研究，12個組別，共558份有效問卷。結果顯示，正向的框架訊息比負向的框架訊息能夠提高購買意願，但在評論推薦數量較高和熟悉的品牌中，並不具有顯著性差異。研究結果顯示，這三個調節變數在框架效應對購買意圖的影響中，具有緩和作用。本研究有助於旅遊和旅館領域的研究，並為行銷人員和管理人員提供見解，以便制定更有效的營銷策略。

**關鍵詞：**框架效應、評論廣度、評論推薦數量、品牌熟悉度、購買意願

## 1. Introduction

The digitization of travel industry has resulted in a major shift from booking through travel agencies and towards online booking. Statista (2022) reported that 65% of customers used online platforms to book their travel services. In 2020, online travel booking was estimated to be worth US\$354.2 billion, with a 14.8% annual growth rate. Allied Market Research reported that the accommodation or hotel segment contributed 35% of the service and grew at a faster rate (16% annually) than the industry itself (Kanil and Deshmuk, 2022). However, the intangibility nature of hotels, however, puts potential customers at risk and uncertainty when booking a hotel room (Cain *et al.*, 2020; Reisinger, 2001; Sirakaya and Woodside, 2005). These two factors, if not managed properly, might lead to a hotel losing its potential customers. Therefore, the hotels and booking websites must communicate information about their products and services to affect the customers' purchasing decision (Sparks and Browning, 2011; Tanford *et al.*, 2019).

Presenting information can be accomplished by framing messages on key product attributes (Chen and Chang, 2016), such as hotel pricing (Rohlf and Kimes, 2007; Tanford *et al.*, 2019), promotion materials (Kim and Kim, 2018), and quality services (Hartmann *et al.*, 2008), as well as customer reviews or evaluation (Cain *et al.* 2020; Sparks and Browning, 2011). The framing can be defined as changing one's perspective on the same information to influence their

decision making process (Tversky and Kahneman, 1981). For example, Kamoen *et al.* (2015) demonstrates that a “not bad” evaluation for a hotel is not equivalent with a “good” evaluation. Moreover, according to a study on attribute framing, a positive framing message of “90% of the customers give positive evaluations” is more favourably accepted compared to a negative framing message of “10% of the customers give negative evaluations” (Chen and Chang, 2016). This study chooses attribute framing since it is the simplest and most straightforward case of framing to explain how a description influences message processing (Levin *et al.*, 1998). This study focuses on how the attribute framing influences the purchase intention in hotel booking websites.

In addition to product websites, the customers usually visit blogs, forums, social media and websites – such as Tripadvisor.com for travellers – to gather information on target products (Xiang and Gretzel, 2010). The consumer reviews minimize risk and uncertainty for potential customers, particularly when purchasing intangible commodities, such as a hotel room, where it is difficult for people to rate the quality (Liu and Park, 2015). Prior studies on review valence showed that most reviews are positive (Stringam *et al.*, 2010) and they stimulate positive effect on booking intention when compared to negative reviews (Ruiz-Equihua *et al.*, 2020; Vermeulen and Seegers, 2009; Ye *et al.*, 2009). Regardless of how much attention they receive from the customers, negative reviews bring negative influence to the attitude (Sparks and Browning, 2011). As a result, this study only focuses on the positive reviews.

Furthermore, the customers also rely on review depth (number of words in a review) and review breadth (number of attributes in a review) to obtain relevant information (Leung, 2021). Many studies on the review depth have shown a persistent result that the customers are more driven to read longer reviews as the information contained is perceived to be more beneficial (Filiari *et al.*, 2018; Kim and Hwang, 2020; Liang *et al.*, 2019; Srivastava and Karlo, 2019). Longer reviews often feature more product description, convey more information (Pan and Zhang, 2011) and are more convincing (Daft and Lengel, 1986).

Meanwhile, the review breadth is also recommended as a means to gather

valuable information from a review. Instead of the length, it considers the number of product attributes being reviewed (Bae *et al.*, 2016). A broad review provides more helpful information compared to a narrow one because of its comprehensiveness (Cheung *et al.*, 2008; Qazi *et al.*, 2016; Srivastava and Kalro, 2019). The review breadth has been considered to be a stronger indicator of information usefulness than the review depth (Son *et al.*, 2020). Moreover, it is believed that the broad review can minimize the positive impact of review depth on the information usefulness (Leung, 2021). Therefore, this study considers the review breadth to be an important variable in influencing the customer behaviour on hotel booking websites.

However, considering that online reviews are written by strangers, they may raise concerns among certain customers. Hence, monitoring the online customer reviews is required to boost the credibility of its message (Park *et al.*, 2007). Chang *et al.* (2015) suggested popularity of post or review as a means to convince the customers. In addition to the number of individuals considering a particular review to be important, the post popularity refers to the number of likes and comments, as well as the number of people who share and reply to the post (De Vries *et al.*, 2012). The popularity of post can therefore be used to frame messaging. In this study, the above qualities are represented by the moderating variable of number of review's recommendation.

In addition, brand familiarity also affects the purchase intention. The customers will feel more confident if they are familiar with the target product, and the impact of positive and negative framing messages may be minimized (Park and Lee, 2009). In order to decrease the effect of reviews on booking intention, the moderating effect of familiar brands must be maintained (Chatterjee, 2001). In the case of less familiar hotels, persuasive online messaging has a stronger positive influence on the customers (Vermeulen and Seegers, 2009). Likewise, Ruiz-Equihua *et al.* (2020) proved that the positive online reviews increase higher booking intention for the less familiar hotels. Recognizing the significance of brand familiarity, this study uses the brand familiarity as a key moderator of the framing effect.

