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# The Effect of Affinity Design on Review Helpfulness: An Experimental Study of Online Passenger Review in the Airline Industry

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**Abstract:** Online reviews have drawn the attention of the MIS community. According to a survey conducted by an e-tailing group, 63% of consumers repeatedly collect product information online before making purchases. Half of them spend at least 10 minutes searching for product information. Similarity, airline passengers should read reviews before booking tickets, because the outcome of taking a plane with an unknown airline cannot be anticipated by inexperienced passengers. However, we have little information about why passengers interact with these reviews differently. Long searches are especially likely for popular air routes or airlines, where passengers often face information overload. Passengers may also give more weight to negative reviews and reviews written by someone with strong social tie or similar background with them. In addition, they may give the most weight to the reviews they read first. Thus, we want to know (a) does the order in which reviews are read matter and (b) does the reviewer's background matter? If they do matter, how? The current study designs an experimental flying review website, using the concepts of "consumer affinity" and "review arrangement". We aim to explore the best way for passengers understanding the performance of the airline, saving their cognitive efforts to process reviews, and provoking their receptions of social presence.

**Keywords:** Online review, consumer affinity, review arrangements, airline passenger

## 1. Introduction

Online reviews have drawn the attention of the MIS community (Mudambi et al. 2010). According to a survey conducted by a consulting group (e-tailing group 2011), 63% of consumers repeatedly collect product information online before making purchases. Half of them spend at least 10 minutes searching for product information. However, we have little information about why consumers interact with these reviews differently. Long searches are especially likely for popular products, where consumers often face information overload. Consumers may also give more weight to negative reviews (Chevalier and Mayzlin 2006) and reviews written by someone with strong social tie or similar background with them (Brown and Reingen 1987). In addition, they may give the most weight to the reviews they read first (Pennington 2000). These observations are important because they implicitly indicate that reviewers' background (*homophily*), arrangement of review scores (*valence*) and review orders (*frame*) can affect consumers' buying decisions. If we can prove this causation, firms can design more effective review systems to facilitate consumers' decision making and to improve profitability. Thus, we want to know (a) does the order in which reviews are read matter and (b) does the reviewer's background matter? If they do matter, how? For example, Amazon.com's favorable and critical reviews at the top of each product review page are known to be particularly helpful to consumers as they have no knowledge of products at all, but other types

of review presentation need more study.

## 2. Theoretical background

### 2.1 Review Format

The characteristics of the review format have a major effect on both the attitude and the behavior of the reader (Enis and Roering 1980, Kang and Herr 2006). They can be textual comments (qualitative information) or ratings (quantitative information). Another important attribute that current websites tend to ignore is homophily (Rogers and Bhowmik 1970), the degree to which the conveyers of the information are similar to the recipients of the information with respect to both demographic attributes (e.g., age, gender, and occupation) and psychological attributes (e.g., experience, values, lifestyle, and beliefs). The importance of homophily in dyadic communication is widely accepted in sociology (Dorothy 1985). When consumers read online reviews written by other consumers, they create a basic dyadic communication. As in a regular social network, these online reviewers and readers rely to some extent on geographical and temporal propinquity. Hence, it is reasonable to posit that online consumers tend to believe those reviewers who are psychologically and demographically similar to themselves.

### 2.2 Review helpfulness

We distinguished three measures of consumers' cognitive processes in absorbing and evaluating a review: product understanding, cognitive effort-saving, and para-social presence. Product understanding is defined as consumers' perceptions of the extent to which reviews help them understand the products sold on the website (Jiang and Benbasat 2007). Cognitive effort-saving refers to the psychological costs of processing the reviews (Wang and Benbasat 2009). Similar to Kumar and Benbasat (2002), we define para-social presence as the extent

to which reviews facilitate a sense of understanding and intimacy between the consumer and the reviewer. Whereas social presence is one party's awareness of the other party in the communication interaction (Sallnas and Sjostrom 2000), para-social presence is the consumer's affinity with the reviewer, which is created by awareness of the reviewer's identity.

### 2.3 Review arrangement

According to the theory of conformity (Burnkrant and Cousineau 1975), individuals in a group tend to comply with the group's norms. In consumer research, conformity is defined as the extent to which a consumer's behavior is affected by the behavior of the majority of the other relevant parties (Lascu and Zinkhan 1999). We postulate that consumers who read the reviews are likely to be affected by the favorability of those reviews. The effect of this influence is termed "review valence." Framing refers to the order in which information is presented (Crowley and Hoyer 1994). Generally speaking, persuasive information can be framed in two orders: positive information followed by negative information (positive framing) or vice versa (negative framing). It is unclear whether the primacy effect (the information received first having the greatest impact) or the recency effect is predominant (Pennington 2000).

