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## Abstract

**Purpose** – The purpose of this paper is to analyze the effect of signaling a review as the most helpful review according to other users' votes on product attitude. Thus, the first study focuses on the influence of signaling a review as the most helpful on consumer attitude and analyzes whether the interaction between that signaled review and incongruent aggregate information in valence clarify the main effect. Additionally, the authors further investigate whether the level of fit between the consumer's goals and the content of the signaled review moderates the initial effect.

**Design/methodology/approach** – The authors conducted two experiments: a 3 (presence of most helpful review) × 2 (overall valence) between-subjects design and a 2 (presence of a most helpful review) × 3 (level of fit between the consumers' goals and the most helpful review content) × 2 (overall valence) design.

**Findings** – The results confirm that the presence of a "most helpful" review whose valence is incongruent with the overall valence of the reviews significantly impacts attitude towards the product. Specifically, the authors found that the impact of a review which has been voted as the most helpful on consumers' attitudes depends on: the congruity between the valence of the most helpful review and the overall average valence of all the reviews received by the product; and the congruity between the consumer's goals and the most helpful review content.

**Originality/value** – This paper contributes to the electronic WOM literature by examining how signaling a review as the most helpful affects attitude, being that effect moderated by the congruency between that signaled review and the aggregated overall valence of the reviews and the level of fit with the consumer's goals.

**Keywords** eWOM, Review helpfulness, Valence, Consumers' goals, Information congruity

**Paper type** Research paper

## 1. Introduction

With the advent of the internet, a whole bulk of information has been made available by some consumers and used by others to form attitudes and make decisions. The web has become the main source for knowledge dissemination. It enables consumers to share and/or acquire relevant information and experiences for their purchases and decisions (Seraj, 2012; Steffes and Burgee, 2009). This communication via the internet is known as electronic WOM (eWOM), which refers to "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet"

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(Hennig-Thurau *et al.*, 2004, p. 39). eWOM frequently materializes in the form of online product reviews, which can pertain to almost any topic of interest. Some studies have shown that consumers often prefer recommendations from other consumers over professional reviews by critics (Dellarocas *et al.*, 2007), especially in the case of "hedonic goods" such as movies, music, hotels and books. A survey conducted by Dimensional Research (2013) showed that about two-thirds of the 1,046 participants (63 percent for negative and 69 percent for positive) reported that they did recall reading online reviews before making a purchase decision. What is more, the vast majority of participants who have seen reviews claimed that that information did impact their buying decisions (90 percent for positive reviews and 86 percent for negative reviews). In the same line, another report by Bright Local (2013) reveals that 79 percent of consumers trust online reviews as much as personal recommendations. Similarly, in a study conducted by ComScore and the Kelsey group, more than 75 percent of review users report that other users' reviews have greater influence on their purchases than professional reviews, and that they are willing to pay more for a five-star rated product than for a four-star rated product (ComScore, 2007). Thus, understanding how consumers use this information and how it influences their attitudes and decisions is of huge importance.

In this vein, Qiu and Li (2010) have recently proposed the concept of an eWOM system. An eWOM system can integrate three main components: aggregate information, such as the total amount of reviews or the average user rating obtained for a product; texts of individual customers' reviews; and complementary information about the reviewer or the review itself, such as helpfulness votes provided by other users. While previous research has investigated these components separately, their interaction remains largely underexplored. That is the gap the current research aims to cover: how the different elements of an eWOM system combine to affect the consumer's attitude formation process.

With regard to the third component of an eWOM system, helpfulness votes have proved to be very successful among potential customers. For example, Amazon.com claims that sales increased around 20 percent after adding helpfulness votes to consumer product reviews (Spool, 2009). However, while recent literature has studied helpfulness votes' consequences for consumers (Lee, 2013; Wu, 2013) and has identified the features that help classify a review as helpful (Korfiatis *et al.*, 2012; Li and Zhan, 2011), no research has examined the influence of those helpful reviews on consumers attitude and, more importantly, their interaction with other components of an eWOM system. This paper contributes to filling the gap and examines how signaling a review as the most helpful interacts with both aggregate information in valence and the consumers' purchase goals. Specifically, the first study tests a main effect of the most helpful review on attitude and, most interestingly, then focuses on the interaction between aggregate information in valence and signaling a review as the most helpful, that is to say, how signaling a consumer review which is not consistent with the overall evaluation of the product (aggregate information in valence) as the "most helpful review" affects consumer attitude toward the product. To our knowledge, extant eWOM literature does not provide answers regarding whether signaling a review that opposes aggregate information in valence as the most helpful reinforces or attenuates the impact of eWOM on consumers' attitude. In the second study, we further explore the consequences of signaling a review and investigate whether the level of fit between the consumer's goals and the content of the signaled review moderates the initial effect. Figure 1 illustrates the model we test in our experiments.

The structure of the paper is as follows: for each study, we present the theoretical background and propose a set of hypotheses. Then, we explain the methodology and report the main results. Finally, we discuss the findings, derive managerial implications and propose future avenues for research.