Previous studies on the online reviews showed the importance of positive reviews on the booking intention (Liu and Park, 2015; Ye *et al.*, 2009) and the importance of review depth and review breadth (Cheung *et al.*, 2008; Filieri *et al.*, 2018; Kim and Hwang, 2020; Leung, 2021; Liang *et al.*, 2019; Qazi *et al.*, 2016; Srivastava and Karlo, 2019) and the popularity of posts (Chang *et al.*, 2015; De Vries *et al.*, 2012) on the review usefulness. There is little explanation for how the review depth and review breadth influence the booking / purchase intention. Recent studies also show that the message framing influence the booking intention or willingness to pay by focusing on the review valence, pricing, and rating (Book *et al.*, 2018; Cain *et al.*, 2020; Kim and Tanford, 2019; Sparks and Browning, 2011; Tanford *et al.*, 2019). However, it is currently unclear how the combination of framing and review influences the booking / purchase intention. This study attempts to provide answers to this issue. Therefore, the main objective of this study is to investigate the effect of attribute framing (positive / negative) on the purchase intention in the hotel booking websites and investigate the moderating effect of review breadth, number of review's recommendation and brand familiarity.

## **2. Literature review and hypotheses**

### **2.1 Purchase intention and framing effect**

The customers' behavior can generally be predicted by their intentions, hence, understanding their purchase intention is critical (Bai *et al.*, 2008). In marketing researches, the customers' purchase intention is commonly used to measure the customers' behavior intentions (Zeithaml *et al.*, 1996). The purchase intention is defined as the occurrence of the customers consciously planning to purchase products or wishing to try or purchase products (Spears and Singh, 2004). An increase in the purchase intention increases the possibility of purchasing (Dodds *et al.*, 1991; Schiffman and Kanuk, 2000). Relevant studies on the purchase intention have also been conducted in the hospitality and tourism industry (Ajzen and Driver, 1992; Buttle and Bok, 1996).

The framing effect has a significant impact on the customer behaviour, particularly among those who lack of direct experiences (Levin and Gaeth, 1988). The customers might be influenced positively or negatively by how the message is framed. The word 'framing' refers to presenting diverse decision situations in order to enable decision-makers to respond in a variety of ways (Kühberger, 1995). A single attribute in a given context is the subject of the frame operation (Freling *et al.*, 2014). For instance, Chen and Chang (2016) described the positive framing message as "90% of the customers give positive evaluations" and negative framing message as "10% of the customers give negative evaluations" on a product. The results of the study showed that the positive framing message led to a higher purchase intention than the negative framing message.

The way in which the information is presented or framed can influence personal judgments and decisions greatly (Buda and Zhang, 2000). Cox (2015) demonstrated that the framing effect could influence decisions. Through the use of positive frames and negative frames, Hartmann *et al.* (2008) showed that service quality evaluations resulting from the positive frames are significantly higher than the negative frames. Similarly, positive framing advertisement messages are proved to be more effective than the negative framing advertisement messages (Lee *et al.*, 2018). In the hospitality industry, the positive framing of attribute information also leads to earlier bookings than the negative framing (Rahman *et al.*, 2018). In the case of hotel review framing, a hotel with positive rating or review framing receives a favourable evaluation from the customers and increases their booking intention when compared to a hotel with a negative framing (Cain *et al.*, 2020).

This study employs the positive and negative framing messages. The positive framing message is described as "90% of customers will recommend this hotel to friends" and the negative framing message is described as "10% of customers will not recommend this hotel to friends" (Chen and Chang, 2016). It is believed that the attribute framing effect in either the positive message or negative message on hotel booking website could influence the personal purchasing decision greatly. Therefore, the first hypothesis that can be proposed is as follows:

*H1*: Positive framing messages on hotel booking websites result in a higher purchase intention than the negative framing messages do.

## **2.2 Positive review breadth**

According to previous studies, more and more customers would turn to online travel reviews before making a purchasing decision (Anderson, 2012; Cheng and Loi, 2014; Sparks *et al.*, 2013; Xie *et al.*, 2014). In terms of the reviews' informativeness, the review breadth is a critical element for the review usefulness (Dong *et al.*, 2013). It can be defined as the number of product attributes covered in a review (Leung, 2021). A review is considered as a broad review when it has many attributes, whereas a review with few attributes is classified as a narrow review. Naturally, the broad reviews are perceived to be more useful than the narrow ones (Qazi *et al.*, 2016; Srivastava and Kalro, 2019). Several previous studies showed that a review is considered more comprehensive and therefore more effective when it covers various attributes of the product (Cheung *et al.*, 2008; Srivastava and Kalro, 2019). A hotel review may include information outside the hotel itself, such as nearby restaurants or directions to the airport (Bae *et al.*, 2016). As the reviews become more informative and persuasive, the customers confidence in their purchasing decision increases and their level of uncertainty and equivocality decreases (Daft and Lengel, 1986; Park *et al.*, 2007).

The influence of the framing effect can be explained by the representative heuristic principles (Tversky and Kahneman, 1981). Two systems play a role when the customers process the information or reviews, including heuristic system and systemic system. The heuristic system operates mindlessly, automatically (intuitively), and quickly, while the systemic system operates thoughtfully, consciously, and deliberately (Kahneman, 2011). When the customers decide under uncertain and ambiguous conditions, the heuristic system is predominantly employed (Tversky and Kahneman, 1974) to simplify their decision-making process (Chaiken, 1980). They make purchase decisions based on available information, such as the framing messages, resulting in a strong framing effect in this scenario. However, the systemic processing can be activated by external or

internal cues (Alter *et al.*, 2007). When more comprehensive information is presented, such as in a broader review, it decreases the customers' uncertainty and ambiguity (Daft and Lengel, 1986), and activates the systemic processing, decreasing their dependence on the framed information. Consequently, a broader breadth of reviews lowers the influence of the framing effect on the purchase intention.