## 3. Hypotheses

Figure 1 below depicts our research model. The model postulates that review formats affect helpfulness. The association between review formats and helpfulness is affected by the review arrangement. The following addresses the hypothesis development.

### 3.1 The effect of review formats of review helpfulness

Sellers hope that online reviews create value (*helpfulness*) for consumers and hence increase their

profits (Yang and Peterson 2004). Rogers and Bhowmik (1970) suggested that consumers tend to feel pleasure when interacting with others who are similar to them in certain respects, such as social status and educational background. Likewise, Lefkoff-Hagius and Mason (1993) maintained that homophily reveals how the use and ownership of a product link consumers with a desired group, role, or self-image. What would be the consequence of including homophily information in addition to textual comments and ratings in online reviews? We propose

the following hypotheses:

- H1a.** Review presentations lead to greater product understanding by consumers if they have a homophily format than if they have a value format.
- H1b.** Review presentations lead to more cognitive effort-saving by consumers if they have a homophily format than if they have a value format.
- H1c.** Review presentations lead to greater para-social presence between consumers and the reviewer if the presentations have a homophily format than if they have a value format.

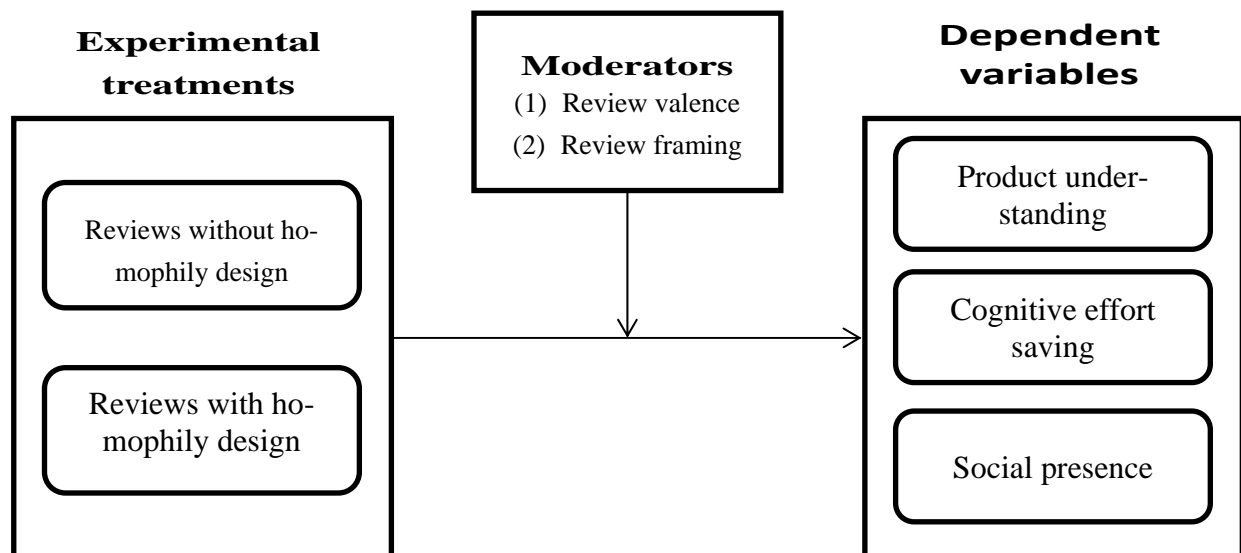


Figure 1. Research model

### 3.2 The moderating roles of review valence and framing

Format may combine with other (moderating) factors to affect the helpfulness of online reviews. For example, Henning-Thurau and Walsh (2003) maintained that consumers tend to adjust their purchasing decisions after they read reviews dominated by positive or negative ratings. Other researchers reached similar conclusions from their studies (Huang et al. 2009, Park and Han 2008). Consumers may also use how reviews are framed to adjust their decisions.

When there is information overload, websites often utilize valence or framing to make their reviews more helpful. Standifird (2001) and Yao et al. (2009) found that consumers were influenced more heavily by predominantly negative reviews than by predominantly positive ones. Consumers tend to weigh negative stimuli more heavily than positive stimuli to avoid mistakes and reduce regret (Mitchell and McGoldrick 1996, Standifird 2001). Thus, we propose these hypotheses:

- H2a.** The superiority of the homophily format over the value format in terms of product understanding will be greater when the reviews are predominantly negative.
- H2b.** The superiority of the homophily format over the value format in terms of cognitive effort-saving will be greater when the reviews are predominantly negative.
- H2c.** The superiority of the homophily format over the value format in terms of para-social presence will be greater when the reviews are predominantly negative.
- H3a.** The superiority of the homophily format over the value format in terms of product understanding will be greater when the reviews are negatively framed.
- H3b.** The superiority of the homophily format over the value format in terms of cognitive effort-saving will be greater when the reviews are negatively framed.
- H3c.** The superiority of the homophily format over the value format in terms of para-social presence will be greater when the reviews are negatively framed.

