Balance and Sequence in Online Reviews: How Perceived Usefulness Affects Attitudes and Intentions

Article *in* Journal of Interactive Marketing · November 2012

DOI: 10.1016/j.intmar.2012.04.002

3 authors, including:

Patrick De Pelsmacker
University of Antwerp
223 PUBLICATIONS **9,039** CITATIONS

SEE PROFILE

Nathalie Dens
University of Antwerp
86 PUBLICATIONS **1,988** CITATIONS

SEE PROFILE

Available online at www.sciencedirect.com

SciVerse ScienceDirect

Journal of Interactive Marketing 26 (2012) 244–255

JOURNAL OF INTERACTIVE MARKETING

www.elsevier.com/locate/intmar

Balance and Sequence in Online Reviews: How Perceived Usefulness Affects Attitudes and Intentions

Nathalia Purnawirawan [a,*], Patrick De Pelsmacker [a,b] & Nathalie Dens [a]

[a] University of Antwerp, Faculty of Applied Economics, Marketing Department, Prinsstraat 13, BE-2000 Antwerpen, Belgium
[b] Ghent University, Faculty of Economics and Business Administration, Marketing Department, Tweekerkenstraat 2, BE-9000 Ghent, Belgium

Available online 26 May 2012

Abstract

This paper is the first study that investigates the impact of balance (the ratio of positive and negative reviews) and sequence (the order in which the reviews are presented) of a set of online reviews on the perceived usefulness of these reviews (objective 1). As a second objective, our study attempts to provide more understanding in the gatekeeping role of the perceived usefulness. The results do not only evidence that review balance matters, but also reveal that review sequence has an important effect on the perceived usefulness of a set of reviews. The crucial role of perceived usefulness is demonstrated in that only when reviews are perceived as relatively useful, recall of positive and negative review information affects attitude and intention formation through the impression it creates about the object.

Keywords: Electronic word-of-mouth; Online product reviews; Perceived usefulness; Balance and sequence; Wrap effect

Introduction

Traditional word-of-mouth (WOM) communications have been proven to influence both pre-purchase decision as well as post-purchase product perception (Herr, Kardes, and Kim 1991; Matos and Rossi 2008; Sweeney, Soutar, and Mazzarol 2008). With the increasing use of the Internet and advancing information technology, this face-to-face or offline communication form now also takes place on various types of electronic word-of-mouth (eWOM) platforms, such as social and professional networking sites (Facebook, LinkedIn) and consumer review sites (CNet, Epinions) (Brown, Broderick, and Lee 2007; Hennig-Thurau et al. 2004). The present study focuses on online consumer reviews, a type of product information generated by users, based on their personal experience. More and more people exchange or share product information on the Internet and this available information allows other consumers to deliberate their purchase decision (Werbler 2009). Recent evidence suggests that consumer reviews have become extremely important in consumer decision-making and affects product sales (e.g., Chevalier and Mayzlin 2006; Zhu and Zhang 2010). Most consumers consider user-generated content such as online reviews as less intrusive than producer-generated content (e.g., advertising) because they actively search for the information themselves (Winer 2009). Information retrieved from user-generated sources is also generally perceived as more credible, and consequently more useful, than information generated by marketers (Bickart and Schindler 2001; Bronner and de Hoog 2010). This is especially true for experience products, such as hotels and restaurants (Bronner and de Hoog 2010).

Despite the recognized impact of online reviews, there is little understanding of how consumers process them. Assuming that consumers are consulting online reviews because they have the intention to buy a certain product or service (Goldsmith and Horowitz 2006), some reviews will be categorized as useful (i.e., helpful in making a decision about whether or not to buy or use the reviewed product or service) (Cheung, Lee, and Rabjohn 2008), and others less so. To what extent can different presentation characteristics of reviews influence their perceived usefulness and how does the perceived usefulness of these reviews influence the impact of reviews in the decision-making process? When consumers are exposed to a large amount of information on the Internet, how do they decide which piece of information is useful and therefore, will be used in their purchase decision process?

* Corresponding author.
E-mail addresses: nathalia.purnawirawan@ua.ac.be (N. Purnawirawan), patrick.depelsmacker@ua.ac.be (P. De Pelsmacker), nathalie.dens@ua.ac.be (N. Dens).