This study only investigates the positive broad and narrow reviews since the positive reviews tend to increase the purchase intention (Ruiz-Equihua *et al.*, 2020; Vermeulen and Seegers, 2009; Ye *et al.*, 2009) and most of the reviews are written in a positive tone (Stringam *et al.*, 2010). It is expected that the customers who read the narrow online reviews will be more susceptible on the framing message than those who read the broad online reviews. Therefore, the second hypothesis that can be proposed is as follows:

*H2: Review breadth moderates the framing effect on the purchase intention. The influence of framing effect is stronger on the narrow review breadth.*

### **2.3 Number of review's recommendations**

Online reviews are seen to be more credible compared to traditional advertising (Chang *et al.*, 2015). However, as these reviews come from strangers, some people may question the credibility. In order to increase the credibility, the reviews should be made convincing, logical and have several recommendations (Park *et al.*, 2007). The post popularity can determine the credibility. According to De Vries *et al.* (2012), the post popularity is defined as the number of likes and comments, as well as the interaction such as the number of people sharing and replying to the post. A higher popularity leads to a higher credibility of a review. A more credible review will accordingly bring more trust and confidence in the customers as it reduces the risk of uncertainty (Hong and Pittman, 2020; Kusumasondjaja *et al.*, 2012).

Furthermore, the popularity of a post determines the level of influence. The number of recommendations of a single review has the potential to either increase or decrease the customers' confidence in their purchasing decision. Greater



number of reviews' recommendation means higher customers' confidence. It also influences the probability rate of the customer (behavior) intention, since it is seen as helpful intelligence. The greater number of reviews' recommendation grows the customers' intentions (Park *et al.*, 2007; Petty and Cacioppo, 1984). Observation on the funP tweets website (a Taiwan-based website) showed the most recommended article had been recommended by 238 individuals, while the least recommended article had only been recommended by 2 individuals (Chen *et al.*, 2012).

The prospect theory, which states that the customers tend to avoid risks and expect gains (Kahneman and Tversky, 1979), underpins the framing effect. People tend to minimize risks when seeking benefits and tend to take risks when they want to avoid losses. When the customers book a hotel room, the framing messages can create cognitive biases in their minds. The prospect theory suggests that the customers will take a risk to avoid a loss due to the limited information and trust to the information presented in the framing messages. Thus, the customers are more susceptible to the framing effect. On the other hand, the customers tend to be more objective when they are presented with online reviews. They look for the information carefully from credible reviews. The customers prefer reviews with higher number of recommendations as it reflects the review's credibility (Hong and Pittman, 2020). A higher number of recommendations is perceived as larger unanimous agreement and provides valuable interpretations for the customers who have little knowledge and experience with the products (i.e., hotels) (Park and Kim, 2008). This allows the customers evaluate potential gains and losses more objectively, reducing loss aversion and the influence of framing on the decision making. Hence, a higher number of reviews' recommendations will decrease the framing effect on the purchase intention. Thus, the third hypothesis that can be formulated is as follows:

*H3: Number of review's recommendation moderates the framing effect on the purchase intention. The influence of framing effect is stronger on the fewer number of review's recommendation.*

## **2.4 Brand familiarity**

Brand familiarity refers to the customers' knowledge structure (Stewart, 1992). It is the accumulation of the customers' experiences with the brand (Alba and Hutchinson, 1987) and comprises previous experiences and brand exposure (Sundaram and Webster, 1999). The previous experiences using a brand would increase the knowledge of brand characteristics. In addition to their own experiences in purchasing or using a brand, the customers may learn about a particular brand from the experiences of family or friends using the brand (Campbell and Keller, 2003). Brand exposure in the news (Campbell and Keller, 2003), in advertisements, or in store (Sundaram and Webster, 1999) all contribute to the customers' brand familiarity.

When dealing with the framing effect, the customers tend to rely on the heuristic principles to simplify complex tasks (Tversky and Kahneman, 1981). However, as an individual cognitive difference, the brand familiarity is capable of significantly decreasing the customers' decision bias (Stanovich and West, 2000). If the customers are familiar with the target product, they will have sufficient information about it to support their purchase decision. As a result, the impact of positive and negative framing messages might be reduced (Park and Lee, 2009; Sieck and Yates, 1997; Smith and Levin, 1996). In other words, the customers who are fully aware of the brand, either from their own experience or other sources, should not be affected by the framing message.

Meanwhile, the customers frequently imitate the behavior of others from online information interaction in order to moderate their uncertainty about unfamiliar products (Chen *et al.*, 2016). For an unfamiliar hotel brand, both positive and negative reviews will improve the customers' awareness about the hotel, and accordingly, the positive review will improve the customers' attitude towards the hotel (Vermeulen and Seegers, 2009). In other words, the customers who are not familiar with a hotel brand will be more susceptible to the influence of framing message as they have less knowledge and awareness about the brand than those who are familiar with it.

*H4*: Brand familiarity moderates the framing effect on the purchase intention. The influence of framing effect is stronger on the unfamiliar hotel brand.