## 2. The role of helpfulness votes in eWOM influence

Valence is one of the most frequently studied eWOM characteristics (Basuroy *et al.*, 2003; Chevalier and Mayzlin, 2006; Duan *et al.*, 2008; Lee *et al.*, 2013) and captures the nature of WOM messages, whether they are positive or negative (Liu, 2006). Negative WOM prevents the receiver from buying the product whereas positive WOM strongly recommends its purchase. The findings on the effects of valence offer mixed results which can be considered equivocal at best (King *et al.*, 2014). Thus, there is a whole bulk of literature claiming the existence of a "negativity effect," that is to say, some researchers suggest that consumers perceive negative messages to be more persuasive and diagnostic than positive ones (Cui *et al.*, 2012; Yang and Mai, 2010). However, other studies find rather the opposite (Gershoff *et al.*, 2003), so no clear-cut consensus has been reached. These mixed results highlight the need to study not only valence but also other factors included in an eWOM system as their interaction may clarify previous findings.

Park *et al.* (2012) found that the effect of valence on retailer sales is affected by the volume of eWOM, that is valence tends to become more influential when eWOM volume is larger. On the other hand, Mudambi and Schuff (2010) point out that it is necessary to focus on eWOM quality rather than quantity. Accordingly, given the huge, and therefore unmanageable, volume of available eWOM, some online retailers have started to offer rating systems that empower consumers to provide and read information not only about the product but also about the credibility of the review message and the reviewer. For example, Amazon.com enables customers to vote on whether posted reviews were helpful to them in making a purchase decision. Helpfulness votes of online reviews are related to both the reviewer and the review characteristics. Thus, for example, reviewer reputation increases usefulness perception while reviewer expertise is negatively correlated with review helpfulness (Racherla and Friske, 2012). Regarding the review characteristics, Mudambi and Schuff (2010) found that the perceived helpfulness of product reviews positively correlates with moderately valenced reviews (three-ratings) and the amount of the review text. Nevertheless, Korfiatis *et al.* (2012) found that review readability has a greater effect on the helpfulness ratio of a review than its length. Li and Zhan (2011) provide deeper insight into this area and found that comprehensiveness, ease of reading, usage experience with the product, supporting evidence for arguments, providing positive information

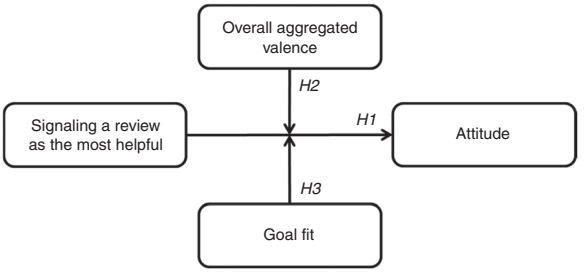


**Figure 1.**
Conceptual model

about the product and containing strong positive emotions but not strong negative emotions, contribute to classifying a review as helpful.

The proportion of helpful votes a review receives can help consumers to assess how reliable a review is, which, in turn, enhances consumer trust (Chen *et al.*, 2008). The fact that a review obtains a high proportion of helpful votes means that the community has validated it and dissociated it from a self-interested party aiming to strategically manipulate the review system (Jin and Kato, 2006).

In contrast, consumers may not trust reviews that receive a very low proportion of helpfulness votes. In this vein, Chen *et al.* (2008) found that reviews with a high proportion of helpful votes have a stronger impact on consumer purchase decisions. Online vendors, such as Amazon, are aware of this effect and display the most helpful reviews separately. These reviews are signaled as the "most helpful reviews." Consequently, although many other reviews are available, being primed and clearly detached from the rest renders these helpful reviews more salient. This, in turn, could also mean that they have a stronger impact on readers' final evaluations. This salience relates to the Signaling Theory, which pertains to information asymmetry, and assumes that, in a competitive environment, consumers and firms have differential knowledge about the market (Heil and Langvardt, 1994; Spence, 1973). Signals are mechanisms to solve problems that arise under asymmetric information (Kirmao and Rao, 2000). Spence (1973) defined signals as manipulatable attributes or activities that convey information about agents such as firms, consumers, job applicants, etc. According to the Signaling Theory, a company or person communicates the level of some unobservable element (e.g. quality of wine) by providing an observable signal (e.g. high price). Consumers receive the signal and subsequently interpret its meaning before responding to them (Robertson *et al.*, 1995). Signaling is especially relevant for products whose quality is unknown before purchase, such as experience goods (Erdem, 1998). The informative role of signals during the decision process has been previously confirmed in the literature. The rationale is that when consumers are confronted with a complex decision, they look for ways to simplify the choice (Payne *et al.*, 1993). Signs may help the consumer to identify a preferred option from the consideration set (e.g. award winner, staff-preferred selection, best seller; Kahneman and Miller, 1986). Signals reduce consumers' search costs and uncertainty associated to decision making (Gershoff *et al.*, 2001; West and Broniarczyk, 1998). At the same time, choosing an option that has already been validated by other consumers makes it easier to justify (Sela *et al.*, 2009).