1094-9968/$ -see front matter
doi:10.1016/j.intmar.2012.04.002

The first purpose of the current study is to investigate how the balance (the ratio of positive and negative reviews) and sequence (the order in which the reviews are presented) of a set of online reviews impact the perceived usefulness of these reviews as a set. A few studies have already investigated factors influencing the perceived usefulness of single consumer reviews, including source credibility, product type, argumentation, valence and rating (extremity) (Cheung, Lee, and Rabjohn 2008; Forman, Ghose, and Wiesenfeld 2008; Li and Zhan 2011; Mudambi and Schuff 2010; Sen and Lerman 2007; Willemsen et al. 2011). These existing studies, however, have focused on the perceived usefulness of a single online review. In real life, reviews are rarely presented in isolation and for most products consumers are likely to find a mix of both positive and negative reviews online. It is therefore relevant to study how patterns of multiple reviews are considered when going through the consumer decision-making process. Consumers' perception of the review set's usefulness will be formed based on an evaluation of the set, rather than the assessment of each review in isolation. To our knowledge, only four studies (Chiou and Cheng 2003; Doh and Hwang 2009; Lee, Park, and Han 2008; Purnawirawan, De Pelsmacker, and Dens 2010) have tested the impact of a set of mixed positive and negative reviews. However, these studies did not measure perceived usefulness. Our first contribution is thus that we explore how two different characteristics of a review set (i.e., balance and sequence) interact to determine the perceived review usefulness of the review set as a whole. Compared to previous studies, the present study better reflects the actual processing situation that consumers encounter when reading reviews on the web.

In the second analysis of the study, we examine how the perceived usefulness of a review set moderates the relationship between readers' recall of review information, their impression about the reviews and their attitude and behavioral intention toward the reviewed object. Attitudes and behavioral intentions are formed on the basis of information and beliefs accessible in memory (Ajzen and Fishbein 2000; Bruner and Kumar 2000). Nonetheless, previous research has often failed to find a relationship between information recall and attitude and intention formation (Hawkins and Hoch 1992; Russell 2002). We argue that consumers, while reading or screening for information, assign a certain usefulness to reviews that are critical for adopting that information. Information that is not deemed useful will be screened out, and only useful information will be taken into consideration. Consequently, our second contribution is to investigate the gatekeeping function of perceived usefulness in the decision-making process (Bickart and Schindler 2001).

In the remainder of the article, we first elaborate on how the balance of a set of reviews interacts with the sequence in which reviews are processed to influence readers' perceptions of whether or not the reviews are useful. Next, we present arguments to explain how the relationship between recall of review information, readers' impressions of the review set and attitude and behavioral intention toward the target object varies according to this perceived usefulness of the review set. We demonstrate how a reader's impression of the reviews mediates the effect of recall of review information on his/her attitude and behavioral intention towards the object, and how this mediating role can be stronger or weaker depending upon the reviews' perceived usefulness. We use the availability–diagnosticity principle as the main theoretical framework for the development of our hypotheses. An overview of the research framework is shown in Fig. 1.

Theoretical Framework and Hypothesis Development

We develop three hypotheses based on the development and role of perceived usefulness in online reviews, based on accessibility–diagnosticity theory (Ahluwalia and Gürhan-Canli 2000). This theory postulates that the influence of a particular piece of information on the decision process depends on the relative availability of the information in a consumer's memory and the diagnosticity of the information during the decision process (Feldman and Lynch 1988). The diagnosticity of the information can be described as the perceived ability of the information to provide the information seekers with relevant product information that helps them in understanding and evaluating the quality and performance of the target object (Ahluwalia and Gürhan-Canli 2000; Jiang and Benbasat 2007). Based on this theory, we argue how the balance of a set of reviews will impact the perceived usefulness of the review set (H1), how this is moderated by the sequence of the reviews (H2a and H2b), and how perceived usefulness in turn moderates the relationship between recall, impression and attitude and intention (H3).

The Impact of the Balance of a Review Set on its Perceived Usefulness

The valence of a review refers to the evaluative direction of the review, and can be positive, neutral or negative. A neutrally valenced review provides the reader with descriptive information about the target object without any evaluative direction. A