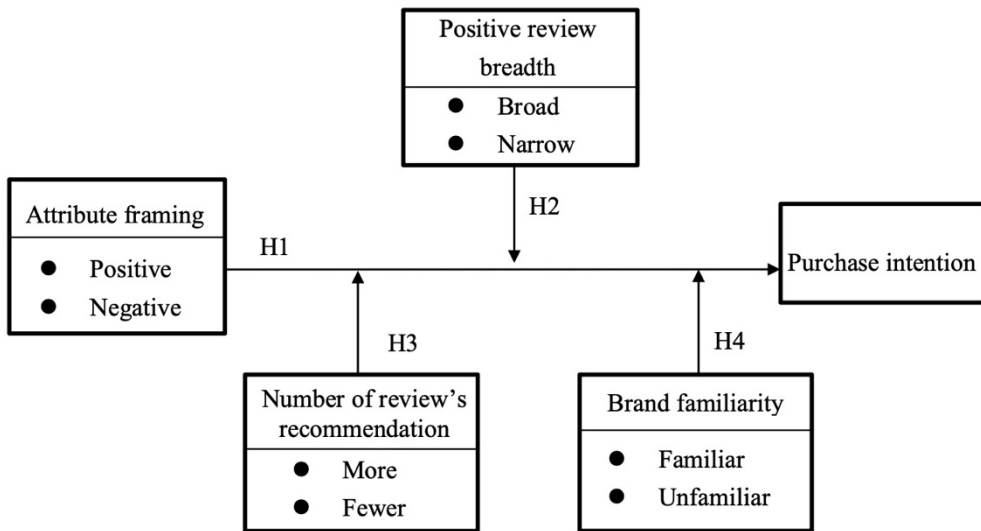
### **3 Methodology**

#### **3.1 Research framework**

This study was designed to identify the influence of framing effect on the purchase intention in hotel booking websites. This study also investigated whether the review breadth, number of review's recommendation and brand familiarity could moderate the framing effect. The research framework is illustrated in Figure 1. The attribute framing message was employed as an independent variable and was divided into positive and negative framing message. The purchase intention was employed as the dependent variable. Meanwhile, the review breadth, number of review's recommendations and brand familiarity were moderators. The review breadth was divided into two categories: 'broad' and 'narrow'. Further, the number of review's recommendations was also divided into two categories: 'more' and 'fewer'. The brand familiarity was divided into two categories: 'familiar' and 'unfamiliar'.

#### **3.2 Experimental design**

This study was divided into Experiment 1 and Experiment 2. Experiment 1 was conducted to assess the moderating influence of review breadth and number of review's recommendation on the framing effect. It used a 2 (attribute framing: positive/negative)  $\times$  2 (positive review breadth: broad/narrow)  $\times$  2 (number of review's recommendation: more/fewer) design. Meanwhile, Experiment 2 was conducted to assess the moderating influence of brand familiarity on the framing effect. It used a 2 (attribute framing: positive/negative)  $\times$  2 (brand familiarity: familiar/unfamiliar) design. A total of 12 groups of experimental designs were performed to analyze the customers' purchase intention on the hotel booking websites.



**Figure 1**  
**Research framework**

### 3.3 Sample

The data was collected through a questionnaire distributed online using Google Forms (<https://www.google.com.tw/intl/zh-TW/forms/about/>). The participants completed the questionnaire voluntarily. In order to increase the motivation of the participants, 7-11 free coupons of LINE – an instant messaging application – were given to 10 participants by random email selection. Each participant was randomly assigned to 1 of 12 experimental conditions. They must have used the hotel booking websites before. Each participant could only see one group of experimental conditions. A total of 612 questionnaires were collected, and 54 invalid questionnaires were removed, leaving 558 valid questionnaires to be analyzed. The effective response rate is only 91.17%. According to the data collected, most of the participants are female (61.29%), between 21-30 years old (76.52%), graduated from a university (75.58%), and mostly students (37.99%) - while the rest work in several industries. In terms of monthly disposable income,

52.69% of the participants earn a monthly income of more than NT\$20,000.

### **3.4 Material**

This study was conducted on hotels in Kenting (one of famous travel destinations in Taiwan). The selected hotels were Chateau Beach Resort, which was categorized as the familiar target hotel; and Grand Bay Resort, which was categorized as the unfamiliar target hotel. The information provided to the participants on the familiar hotel was as follows: “Kenting–Chateau Beach Resort–breakfast buffet, auxiliary parking areas.” The information provided to the participants on the unfamiliar hotel was as follows: “Kenting–Grand Bay Resort–breakfast buffet, auxiliary parking areas.” Details of the material are presented in Figure 2 and Figure 3.

### **3.5 Experimental procedure**

The experiments of this study were designed to look like they were on real booking hotel websites. At the beginning of the questionnaire, the participants were asked whether they had once looked for the information on the hotel booking websites. Those who answered “No” would be excluded from further participation. The participants were randomly assigned to 1 of 12 experimental conditions.

The participants who were randomly assigned to book a hotel room were presented with the following direction: “You are planning a trip to Kenting, you decide to book a room through a hotel booking website. Assume your budget allows you to book the room. Please answer the following questions.” The key attributes framing of the hotel were designed to be both positive and negative. In two different frames, the hotel was respectively described as: “90% of customers will recommend this hotel to friends” (positive) and “10% of customers will not recommend this hotel to friends” (negative).