## 4. Research method

### 4.1 Experimental design

To test research hypotheses, we plan to conduct an experiment. The experimental design will be a 2 (review format: value or homophily)  $\times$  2 (review valence: positive or negative)  $\times$  2 (review framing: positive or negative) full factorial. Potential participants are randomly assigned to one of the eight experimental treatments. To avoid potential biases from the online environment that can compromise research validity, several screenings are employed to define eligible participants. For example, participants who are involved in the task for an unreasonable amount of time – taking too long (reflecting a lack of concentration),

finishing too quickly (not taking the survey seriously) or participating in the experiment twice (tracked by IP addresses) – will be excluded from the formal analyses.

Each of the two experimental treatments contains 10 reviews, as suggested by the results of the focus group interview. The reviews are short and of a fixed-length (three lines) to avoid possible bias from length variability (Chevalier and Mayzlin 2006). To provide ecological validity (Viswanathan 2005), all materials on the experimental website are taken from a real shopping website. Positive valence is defined as 6 reviews having a positive rating of 4 or 5, 1 having a neutral rating of 3, and 3 having a negative rating of 1 or 2. Negative valence is defined as 6 reviews having a negative rating, 1 a neutral rating, and 3 a positive rating. To test for the framing effect, the order of the positive and negative reviews is counter-balanced across participants (see Table 1).

### 4.2 Experimental procedure

The participant recruitment will be announced on three popular websites in Taiwan: PTT (a BBS forum), Facebook, and Plurk. The advertisement introduces the purpose of the experiment and asked participants to click on a hyperlink that bring up the experimental shopping website. Participants are informed that their task will be to evaluate the product and make a purchase decision. Before the experiment, the participants are requested to complete a demographic questionnaire. To control for the confounding effect of prior knowledge of the product (e.g., participants may have been familiar with an older model of the same camera) and thus improve internal validity, we include a question on prior product knowledge. Participants are randomly assigned to the experimental treatments. To ensure that they pay attention to the treatment, they are requested to provide the answers to questions regarding the number of reviews, the

proportions of positive and negative reviews, and the review order. They cannot go to the next page until they answer all these questions correctly. After they read the reviews, the participants are presented with a post-experiment questionnaire evaluating product

understanding, cognitive effort-saving, and perceived social presence. All items in the questionnaire are measured using 7-point Likert scales, where 1 is “strongly disagree” and 7 is “strongly agree.”

Table 1. Deployment of reviews in each experimental treatment

Value homophily				Value-status homophily			
Positively dominated		Negatively dominated		Positively dominated		Negatively dominated	
Positively framed	Negatively framed	Positively framed	Negatively framed	Positively framed	Negatively framed	Positively framed	Negatively framed
+	–	+	–	+	–	+	–
+	–	+	–	+	–	+	–
+	–	+	–	+	–	+	–
+	+	–	–	+	+	–	–
+	+	–	–	+	+	–	–
+	+	–	–	+	+	–	–
–	+	–	+	–	+	–	+
–	+	–	+	–	+	–	+
–	+	–	+	–	+	–	+
×	×	×	×	×	×	×	×

Note: + positive review – negative review × neutral review

## 5. Expected contributions

In tourism, consumers consult online reviews before making travel plans (Vermeulen and Seegers 2009) and the world’s biggest hotel companies (e.g., Four Seasons, Hilton, Holiday Inn) offer online reviews of their hotels to their own websites (DeLollis 2012). The momentum of online reviews introduces the opportunity to tourism industries (e.g., airline, hotel, travel agency, etc.) interacting with travelers. To date, there are many airline review websites created by either the third-party organizations (e.g., Skytrax) or the organizations commercially cooperated with several airlines (e.g., AirwayReview.com). Instead of review objectivity, the point here should be whether the passengers can read the reviews they really look for.

Based on the experiment, the current study expects to identify the best way in which passengers can effortlessly gain insight into the performance of the airline service, and at the same time transform their senses of homophily into social presences (Short et al., 1976). That is, whether the reviews with homophily have higher impact on passengers’ cognitive process of review helpfulness than the ones without homophily will be identified. The conditions under which the association between review homophily and review helpfulness will contingent upon the review arrangements are also disclosed. In addition, the aggregated ratings of review helpfulness commonly adopted in practices may not clearly indicate in what aspects the

reviews are helpful (e.g., helpful in product understanding, cognitive effort saving, or perceived social interaction). Our prospective findings have potentials to assist consumers confirming the helpfulness of a review without reading through the details of that review.

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