In the online environment, when consumers evaluate brands or products, they generally encounter a high level of ambiguity and perceived risk, as not all information is available (Wang *et al.*, 2014). Consequently, consumers may rely on signals to evaluate the product and reduce the perceived risk. In the context of our study, consumers are likely to pay greater attention to the most helpful reviews because they make the decision-making process less tedious and more efficient (Cao *et al.*, 2011). Thus, a mark indicating which review was the most helpful acts as a signal for the consumer and makes such review more salient. As the consumer realizes that the review has received many helpful votes, he/she attaches higher credibility to it (Chen *et al.*, 2008) which, in turn, should influence attitude in the direction of that review valence. Thus, as Sussman and Siegal (2003) stated, in the context of eWOM, where most reviews are posted by complete strangers, consumers will only take online advice when they perceive it as credible. Such higher credibility will increase consumer's confidence in adopting the eWOM and using them for making decisions (Cheung *et al.*, 2009; Nabi and

Hendriks, 2003). The adoption of an online review implies that the consumer accepts its information as valid and compute it when forming their attitudes. Thus, taking these findings into consideration, we expect that the higher credibility attached to the review signaled as the most helpful should also become apparent in terms of attitude. Formally, we propose:

*H1*. The presence of a review voted as "the most helpful" will influence attitude toward the product in the direction of such review valence.

However, despite the intuition that signaling a review as the most helpful increases consumers attention towards it, a situation may occur where the signaled review does not match the overall aggregated valence, i.e., its valence differs from the average evaluation resulting from all the reviews. For instance, a consumer can read a highly voted critical review for a product (negative most helpful review) which receives general acclaim with a high average star rating (positive overall aggregated valence). That situation entails information incongruity, which represents a dilemma that consumers must solve (Aaker and Sengupta, 2000). Provided that individuals prefer congruity (Heider, 1958), when they are confronted with incongruity, they tend to resolve it by discounting inconsistent information (Wyer, 1970). In the field of WOM, research has shown that higher consensus increases the persuasiveness of positive WOM messages (West and Broniarczyk, 1998). However, low consensus among WOM providers can both mitigate preference for a positively valenced target and reduce the loss in preference for a negatively valenced target (Khare *et al.*, 2011). Given these results, it seems reasonable to expect this effect to emerge when a specific review is signaled as having been voted as "the most helpful" by similar others. The signaling should act as a prime to which the consumer would pay special attention as a consequence of its salience, with the subsequent influence on the evaluation of the product. In line with this and taking into account the discounting effect, we expect that the presence of a most helpful review will only influence attitude when its valence is incongruent with the overall aggregated valence. Therefore, when the overall aggregated valence is positive, the presence of a negative most helpful review will impair the evaluation by means of reducing the perceived general positivity. However, when the overall valence is negative, the presence of a positive most helpful review will improve the evaluation by means of reducing the perceived general negativity. Formally, we propose:

*H2*. The presence of a review voted as "the most helpful" will affect consumers' attitude toward the product only when it is incongruent with the aggregated valence. In particular:

*H2a*. In a context of positive overall aggregated valence, the presence of a negative review voted as "the most helpful" will lead to less favorable attitude.

*H2b*. In a context of negative overall aggregated valence, the presence of a positive review voted as "the most helpful" will lead to more favorable attitude.

## 3. The moderating role of goal fit

Recently, Filieri and McLeay (2013) have demonstrated that the adoption of online reviews depends on information relevance, that is to say, the applicability of a review for a specific task relates to whether that review matches the consumer needs. Needs have been associated to goals (Deci and Ryan, 2000) and goals have been proposed as essential in guiding consumers' decision making (Bagozzi and Dholakia, 1999). Indeed, as suggested by Zhang *et al.* (2010), consumers evaluate product reviews in

order to help them fulfill their consumption goals. Thus, the influence of eWOM on consumers' attitude may depend on the goals the consumer pursues when exposed to other users' opinions.

Consumer goals are generally defined as intentions to achieve desired ends by means of consumption of goods or services (Peterman, 1997). Goals are fundamental end states that energize and direct behavior, whether they constitute ambitious plans of life or simple everyday pursuits. As such, goals give meaning to existence (Righetti *et al.*, 2011).

In the context of a relationship between a customer and a company, literature has shown that incongruity in the parties' goals can lead to conflict whereas congruity of goals leads to happier and longer term customer relationships (Eliashberg and Michie, 1984; Wong and Tjosvold, 1995). Therefore, goal congruity should contribute to better relationships. Garbarino and Johnson (2001) demonstrated that consumption goals can have a significant effect on customers' overall evaluations, with those customers whose goals are congruent with the goals of the organization being more highly satisfied. Additionally, De Trudel (2009) argue that goals influence the information that consumers select and attend to during decision making, how it is perceived and encoded, and ultimately the choice itself. During the process, they try to minimize cognitive effort as well as maximize decision accuracy (Bettman *et al.*, 1993; Johnson *et al.*, 1988; Payne, 1976). Therefore, as Bettman *et al.* (1998) claimed "it is critical to characterize a consumer's goals when trying to ascertain why his or her choice processes take a certain form" (p. 192). Goals are so important in consumer behavior that even automatically activated attitudes are affected by subtle goal-priming manipulations. Thus, Ferguson and Bargh (2004) primed participants with a certain goal and then found that their attitudes where clearly biased by the goal activated. That implies that merely priming a goal is sufficient to have people engaged in goal-directed behavior.