In Experiment 1, the participants received a review, in terms of broad review which was described as follows: “The staffs are friendly. The hotel is in a good location, close to downtown. Both shopping and dining are convenient.” Meanwhile, in terms of narrow review, it was described as follows: “The room is

comfortable and clean, and the supplies are complete. The staffs are friendly. There is a washing machine available.” There were a total of 238 review’s recommendations representing the ‘more’ category, and 2 review’s recommendations representing the ‘fewer’ category (Chen *et al.*, 2012). Furthermore, in Experiment 2, the participants were only provided with the name

Positive, broad, more

第二部分：模擬情境

以下為訂房網站的模擬情境，請詳細閱讀內容後，想像若您是當事者，將會做出何種反應？請您以最真實的感受回答。

說明：  
您準備安排一趟旅行到墾丁，於是您在訂房網站瀏覽住宿資訊，以下圖片為您瀏覽訂房網站的畫面，【在房型與預算為可接受範圍的情況下】，請依據下列情境回答後續問題。



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Holiday飯店 90%的房客會推薦這間住宿給朋友

真實住客評語

服務人員親切，飯店位置便利，離鬧區近，購物逛街和吃飯都方便。

此評論有238人推薦

立即預訂

Negative, narrow, fewer

第二部分：模擬情境

以下為訂房網站的模擬情境，請詳細閱讀內容後，想像若您是當事者，將會做出何種反應？請您以最真實的感受回答。

說明：  
您準備安排一趟旅行到墾丁，於是您在訂房網站瀏覽住宿資訊，以下圖片為您瀏覽訂房網站的畫面，【在房型與預算為可接受範圍的情況下】，請依據下列情境回答後續問題。



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Holiday飯店 10%的房客不會推薦這間住宿給朋友

真實住客評語

房間舒適、乾淨，用品齊全，服務人員親切，有提供洗衣機使用。

此評論有2人推薦

立即預訂

Figure 2  
Sample of experiment 1 materials

## Positive, familiar

第二部分：模擬情境

以下為訂房網站的模擬情境，請詳細閱讀內容後，想像若您是當事者，將會做出何種反應？請您以最真實的感受回答。

說明：  
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墾丁夏都沙灘酒店

飯店資訊

- 早餐自助式
- 附設停車場

90%的房客會推薦這間住宿給朋友

立即預訂

## Negative, unfamiliar

第二部分：模擬情境

以下為訂房網站的模擬情境，請詳細閱讀內容後，想像若您是當事者，將會做出何種反應？請您以最真實的感受回答。

說明：  
您準備安排一趟旅行到墾丁，於是您在訂房網站瀏覽住宿資訊，以下圖片為您瀏覽訂房網站的畫面，【在房型與預算為可接受範圍的情況下】，請依據下列情境回答後續問題。



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墾丁怡灣渡假酒店

飯店資訊

- 早餐自助式
- 附設停車場

10%的房客不會推薦這間住宿給朋友

立即預訂

**Figure 3**  
**Sample of experiment 2 materials**

of hotel brand and simple information about the hotel. They were asked to answer the questions by using a five-point Likert scale (1 = strongly disagree; 5 = strongly agree) for measuring their potential purchase intention to book the hotel room. The participants' demographic information was collected at the end of the questionnaire.

### **3.6 Measurement and manipulation check**

This study defined purchase intention as the degree to which the customers intended to book the hotel room. Its measurement was adopted from prior researches by Dodds *et al.* (1991) and Zeithaml *et al.* (1996). The brand familiarity measurement was adapted from Alba and Hutchinson (1987). All items were scored on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). The data was analyzed using SPSS 22.0. The results show that the Cronbach's  $\alpha$  coefficient of purchase intention is 0.940 and the brand familiarity's is 0.937. According to Cortina (1993), the Cronbach's  $\alpha$  coefficient must be higher than 0.7. Therefore, the results of the measurement show that there is an internal consistency.

This study also performed a manipulation check to determine the effectiveness of a manipulation in the experimental design. A series of pre-tests were performed involving 30 participants for the review breadth in Experiment 1, and the brand familiarity in Experiment 2. The reviewbreadth experiment analyzing "The staffs are friendly. The hotel is in a good location, close to downtown. Both shopping and dining are convenient." was considered as a broad review ( $M = 4.63, t = 12.585, p < 0.001$ ) and while "The room is comfortable and clean, and the supplies are complete. The staffs are friendly. There is a washing machine available." was considered as a narrow review ( $M = 4.70, t = 13.649, p < 0.001$ ). The mean difference between the narrow review and broad review is significant ( $t = 2.358, p < 0.05$ ). This result indicates that the manipulation of review breadth is acceptable. Furthermore, the brand familiarity in Experiment 2 was divided into the 'familiar' and 'unfamiliar' category; and according to the result of pre-test, Chateau Beach Resort was considered as the familiar hotel ( $M = 3.93, t = 5.477, p < 0.001$ ), and Grand Bay Resort was considered as the unfamiliar hotel ( $M = 1.60, t = -5.720, p < 0.001$ ). The mean difference between the two is significant ( $t = 10.40, p < 0.01$ ). This result indicates that the manipulation in Experiment 2 is successful.

## **4 Results**



**Table 1**  
**Reliability measurement**

Variable	Measuring Item	Mean	SD	Cronbach's $\alpha$
Purchase intention	1. I will consider staying at this hotel.	3.58	0.923	
	2. I am probably staying at this hotel.	3.40	0.966	
	3. Overall, I am quite interested in staying at this hotel.	3.42	0.948	0.940
	4. I will recommend this hotel to my friends and family.	3.15	1.001	
Brand familiarity	1. I have seen the advertisements for this hotel.	2.71	1.478	
	2. I have heard people talking about this hotel.	2.93	1.574	0.937
	3. I know this hotel.	2.51	1.408	
	4. I have friends who have stayed at this hotel.	2.64	1.552	

#### 4.1 Experiment 1

This study used an analysis of variance (ANOVA) to examine the hypotheses. The following Table 2 presents the main effect of attribute framing on the purchase intention and the interaction effect between the attribute framing, review breadth and number of review's recommendation in Experiment 1. The result shows that the attribute framing has a significant effect on the purchase intention ( $F = 29.614$ ,  $p < 0.001$ ).