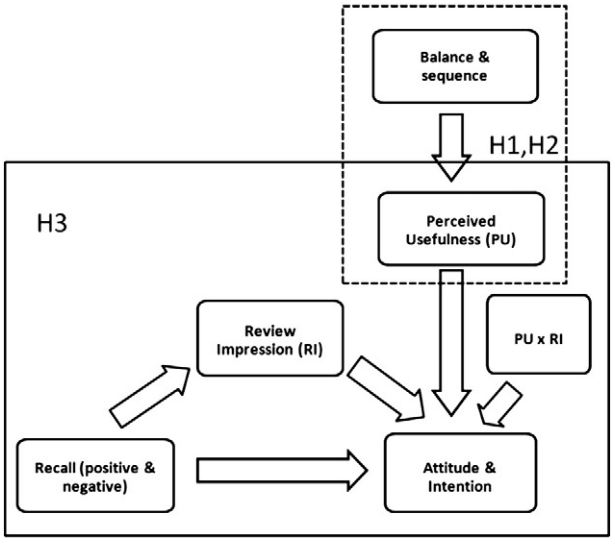

Fig. 1. Research model and hypothesis overview.

positive review offers information that evaluates the object positively and vice versa for a negative review. In the current study, we are focusing on a set of multiple reviews which are presented about a single review object. The balance of a set of reviews refers to the ratio of positive and negative reviews. When the number of positive reviews is higher than, equal to or lower than the number of negative reviews, the balance will then be positive, neutral or negative, respectively.

Previous findings regarding the impact of review valence and review extremity (which is closely associated with our concept of "balance") on perceived usefulness show that valence or extremity are not linearly related to the perceived usefulness of a review. For instance, Forman, Ghose, and Wiesenfeld (2008) evidenced that moderate reviews (3 stars) were evaluated as less useful than reviews expressing a clearly positive (4–5 stars) or negative (1–2 stars) opinion. They argued that equivocal (moderate) reviews were considered as uninformative because they contain ambiguous information, while unequivocal (clearly positive or negative reviews) reviews have clear implications for the purchase decision.

In terms of the accessibility–diagnosticity principle (Ahluwalia and Gürhan-Canli 2000), the perceived usefulness of a review set, defined as the helpfulness of the review set in the decision process, can be seen as a reflection of review diagnosticity (Mudambi and Schuff 2010). We argue that, as consumers usually realize that each product/service has its strengths and weaknesses, reading both positive and negative reviews can enhance the completeness of information (Cheung et al. 2009). However, when there are too many conflicting opinions, and half of the group express a positive judgment, while the other half pronounce a negative evaluation (i.e., in a neutral balance), this contradictory information leaves the reader at a loss on whether or not to buy this product, and this should be perceived as less useful than when the group utters a more straightforward opinion and the balance is clearly positive (negative) Forman, Ghose, and Wiesenfeld (2008). This expectation is in line with Chiou and Cheng (2003), who suggested that both positive and negative balances possess a higher degree of consensus compared to a neutral balance. As there are more individuals agreeing that the reviewed object is good (in case of positive balance) or bad (in case of negative balance) compared to the neutral conditions, the reader may have more confidence that the information is true (Burnkrant and Cousineau 1975). As a result, such consistent information in the positive and negative balance is perceived as more useful than the relatively inconsistent information in the neutral balance.

In cases where the number of positive reviews clearly outweighs the number of negative reviews, or vice versa, the reader may consider this as complete, relevant and useful (i.e. diagnostic) information to develop a buying decision (Vermeulen and Seegers 2009). This allows people to make an accurate judgment (to buy or not to buy) faster than in the case of a neutral balance, and should thus be perceived as more useful. Therefore we hypothesize:

H1. People perceive a set of reviews as more useful when the balance of the review set is clearly positive or clearly negative (an unbalanced review set) than when the balance is neutral.

The Moderating Impact of the Sequence of a Review Set on its Perceived Usefulness

The sequence of a review set is the order in which a reader views the different reviews in a given set. The potential impact of the sequence in which reviews are read can be explained by serial position effects. The notion of sequence or serial position effects has been studied in various research domains. The *primacy effect* is a cognitive bias that occurs when the first item of a list or a sequence is remembered or chosen over all other items because the cognitive capacity of the short term memory at the beginning of the list is still unburdened, compared to its status in the middle of the list (Deese and Kaufman 1957; Haugtvedt and Wegener 1994). The *recency effect* refers to the tendency to mainly take into account the last item of a list or a sequence because this last item is the latest piece of information and therefore the easiest to bring to mind (Cohen 1981; Murdock 1962). Previous studies have also identified a *reinforcement of primacy and recency effect*, resulting in a higher impact of both the first and the last elements in a list, in comparison to all other elements in the list (Craik and Watkins 1973; Rundus and Atkinson 1970). Studies on sequence bias in the online environment have found evidence for primacy effects (e.g., Ansari and Mela 2003; Drèze and Zufryden 2004; Hoque and Lohse 1999), recency effects (Buda and Zhang 2000) and both primacy and recency effects (e.g., Murphy, Hofacker, and Mizerski 2006; Purnawirawan, De Pelsmacker, and Dens 2010).