Translating these two ideas of congruity and relevance of information to an eWOM context, it is reasonable to expect that the influence of signaling a review as the most helpful may also depend on goal fit. Thus, under high level of fit, the impact of the most helpful review on attitude would be stronger as the consumer perceives that not only has the review been voted as useful by other users, but it is also related to his/her own goals. However, when the most helpful review has little to do with the consumer's goals, the individual perceives a gap between his/her needs and the review content. Consequently, he/she disregards that review and does not pay much attention to it, resulting in weaker influence on attitude. Therefore, our prediction is that the level of fit between the consumer's goals and the most helpful review content will moderate the impact of a review that has been voted as the most helpful so that the differences in attitude will be higher for goal-fitting reviews. Therefore, we predict:

*H3.* The impact of a review voted as "the most helpful" and incongruent with the aggregated valence on attitude will be moderated by the level of fit between consumers' goals and the review content so that the higher the goal fit, the stronger the impact of the most helpful review.

## 4. Study 1

### *4.1 Methodology*

*Measures and procedure*. This study tests our hypotheses through a $3 \times 2$ between-subjects experimental design where we manipulated the presence of a review voted as the most helpful (absent, positive, negative) and the overall valence of the reviews

(positive, negative). A total of 192 undergraduate students (98 women, $M_{age} = 22.43$) participated in the study for extra course credits. University students are recognized as a good sample for internet shoppers (Kim *et al.*, 2009) and have been extensively employed in e-commerce research. The students were randomly assigned according to a factorial design. All study sessions took place in computer labs in groups of 10-15. Subjects were separated from each other and asked to complete the experiment independently.

We used hotels as product category because prior research has demonstrated that word-of-mouth communication is more likely to be influential when making purchase decisions for experience products than for search products (Jalilvand and Samiei, 2012; Park and Lee, 2009).The procedure was as follows. Participants first read an online information seeking scenario involving looking for a hotel for their end-of-year trip. After reading the scenario, subjects clicked on a link to an ostensible Tripadvisor.com website and examined the hotel as well as several reviews. We used a popular website such as Tripadvisor.com because this offers a more realistic environment for the experiment compared to a fictional website (Zhang *et al.*, 2010). Following the standard format of Tripadvisor.com, we used six different web pages for each of the six experimental conditions. In each condition, subjects saw a picture of the hotel, followed by a brief description including features such as price and star rating. Next, participants read five reviews (one focal and four filler reviews). Each review included a product rating using a five-star scale. Average rating score according to the five reviews was also provided. The positive (negative) focal review gave the product a rating of five (one) and described the hotel using four features (service professionalism, restaurant, room quality, and hotel cleanliness). Under the positive overall valence conditions, we used three five-star, one four-star and one one-star reviews, resulting in an average positive rating of four out of five stars. Under the negative valence conditions we used three one-star, one two-star and one five-star with an overall negative rating of two out of five stars. We avoided extreme average ratings (one or five stars) in order to simulate a more realistic online shopping environment. The most helpful condition was manipulated with a sign indicating that the review had been voted as the most helpful. Additionally, we provided information about the number of previous users who had rated the review as helpful. To fix the baseline number of votes needed to consider a review as helpful, we asked 43 undergraduate students how many votes a review for a hotel should receive to be perceived as very helpful. The mean was 78 so that was the reference number used in our experiment.

After examining the product and the consumer reviews displayed in Tripadvisor.com, participants reported their attitudes toward the product using four seven-point semantic differential items anchored by unfavorable/favorable, negative/positive, dislike/like, and bad/good (Batra and Stayman, 1990; Cronbach's $\alpha = 0.98$). Later, manipulation checks for the independent variables were included. Finally, several demographic questions were asked. On average, each participant took 15 minutes to complete the online experiment. They were debriefed about the nature of the study before leaving the computer lab and asked not to discuss it with other students.

### *4.2 Results*

*Manipulation checks*. In order to check the valence manipulation, participants were asked to rate the hotel reviews on a single item scale ranging from 1 (very negative) to 5 (very positive). As expected, the results from ANOVA showed a significant effect of

valence ($F(1,179) = 214.54$, $p < 0.001$). Subjects perceived that the hotel reviews were more positive under positive valence ($M_{pv} = 3.77$) compared to the negative valence condition ($M_{nv} = 2.16$). The "most helpful" condition was checked by asking the subjects whether they noticed the presence of a mark signaling a most helpful review in the review set provided. 95 percent of the subjects under the "most helpful" conditions (both positive and negative) acknowledged that there was a review marked by other users as very useful while 92 percent of the subjects in the absent most helpful condition said there was no sign in any particular review. Similarly, 97 percent of the subjects under the positive most helpful condition said the most helpful review was positive while 93 percent of the participants in the negative most helpful condition indicated that the most helpful review was negative. Those participants who failed in the manipulation checks were dropped from the database, leaving a final sample of 181.