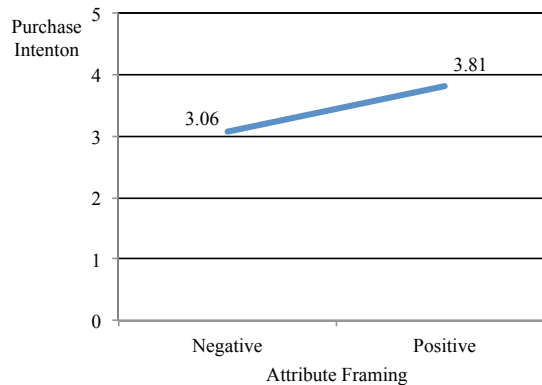
The following Figure 4 confirms that the customers exposed to the positive framing messages have a higher purchase intention than those exposed to the negative framing messages on the hotel booking websites ( $M_{\text{positive}} = 3.81 > M_{\text{negative}} = 3.06$ ,  $F = 34.522$ ,  $p < 0.001$ ). Therefore, H1 is supported empirically.

To examine H2, Table 2 shows a significant interaction between the attribute framing and review breadth on the purchase intention ( $F = 7.887$ ,  $p < 0.01$ ). Figure 5 supports the conclusion by demonstrating that the slopes of both narrow review and broad review are significant ( $\beta_{\text{narrow}} = 1$ ,  $t = 3.359$ ,  $p < 0.001$ ;  $\beta_{\text{broad}} = 0.49$ ,  $t =$

**Table 2**  
**Analysis results of experiment 1**

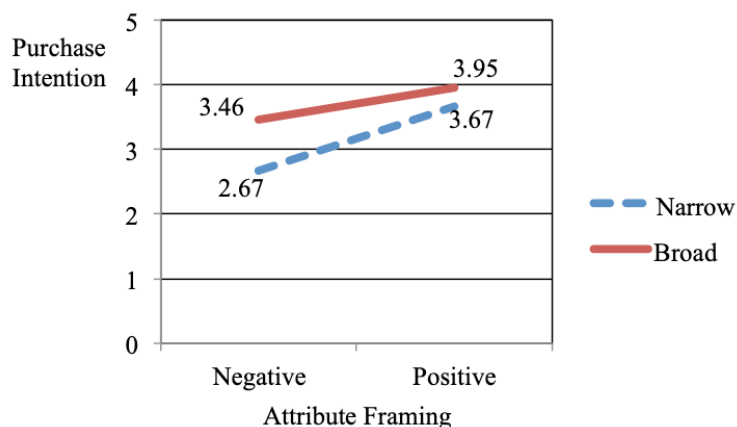
Dependent variable	Independent variables	<i>df</i>	<i>MS</i>	<i>F</i> -value	<i>p</i> -value
Purchase intention	Attribute framing	1	31.678	29.614***	0.000
	Review breadth	1	25.182	23.540***	0.000
	Number of review's recommendation	1	44.872	41.948***	0.000
	Attribute framing × Review breadth	1	8.436	7.887**	0.005
	Attribute framing × Number of review's recommendation	1	5.436	5.081*	0.025

Note: \* is significant at 5% critical level; \*\* is significant at 1% critical level; \*\*\* is significant at 0.1% critical level.



**Figure 4**  
**Effect of attribute framini**

3.228,  $p < 0.01$ ) and the difference is also significant ( $t = 7.027$ ,  $p < 0.001$ ). The result also shows a stronger framing effect on the purchase intention on the narrow review breadth. Thus, H2 is supported empirically.



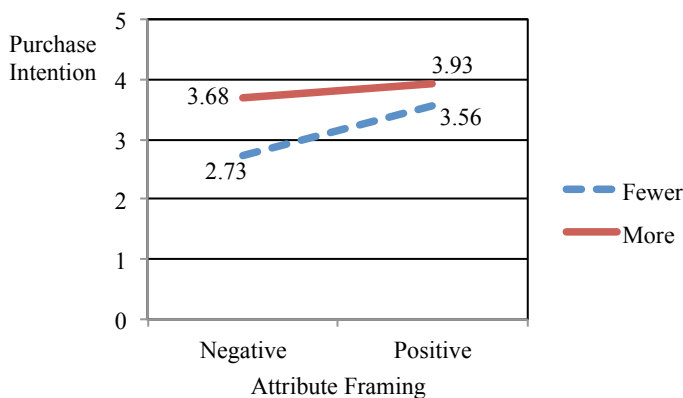
**Figure 5**

**Interaction effect between attribute framing and review breadth**

Further analysis had also been conducted to understand how the positive and negative framing messages interact with the review breadth to examine whether the result is consistent with H1. When the customers received a narrow online review, the positive framing message on the hotel booking websites results in a higher purchase intention than the negative framing message ( $M_{\text{positive}} = 3.67 > M_{\text{negative}} = 2.67$ ,  $F = 31.912$ ,  $p < 0.001$ ). In addition, when the online review is broad, the effect of attribute framing on the purchase intention is also significant ( $M_{\text{positive}} = 3.95 > M_{\text{negative}} = 3.46$ ,  $F = 8.197$ ,  $p < 0.01$ ). In both situations, the result is consistent. The positive framing intensifies the purchase intention.

The interaction effect between the attribute framing and number of review's recommendation on the purchase intention has a significant result ( $F = 5.081$ ,  $p < 0.05$ ). Figure 6 shows that the slopes of both the 'more' and 'fewer' category of the numbers of review's recommendation demonstrate significance ( $\beta_{\text{fewer}} = 0.83$ ,  $t = 3.089$ ,  $p < 0.01$ ;  $\beta_{\text{more}} = 0.25$ ,  $t = 3.655$ ,  $p < 0.001$ ) and the difference between the two slopes is statistically significant as well ( $t = 7.417$ ,  $p < 0.001$ ). The result shows a stronger framing effect on the purchase intention when the number of review's recommendation is fewer. Thus, H3 is supported empirically.