In accordance with the primacy–recency reinforcement principle, we argue that the perceived usefulness of a set of unbalanced reviews will be reinforced when a review set starts and ends with reviews of the valence shared by the majority of the reviewers, in other words, wrapping the minority opinions in the majority opinions. The valence of the first review plays a crucial role in making a judgment, namely as a reference, or a primary idea, about whether or not the target object is good. In other words, the valence of the first review allows the reader to make a diagnosis about the quality of the target object. Additionally, this diagnosis may be held with a high degree of confidence and influences the encoding and retrieval processes of other information. In case the closing reviews in the wrap structure repeat the evaluation of the first reviews in term of valence, this last review serves as a confirmation and reinforcement of the initial judgment, providing the reader with even more useful information in decision-making than when the reviews do not have a wrapped sequence. In other words, the wrap sequence in unbalanced review sets is likely to reinforce the diagnosticity of the review set.

We do not predict this sequence effect on perceived usefulness to take place in balanced (neutral) review sets. A balanced review set is less diagnostic as such because of the equilibrium between positive and negative reviews (H1). In this case, a wrap sequence would not be capable of improving the diagnosticity of the review set because there is no majority or minority (positive or negative) opinion, so no wrap can take place. In our concrete case, where there are eight reviews, showing them in a wrapped sequence would imply two

negative (positive), four positive (negative), two negative (positive). We believe that this is insufficient for reinforcement to take place, as there are not sufficient reviews for a strongly held diagnosis, and the "supporting" reviews in the end come too late and are too far apart from the first. If this is true, a balanced review set is not likely to be perceived as useful, regardless of the sequence the reviews are presented in. As the opinions are so diffused, this is likely to be the main determinant of the perceived usefulness. Hence, we expect:

H2a. In a negatively balanced set of reviews, a review set wrapping the positive reviews into the negative ones is perceived as more useful than other review sequences.

H2b. In a positively balanced set of reviews, a review set wrapping the negative reviews into the positive ones is perceived as more useful than other review sequences.

Additionally, these two hypotheses justify why we do not expect sequence in itself to have a main effect on perceived usefulness of the review set. Wrapping the positive reviews into the negative ones in a negative balance is expected to result in the highest perceived usefulness, while this configuration in the positive balance is expected to result in a significantly lower perceived usefulness, and vice versa for wrapping negative reviews into positive ones. Therefore, these high and low scores between the negative and positive balance will cancel each other out. As a result, it is not meaningful to hypothesize the main impact of sequence on perceived usefulness.

The Moderating Role of Perceived Usefulness on the Relationship Between Recalled Review Information, Impression and Attitude and Behavioral Intention

We define review impression as the extent to which the reader, after reading a set of reviews, gets a negative or positive impression about the target object. An attitude is an evaluative judgment of a stimulus which represents a person's general feeling of favorableness or unfavorableness toward the target object (Fishbein and Ajzen 1975). A behavioral intention refers to a person's subjective probability to perform a certain behavior with respect to the target object (Fishbein and Ajzen 1975). Classical consumer behavior theories such as the hierarchy of effects models (e.g., Bruner and Kumar 2000; Lavidge and Steiner 1961) and the theory of reasoned action (e.g., Ajzen and Fishbein 2000; Hansen, Möller Jensen, and Stubbe Solgaard 2004) postulate that attitudes and behavioral intentions are formed on the basis of beliefs (i.e. a link between an object and some attributes that is accessible in memory). In this perspective, recall of information and attitude are intrinsically related (e.g., Babin and Carder 1996; Gupta and Lord 1998; Hovland, Janis, and Kelley 1953; Krugman 1965) because a person's attitude toward the object is a function of his evaluations of these attributes.

However, quite some researchers failed to find a significant relationship between recall of information about an object on the one hand and attitudes and intentions towards this object on the other (Hawkins and Hoch 1992; Mackie and Asuncion 1990; Petty, Cacioppo, and Schumann 1983; Russell 2002). In the context of the present study, as consumers are reading reviews about an object they were previously unfamiliar with, the recalled review information should strongly influence consumers' impressions of the reviewed object. We expect that both positive and negative arguments from reviews which are recalled by the reader will determine the readers' impression of the reviews, and that this impression will in turn affect the formation of attitude and behavioral intention towards the object (Holbrook et al. 2001; Klein 1996). However, we propose that the perceived usefulness of the review set plays a crucial role in determining the relationship between information recall and attitude and behavioral intention. Recall will indirectly affect attitude and intention through impression formation, but only when people perceive the information to be useful. In other words, review impression will mediate the impact of recall on attitude and intention, and this mediation is moderated by the usefulness perception.