*Hypotheses testing*. We used univariate analyses (ANOVA) to check our hypotheses. The main effects of valence ($F(1,175) = 269.58$, $p < 0.001$) and most helpful ($F(2,175) = 11.55$, $p < 0.001$) were statistically significant, as it was their interaction ($F(2,175) = 3.75$, $p < 0.05$).

*H1* predicted an effect of the presence of "the most helpful" review on attitude toward the product in a valence-congruent direction. The comparison of marginal means revealed that attitude was more favorable in the positive most helpful condition than in the condition where the most helpful review was absent ($M_{pos} = 4.52$; $M_{absent} = 4.02$; $F(1,175) = 4.44$; $p < 0.05$). Furthermore, there were significant differences between the positive and negative most helpful conditions ($M_{pos} = 4.52$; $M_{neg} = 3.50$; $F(1,175) = 21.59$; $p < 0.001$) as well as between the negative most helpful condition and the absent condition ($M_{neg} = 3.50$; $M_{absent} = 4.02$; $F(1,175) = 6.18$; $p < 0.05$), confirming *H1*. Additionally, *H2* posits that the presence of a most helpful review which is incongruent with overall aggregated valence will affect consumers' attitude toward the product. Simple effects support the predicted relationship (Figure 2). Thus, on the one hand, in a context of positive overall valence, pairwise comparisons show that attitude toward the product is lower in the negative most helpful condition than in the absent condition ($M_{neg} = 4.68$; $M_{absent} = 5.70$; $F(1,175) = 13.07$; $p < 0.001$). However, no differences emerge when the most helpful review is congruent (i.e. positive) with the overall valence ($M_{pos} = 5.70$; $M_{absent} = 5.70$ ($F(1,175) = 0.00$, $p = 0.99$). Therefore *H2a* is supported. On the other hand, we also find a significant simple effect when a positive most helpful review is present in a context of negative overall aggregated valence. Pairwise comparisons show that attitude toward

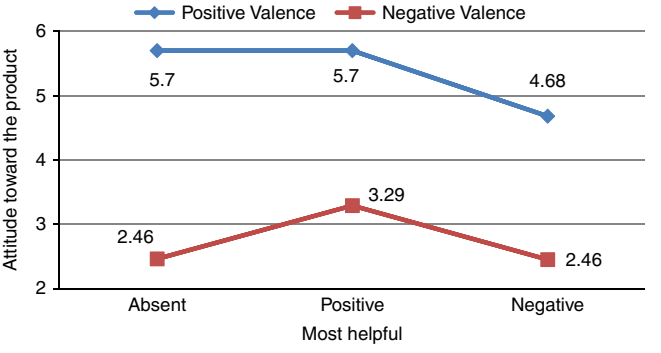


**Figure 2.**
Interaction between valence and most helpful

the product is higher when a most helpful positive review is present than when it is not ($M_{pos} = 3.29$; $M_{absent} = 2.46$; $F(1,175) = 8.80$; $p < 0.01$). Regarding the congruent situation (negative overall aggregated valence and a most helpful negative review), no significant differences appear ($M_{neg} = 2.45$; $M_{absent} = 2.46$ ($F(1,175) = 0.00$, $p = 0.97$). These results support *H2b*. Therefore, it seems that the availability of a review voted as the most helpful which is incongruent with the overall aggregated valence qualifies attitude in the direction of the most helpful review valence. Since the three conditions within the same overall valence display an identical review set, only when the incongruent review is marked as the most helpful does this effect come out.

### *4.3 Discussion*

The power of the eWOM phenomenon is increasing as more consumers use this medium to communicate their experiences. In previous literature valence has been shown to affect consumers' attitude significantly. In this experiment, we introduce a new contextual variable (review popularity in the form of "most helpful review"), which brings additional insight into the effects of the eWOM valence. We found that the availability of a most helpful review which is incongruent with the overall valence influences attitude in the direction of that review valence. Therefore, it is not only the valence of the most helpful review that matters but also its interaction with the overall users' evaluation. Consequently, the effect requires information incongruity to influence attitude significantly.

## 5. Study 2

### *5.1 Methodology*

*Measures and procedure*. We used a $2 \times 3 \times 2$ experimental design where we manipulated the most helpful review (absent and present), the level of fit between the consumers' goals and the most helpful review content (low, intermediate and high) and overall valence (negative and positive). A sample of 328 undergraduate students (54.1 percent women, $M_{age} = 21.82$) was recruited for the study in exchange for extra course credits. Upon arrival to the computer lab, participants were randomly assigned to one of the twelve conditions.