Further analysis shows that when the number of review's recommendation is



**Figure 6**

**Interaction effect between attribute framing and number of review's recommendation**

in the 'fewer' category, a positive framing message on the hotel booking websites results in a higher purchase intention than the negative framing message ( $M_{\text{positive}} = 3.56 > M_{\text{negative}} = 2.73$ ,  $F = 24.117$ ,  $p < 0.001$ ). On the other hand, when the number of review's recommendation is in the 'more' category, the influence of framing effect on the hotel booking websites is not significant ( $M_{\text{positive}} = 3.93 > M_{\text{negative}} = 3.68$ ,  $F = 2.876$ ,  $p = 0.092$ ).

## 4.2 Experiment 2

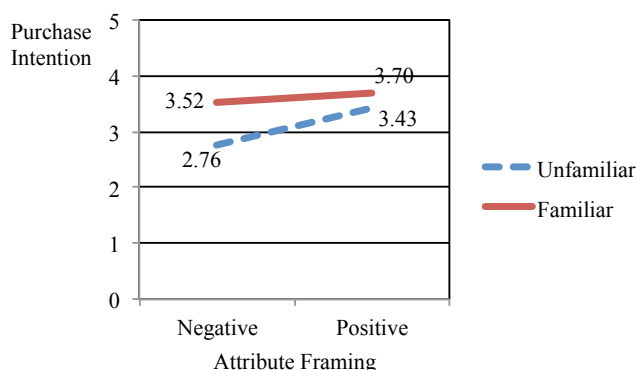
The following Table 3 presents the main effect of attribute framing and purchase intention and the interaction effect between the attribute framing and brand familiarity in Experiment 2. The results of Experiment 2 also shows consistent result of significant effect of attribute framing on the purchase intention ( $F = 13.789$ ,  $p < 0.001$ ). further, the result also shows that the interaction effect between the attribute framing and brand familiarity is significant ( $F = 4.394$ ,  $p < 0.05$ ).

Figure 7 demonstrates that the slope of the 'unfamiliar' category is significant ( $\beta_{\text{unfamiliar}} = 0.67$ ,  $t = 2.853$ ,  $p < 0.01$ ), but the 'familiar' category is not ( $\beta_{\text{familiar}} = 0.18$ ,  $t = 0.80$ ,  $p = 0.409$ ). Although, the total effect of brand familiarity has a

**Table 3**  
**Analysis results of experiment 2**

Dependent variable	Independent variables	<i>df</i>	<i>MS</i>	<i>F</i> -value	<i>p</i> -value
Purchase intention	Attribute framing	1	8.934	13.789***	0.000
	Brand familiarity	1	12.864	19.854***	0.000
	Attribute framing × Brand familiarity	1	2.847	4.394*	0.037

Note: \* is significant at 5% critical level; \*\* is significant at 1% critical level; \*\*\* is significant at 0.1% critical level.



**Figure 7**

### Interaction effect between attribute framing and brand familiarity

moderating effect, the ‘familiar’ situation, however, shows no moderating effect on the framing effect on the purchase intention. In the two slopes, the difference in the t-test results show that there is a stronger unfamiliar moderating effect compare to the familiar one ( $t = 16,803$ ,  $p < 0.001$ ). Thus, H4 is supported empirically.

This study confirms that the effect of positive framing message on the hotel booking websites results in a higher purchase intention than the negative framing message does when the customers are unfamiliar with the hotel ( $M_{\text{positive}} = 3.43 > M_{\text{negative}} = 2.76$ ,  $F = 17.018$ ,  $p < 0.001$ ). On the contrary, when the customers are

familiar with the hotel, the influence of framing effect on the purchase intention in the hotel booking websites is not significant ( $M_{\text{positive}} = 3.70 > M_{\text{negative}} = 3.52$ ,  $F = 1.299$ ,  $p = 0.257$ ).

## 5 Discussion and implications

### 5.1 Discussion

Experiment 1 and Experiment 2 examine how the framing effect influences the customers' purchase intention on the hotel booking website, and there are three moderating variables in the study: review breadth, number of review's recommendation and brand familiarity. The results are summarized in Table 4 as follows:

According to the results of this study, it could be concluded that the framing effect in various messages offered on the hotel booking website had a substantial influence on the customers' purchase intention. When the customers booked a

**Table 4**  
**Summary of hypothesis testing**

	<b>Hypotheses</b>	<b>Conclusion</b>
H1	Positive framing messages on hotel booking websites result in a higher purchase intention than the negative framing messages do.	Supported
H2	Review breadth moderates the framing effect on the purchase intention. The influence of framing effect is stronger on the narrow review breadth.	Supported
H3	Number of review's recommendation moderates the framing effect on the purchase intention. The influence of framing effect is stronger on the fewer number of review's recommendation.	Supported
H4	Brand familiarity moderates the framing effect on the purchase intention. The influence of framing effect is stronger on the unfamiliar hotel brand.	Supported

hotel room through a website, framing the identical circumstances in the positive and negative messages had drastically different effects. The situation in the positive framing messages was preferred by the majority of customers over the situation in the negative framing messages. Articulating sentences with the same semantic meaning but using different words to describe the target product would have different influence on the purchase decisions. The result is consistent with prior studies (Cox, 2015; Hartmann *et al.*, 2008; Levin and Gaeth, 1988).