This expectation is in line with the accessibility–diagnosticity principle, which proposes that information is only likely used as an input for judgment when it is both accessible in memory (how easily it comes to mind) and diagnostic for the judgment (Ahluwalia and Gürhan-Canli 2000; Feldman and Lynch 1988). The information that is stored in short term memory due to recent acquisition or recent use, should be highly accessible, and can have a strong influence on attitudes and intentions (Wyer and Srull 1989). However, the effect of recalled (and thus accessible) review information on attitude and intention formation will only be significant when information diagnosticity is high, in other words when people consider the information as useful. We hypothesize:

H3. Only when a set of reviews is perceived as very useful will consumers' impression about the set of reviews mediate the impact of recall of review information on the attitude towards the object and behavioral intention.

Research Method

Pretests: Selection of Context and Review Elements

Three different pretests were conducted as a preparation for the main study. We created a vacation context (an all-inclusive beach hotel on the Spanish island Tenerife), which according to the first pretest was appealing to 12 out of 14 tested respondents. Through a content analysis of existing review websites on the Internet, we collected forty-eight hotel quality elements that would fit in the specific context. Based on a second pretest, sixteen attributes scoring as most important in choosing a hotel were selected. Out of these 16 attributes, four were related to food, four others were connected to the hotel staff and the other eight were a mix of other elements such as location, swimming pool, etc. These 16 attributes were used to compose eight reviews (see Appendix A). Two items were thus combined in a single review to mimic realistic reviews. Each review consisted of one staff or one food item and one other item. Since review length can be correlated with reviewer's

level of enthusiasm and thus may affect readers' judgment (Chevalier and Mayzlin 2006), the length of each review was kept constant. Based on a second pretest (n=31), a repeated measures ANOVA confirmed that the eight reviews were all perceived as equally important ($F(7, 31)=7.122$ $p=.662$). Each review was then reversed into its opposite to generate identical reviews with both a positive and a negative valence (see also Appendix B).

In the third pretest (n=29), independent samples t-tests confirmed that for each review, the valence of the original review and the reversed valence score of its opposite were not significantly different ($p>.091$), implying that the formulation of the original and reversed reviews is equally strong in valence. In addition, two repeated ANOVAs showed that the eight positive reviews were perceived as equally positive ($F(7, 14)=.729$, $p=.571$), and the negative reviews were perceived as equally negative ($F(7, 13)=.978$, $p=.452$). This resulted in 16 final reviews (original eight+reverse) for use in the main study.

To evaluate the external validity of the main study, we also asked respondents in the second and third pretests about how they usually read reviews, and how many they read. The results showed that 76.7% of the 60 participants indicate a preference to read reviews following the sequence in which they are presented (top-down). Over 90% of the respondents reported to read at least five to ten reviews per search session. These results justify our choice to present each respondent with eight reviews in a specific order in the main experiment.

Main Experiment: Design and Participants

The main experiment was a 3 (Balance: positive, neutral, negative)×4 (Sequence: positive/negative, negative/positive, positive/negative/positive, negative/positive/negative) full factorial between-subject design (see Table 1). Each respondent read the same eight reviews as developed in the pretests, but depending on the condition, these were framed either positively or negatively, and were presented in a different order. Each review was presented on a separate page, and respondents could not return to previous pages, to ensure that they would read the reviews in the intended sequence. Balance was manipulated by varying the proportion of positive and negative reviews presented in each set. For a positive balance, six out of eight reviews were positive, while the other two were negative. With a neutral balance, four positive and four negative reviews appeared. The negative balance consisted of six negative reviews and two positive reviews. Sequence was manipulated by altering the position of the negative and positive reviews within the set. One sequence presented the positive statements grouped together first, followed by all the negative statements in a set. The second sequence condition was the reverse of the first (negative first, followed by positive). The "wrapped" conditions started with half of the positive (negative) reviews, followed by all the negative (positive) reviews, again followed by half of the positive (negative) reviews. In order to ensure that the order and content of the specific reviews would not confound our results, four scenarios for each of the 12 conditions were created, resulting in 48 scenarios in total. For each condition, the four scenarios had an identical balance and sequence, and the same eight reviews were shown, but the composition of the review sets was randomized. For example, for the neutral balance, positive–negative sequence, the review set would always start with 4 positive reviews, followed by 4 negative reviews, but the specific reviews would switch places in the four different scenarios. So, if review A was positive and presented first in scenario 1, it would be positive and presented third in scenario 2, negative and presented fifth in scenario 3, and negative and presented seventh in scenario 4 (see Appendix C). In addition, all scenarios were controlled so that no more than two reviews about food or staff were placed subsequently to each other, to avoid introducing confounding effects of message repetition.