The procedure was similar to that presented in study 1. Subjects first read an online information seeking scenario which involved looking for a hotel for their end-of-year trip. Afterwards, participants were instructed to surf on an ostensible Tripadvisor.com website where information about a hotel was displayed. Besides the hotel description, each participant was provided with five reviews: one focal negative (positive) review and four filler reviews with an average positive rating of four out of five stars (negative rating of two out of five stars). Again, under the "most helpful review" condition, the focal review was marked with the corresponding sign and we provided information about the number of previous users who had rated the review as helpful (78) whereas no indication about popularity was included in the absent condition.

Regarding the manipulation of fit between the consumer's goals and those implicit in the focal review, we conducted a pre-test to identify the hotel characteristics that were most important for an end-of-year trip, a family trip with kids and a trip for couples. We assumed that those elicited for the end-of-year trip would correspond to the high fit condition whereas those related to a family trip with kids would be more suitable for the low fit condition. The intermediate fit condition would be represented by a trip for couples, as it may be perceived by participants as closer to a trip with

friends than a trip with children. Thus, based on the pre-test, the focal negative (positive) review highlighted the following features: long (short) distance from the night life area, boring (active) night atmosphere at the hotel and most guests were old people and families with kids (young people) in the high fit condition; no nursery service (nursery service), no activities for children (many activities for children) and lots of noise (quietness) in the low fit condition; and bad (good) room service, bad (good) cleaning service and the restaurant was short of (full of) waiters in the intermediate fit condition. The pre-test confirmed the need to distinguish three levels of fit to appropriately represent this variable in the experimental design.

After examining the product and the available reviews, participants reported their attitude toward the product using four seven-point semantic differential items anchored by unfavorable/favorable, negative/positive, dislike/like, and bad/good (Batra and Stayman, 1990; $\alpha = 0.90$). Later, manipulation checks for the independent variables were included. Finally, several demographic questions were asked. On average, each student took 17 minutes to complete the online experiment. Finally, participants were thanked and debriefed.

*5.2 Results*

*Manipulation checks*. In order to check the "most helpful" manipulation, we asked subjects whether they had noticed the presence of a most helpful review in the review set provided. Eight participants failed to identify the condition they were assigned to and were dropped from the sample, leaving 320 valid questionnaires.

In relation to the level of fit between consumer's goals and the most helpful review content, we conducted an ANOVA analysis. We found a main effect of level of fit ($F(2,317) = 143.49$; $p < 0.001$). As expected, there were differences between the low and the intermediate levels of fit ($M_{low} = 2.17$; $M_{intermediate} = 3.64$; $F(1,317) = 64.00$; $p < 0.001$) as well as between the low and high levels of fit ($M_{low} = 2.17$; $M_{high} = 4.98$; $F(1,317) = 285.82$; $p < 0.001$) and between the intermediate and the high levels of fit ($M_{intermediate} = 3.64$; $M_{high} = 4.98$; $F(1,317) = 78.68$; $p < 0.001$), confirming, again, the three levels of fit identified in the pre-test. Consequently, participants perceived that the level of fit of the information in the focal review varied across conditions, thus supporting our manipulation. With regard to overall valence, every participant was able to identify the condition they were exposed to. Finally, participants in the positive overall aggregated valence ($M = 3.82$) rated the global evaluation of the review set as more positive than those in the negative overall aggregated valence ($M = 2.07$; $F(1,318) = 605.87$; $p < 0.001$).

*Hypotheses testing*. ANOVA analysis revealed that the main effect of overall valence on attitude was highly significant ($F(1,308) = 374.46$, $p < 0.001$) whereas the main effects of most helpful ($F(1,308) = 0.87$; $p > 0.10$) and level of fit ($F(2,308) = 0.40$; $p > 0.10$) were not. Additionally, the interactions between most helpful and overall valence ($F(1,308) = 25.25$; $p < 0.001$) and level of fit and overall valence ($F(2,308) = 8.47$; $p < 0.001$) were significant whereas the interaction between most helpful and level of fit did not reach significance although it was close ($F(2,308) = 2.28$; $p = 0.10$). The three-way interaction was marginally significant ($F(2,308) = 2.44$; $p < 0.10$).