Further, this study also confirms a significant moderating effect of the review breadth in both the narrow and broad conditions on the framing effect influence on the purchase decision. As predicted, the framing effect had a stronger influence in the narrow condition. Less attribute information might be less convincing (Daft and Lengel, 1986) for the customers, diminishing the usefulness of review breadth (Qazi *et al.*, 2016). In both situations, the positive framing had a higher effect than the negative framing. The result concludes that the breadth of review lowered the framing effect on the purchase intention.

Furthermore, the number of review's recommendation is also proven to significantly moderate the framing effect on the purchase intention. The framing effect had a stronger influence on the purchase intention when the number of review's recommendation was in the 'fewer' category. A low number of review's recommendations indicated less credible reviews (Park *et al.*, 2007). The customers would not pay attention to the less credible reviews and consequently, the framing effect would have a stronger influence on the customers who read more positive framing messages than the negative framing ones. On the contrary, a higher positive framing effect was found to be not significant when the number of review's recommendation was in the 'more' category. The customers would like to read a review with bigger number of review's recommendation since it would be more credible. The result suggests that the number of review's recommendation could lower the framing effect on the purchase intention.

Besides, this study also supports that the brand familiarity significantly moderates the framing effect on the hotel websites to influence the customers' purchase intention. In the case of an unfamiliar brand situation, the framing effect

had a stronger influence on the purchase intention and the effect of positive framing messages was significant. The customers who were unfamiliar with the hotel were more vulnerable to the framing message, since they had less knowledge about the hotel. The positive framing messages increased the purchase intention than the negative framing messages did. However, when the customers were familiar with the hotel, there was no significant difference on the customers' purchase intention. In other words, the customers who were familiar with the hotel would not be easily affected by the framing effect. The result of this study is consistent with prior studies (Park and Lee, 2009; Ruiz-Equihua *et al.*, 2020). The brand familiarity was able to moderate framing effect and reduce the framing effect.

## **5.2 Theoretical implications**

This study explains the relationship of attribute framing effect, review breadth, number of review's recommendation and brand familiarity on the customers' purchase intention in the hotel booking websites. The findings extend to the understanding of the application of attribute framing principles on online shopping contexts, especially in the hotel booking websites. When the customers read narrow reviews with fewer review's recommendation and are unfamiliar with the product, the positive framing has more favorable results compared to the negative framing (Cain *et al.*, 2020; Chen and Chang, 2016; Levin and Gaeth, 1988; Levin *et al.*, 1998). Regardless the above findings, the result of this study shows that the positive framing effect is not significant for the high number of reviews' recommendation and familiar brand.

Previous researches used the rating and valence to reflect credibility of reviews (Casaló *et al.*, 2015; Hu *et al.*, 2017; Kim and Hwang, 2020; Srivastava and Kalro, 2019), while this study extends the use of post popularity (Chang *et al.*, 2015; De Vries *et al.*, 2012) in the research framework. The findings show that the review's recommendation would lower the effect of positive framing on the customers' purchase intention as a higher review credibility would reduce the risk and uncertainty (Hong and Pittman, 2020; Kusumasondjaja *et al.*, 2012).



### 5.3 Managerial implications

There are several managerial implications based on the results of this study. First, in order to increase the purchase intention, it is suggested to provide positive messages on the websites. The hotel management can show the percentage of customers that like or recommend the hotel to attract more customers' attention. Positive impression of the hotel will increase the purchase intention of potential customers. Second, the positive messages are quite effective in the case where the customers are unaware of or unfamiliar with the hotel, or when the hotel has only a few good recommendations.

As with the review breadth moderating the framing effect on the purchase intention, the hotel websites are suggested to present positive framing messages on the reviews or the description of hotel's attributes, both in the broad or narrow reviews. Framing, however, will be more effective when there is narrow attributes discussed.

Since the context of experiment was the hotel booking websites, the hotel management might have limited access to display the framing messages. To address this issue, the hotel management are suggested to present the framing messages in the form of a statement or reply to the positive or negative reviews from the customers. The hotel management might also use framing in their description on their booking websites or social media. Another option is for the hotel management to work with the booking websites to include the framing messages in pop-up information once the customers click on the reviews or the hotel websites (when they want more information about the hotel).

### 5.4 Limitations and future research

There are several limitations faced in this study. First, since most reviews were written in a favorable tone, this study exclusively includes the positive reviews (Stringam *et al.*, 2010). Future researches are suggested to look at how the negative / unfavorable reviews influence the customers' decisions (Book *et al.*, 2018; Cain *et al.*, 2020; Chevalier and Mayzlin, 2006). Second, this study limits

the number of words for both the narrow and broad reviews. The participants could experience bias as longer review would provide better information (Leung, 2021; Son et al, 2020). Future researches are suggested to consider different length of reviews and investigate the relationship between the depth and breadth of reviews situation in framing the messages.

Furthermore, other limitations of this study also include the use of negative words for negative framing to make the participants strongly understand the negative meaning as the negatively worded messages was likely to be more influential on the customers' review (Sparks and Browning, 2011). The researchers had previously considered using more polite words such as "Only 10% of the customers will not recommend this hotel to friends", assuming to still have negative meaning. However, verbal politeness could imply different meaning (Kamoen *et al.*, 2015) and the statement in question had stronger negative meaning. Furthermore, in reality, a hotel was less likely to use the negative framing message like the one used in the experiments. In addition, the results of this study reveal that the slope of familiar brand is not significant. Hence, the result of hypothesis testing did not completely reflect the stronger moderating effect of unfamiliar brand. Further researches are required to investigate the moderating effect of familiar brand on the framing effect influence on the purchase intention. Besides, most of the respondents (76.52%) were only 21-30 years old, thus the results of this study could only explain the behaviour of young people and might not be applicable to other age groups. For a better generalization of the results, further researches are suggested to use a cluster sampling to equalize the age ranges of respondents.

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