*H3* predicted an interaction effect between the level of fit and the presence of a most helpful review (Figure 3). To test it, pairwise comparisons were conducted. In the positive overall valence situation, in the condition where no review was signaled as the most helpful, there were no differences between the low and intermediate levels of fit

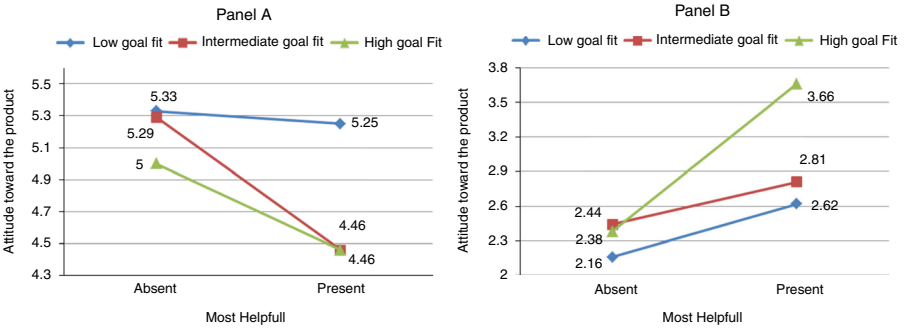


**Figure 3.**
Attitude across conditions

**Notes:** Panel A: positive overall valence and Panel B: negative overall valence

($M_{low} = 5.33$; $M_{intermediate} = 5.29$; $F(1,308) = 0.01$; $p > 0.10$), neither between the low and high levels ($M_{low} = 5.33$; $M_{high} = 5.00$; $F(1,308) = 1.69$; $p > 0.10$), nor between the intermediate and high levels ($M_{intermediate} = 5.29$; $M_{high} = 5.00$; $F(1,308) = 1.48$; $p > 0.10$). In the condition where a most helpful review was present, there were no differences between the intermediate and high levels of fit ($M_{intermediate} = 4.46$; $M_{high} = 4.46$; $F(1,308) = 0.01$; $p > 0.10$) whereas there were significant differences between the low and intermediate levels ($M_{low} = 5.25$; $M_{intermediate} = 4.46$; $F(1,308) = 7.03$; $p < 0.01$) and between the low and high levels ($M_{low} = 5.25$; $M_{high} = 4.46$; $F(1,308) = 7.97$; $p < 0.01$).

Regarding the negative overall valence situation, the results mirrored those in the positive overall valence with significant differences only when the focal review was signaled as the most helpful. Thus, when no review was signaled as the most helpful, no differences were found between the low and intermediate levels of fit ($M_{low} = 2.16$; $M_{intermediate} = 2.44$; $F(1,308) = 1.05$; $p > 0.10$), neither between the low and high levels ($M_{low} = 2.16$; $M_{high} = 2.38$; $F(1,308) = 0.51$; $p > 0.10$) nor between the intermediate and high levels ($M_{intermediate} = 2.44$; $M_{high} = 2.38$; $F(1,308) = 0.11$; $p > 0.10$). However, when a most helpful review was present, there were no differences between the intermediate and low levels of fit ($M_{intermediate} = 2.81$; $M_{low} = 2.62$; $F(1,308) = 0.24$; $p > 0.10$) whereas there were significant differences between the high and intermediate levels ($M_{high} = 3.66$; $M_{intermediate} = 2.81$; $F(1,308) = 7.31$; $p < 0.01$) and between the low and high levels ($M_{low} = 2.62$; $M_{high} = 3.66$; $F(1,308) = 10.82$; $p < 0.01$). Thus, as predicted in *H3*, the impact of a most helpful review depends on the level of fit between the consumer's goals and the eWOM content in the context of positive overall valence and negative focal review.

### *5.3 Discussion*

In this second study, we qualify the results from study 1. We demonstrate that the fit between the consumer's goals and the eWOM content moderates the effect of a review signaled by other users as the most helpful. Thus, the effect of a most helpful review is stronger when, additionally, what is written in the review is in line with the consumer's interests.

## 6. General discussion

Extant literature has profusely studied the impact of eWOM on the decision-making process (Cheung *et al.*, 2008). However, the key role played by reviews' rating systems

has not been examined yet. What is more, the focus on the interaction between the components of an eWOM system adopted in this paper provides a renewed approach into the effect of online reviews on consumers attitude, representing the main contribution of the current research.

In a context of online information overload, an appropriate eWOM system may facilitate consumers' evaluation processes; instead of using and processing huge amounts of information, the consumer may rely on the most salient reviews. The availability of a review signaled as the "most helpful" according to other users' opinions and votes can reduce the complexity associated to product evaluations and decision making. Throughout two experiments, we deal with the effect of the presence of reviews voted as the most helpful on consumers attitude and found that the impact of such helpful reviews on consumers' attitudes depends on: the congruity between the valence of the most helpful review and the average overall valence of all the reviews received by the product; and the congruity between the consumer's goals and the most helpful review content. The first study reveals that the presence of a most helpful review influences consumers' evaluations, but only when its valence opposes the general rating, i.e., the overall valence. In other words, incongruity between the aggregate information in valence and the most helpful review has to occur for the effect to emerge. Thus, when the signaled review in is line with the overall evaluation, attitude remains the same. However, when they are at odds, attitude shifts in the most helpful review valence direction. In those situations, the most helpful mark acts as a signal for the consumer, who interprets that mark as an indication of agreement among other users. The signal provides the review with higher credibility and salience, with the subsequent impact on attitude. This result confirms the idea that using signals for experience goods is especially useful as the consumer lacks the capacity or prior experience to evaluate the product accurately (Kirmao and Rao, 2000).

The second study demonstrates that the effect of most helpful reviews is moderated by the level of fit between the consumer's goals and the most helpful review content. In particular, the higher the level of fit, the stronger the impact on attitude. This finding implies that the consumer disregards the reviews highlighted as the most helpful when they are unrelated to their aims, that is to say, the mere fact of being detached from the rest and made more salient does not necessarily lead to attitude change. The content must match the consumers' goals to be taken into consideration, confirming that consumers, whose cognitive resources are limited, only pay attention to those stimuli that are relevant for their interests (De Trudel, 2009). In particular, under positive overall valence and negative focal review, when the level of fit is low, that is to say, when the features mentioned in the review are not related to the consumer's interests, attitude remains the same, regardless of the "most helpful" mark. In contrast, when the content of the review matches the consumer's goals, then being primed as the most helpful makes a difference, so attitude is less favorable in the "present" condition, as the review becomes more salient. Interestingly, in the intermediate level, being primed with a sign indicating that a review has been voted as the most helpful also reduces attitude. Therefore, even when the features mentioned in the review are not highly congruent with the consumer's goals, the mere fact of marking it as very useful contributes to a less favorable attitude, whereas in the absent condition, the intermediate level of fit produces a similar attitude than the low level of fit. These findings highlight the relevance of signaling reviews as the most voted or the most helpful. They are also in line with the stream of research claiming the existence of a negativity bias, i.e., that negative information is more diagnostic than positive information (Herr *et al.*, 1991;

Yang and Mai, 2010) and therefore, consumers largely rely on negative reviews when making their decisions. Here, highlighting a negative review which is not completely congruent with the consumer's goals leads the individual to adjust his/her attitude downwardly.

Under negative overall valence and positive focal review, the interpretation in the intermediate level of fit is slightly different. In this case, attitude is similar to that in the incongruent condition, meaning that positive information which is not narrowly related to the consumer's goals is not directly incorporated into the attitude formation process. In other words, consumers only consider positive reviews that clearly serve their aims and distrust the others. This result relates to the literature suggesting that consumers tend to be reluctant to accept positive, over-the-top reviews as they suspect that a commercial source may be behind it and, consequently, the opinion might be fake (Mayzlin *et al.*, 2012). It is important to highlight at this point that the operationalization of level of fit through three levels enabled us to provide further theoretical explanations for our results in each valence condition. Without the intermediate level, literature about the negativity bias as well as that related to the reluctance to accept very positive opinions would not have been considered and, consequently, the interpretation would have been limited.

## 7. Managerial implications

Our results provide marketers with insights into the influence of reviews voted as the most helpful on consumers' evaluations and the decision-making process. Helpfulness votes add value to product reviews and help consumers to identify the most relevant ones, especially a high volume of them is available. For this reason, online vendors should provide their potential customers quick access to helpfulness votes and signal the most helpful ones. Numerous online firms are already using these helpfulness votes as they are aware of the fact that the most helpful reviews could counterbalance the effect of the overall review valence for a product. However, our two studies encourage them to go a step further. They may benefit from a categorization of reviews according to the goals pursued by those who posted them. In that way, they assure the fit between the most helpful review and the consumer's goals, which, in turn, influences attitude. Otherwise, the sometimes complex mechanisms used to identify the most helpful reviews may prove useless. Besides, enabling consumers to filter and sort reviews by specific purchase goals or most important product attributes might help consumers to identify the most relevant reviews, preventing their opinions to be biased by negative reviews that do not match their interests. In summary, online vendors should design their eWOM systems in such a way that their potential customers can access rapidly to the most helpful product reviews that fit their purchase goals. Otherwise, the increasing number of product reviews available may prove to be not so useful. In fact, there are several factors that can inhibit eWOM positive effects such as the suspicion of self-interested behavior on the part of sellers or information overload. In this regard it is very important for marketers to adapt the eWOM information system to provide the most helpful information according to consumers' particular needs. This way of presenting eWOM information can contribute to make online vendors more recommenders than informants.

## 8. Limitations and future research

This paper is not free of limitations. First, although convenience samples are widely accepted in consumer behavior research, we must acknowledge that it can impair the

generalizability of our findings. Additionally, the number of reviews participants were exposed to may not be realistic. We only used five reviews to gain parsimony. However, nowadays, on the internet, the number of opinions available for users is high for some products, which may render the presence of a review voted as the most helpful even more salient. That extent has not been tested in our experiments. Furthermore, we have not paid attention to some personality traits that may moderate the effects (e.g. susceptibility to interpersonal influence, trust in online reviews, etc.).

The previous limitations also represent future avenues for research. Thus, it could be interesting to replicate the findings in a more realistic environment, where a higher number of reviews are available. Another valuable extension of this research would be to study the interaction between valence, helpfulness votes and other components of an eWOM system, such as the reputation of the reviewer. Some sites actually provide information about the reviewer's experience and this qualitative characteristic may moderate the effects of general valence and helpfulness votes. Additionally, personality trait can be proposed as moderators.

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