Table 1
Overview of the 3×4 factorial design.

Balance	Sequence			
	Positive/negative/positive	Positive/negative	Negative/positive	Negative/positive/negative
Positive	3+/2−/3+	6+/2−	2−/6+	1−/6+/1−
Neutral	2+/4−/2+	4+/4−	4−/4+	2−/4+/2−
Negative	1+/6−/1+	2+/6−	6−/2+	3−/2+/3−

Note: Numbers depict number of sequential statements of same valence, signs depict valence. For example, 3+/2−/3+ signifies respondents in this condition first read three positive reviews, then two negative reviews, followed again by three positive reviews. See Appendix B for further examples.

Respondents were recruited from a consumer database available to the marketing department of a Belgian university, via an e-mail containing a link to the questionnaire. Samples of 413 respondents ($M_{age}=39$ years, 38% male) were randomly assigned to the 48 different scenarios and thus to the 12 conditions. Respondents were provided with the vacation scenario, telling them they had to imagine that they already decided on booking a vacation in Tenerife, and were looking for an appropriate hotel for their stay.

Measures

After reading the scenario, respondents were asked to read each of the eight reviews. They then rated the perceived usefulness of the reviews (PU) (I found the reviews useful, the reviews helped me to shape my attitude toward the hotel, the reviews helped me to make a decision regarding this hotel, $\alpha=.902$) (Bailey and Pearson 1983), overall review impression based on those eight reviews (RI) (I have the impression that most people: are satisfied/dissatisfied with the hotel, find the hotel good/bad, have a positive/negative opinion about the hotel, would/would not recommend the hotel; $\alpha=.963$) (Goldsmith, Lafferty, and Newell 2000), their attitude toward the reviewed hotel (ATT) (I find this hotel very good, my attitude toward the hotel is very positive, this hotel does not at all meet my desires for a vacation (reversed); $\alpha=.832$) (Batra and Stayman 1990) and their intention to stay at this hotel (INT) (It is very likely that I will stay at this hotel, I will certainly try this hotel, there is a great chance that I will choose this hotel; $\alpha=.962$) (Netemeyer, Maxham, and Pullig 2005) on

seven-point multi-item scales. Construct scores were computed by calculating the average of the items per construct.

Recall of review information was measured by means of an open question (Dens and De Pelsmacker 2010), which was coded by two independent coders as "correct" or "incorrect" recall. For each review, score "1" was allocated if the respondent correctly recalled at least one of the two attributes of the review in question, and score "0" was assigned if the elements of this reviews were not or incorrectly recalled. The percentage of agreement between coders was at least 96% for each review. Intercoder reliability, assessed by Cohen's κ score, was higher than .875 for all reviews, while values of .80 or higher indicate sufficient reliability (+1.0 indicates perfect agreement, 0.0 indicates no agreement other than expected by chance) (Bakeman 2000; Cohen 1968). Disagreements were solved by discussion between the coders. Based on the recall scores for each separate review, the authors calculated the relative recall of both positive (R_{pos}) and negative reviews (R_{neg}), i.e. the number of correctly recalled positive (or negative) reviews divided by the total number of positive (or negative) reviews in the set. This way, for instance, in the positive balance conditions, where there are six positive and two negative reviews, recalling three positive reviews out of six results in the same relative recall score as recalling one negative review out of two. This allows us to compare recall scores in an unbiased way.

Results

Analysis 1: The Impact of Balance and Sequence on Perceived Usefulness

A 3 (balance)×4 (sequence) ANOVA with Perceived Usefulness (PU) as the dependent variable revealed a significant main effect of review balance ($F(2, 413)=7.758$, $p<.001$). As hypothesized in H1, Bonferroni-corrected pairwise comparisons show that a positive balance in the review set ($M_{pos}=4.57$) is perceived as useful as a negative balance ($M_{neg}=4.60$, $p>.999$), and both are perceived to be significantly more useful than a neutral balance set ($M_{neutral}=4.13$, $p_{pos}=.003$, $p_{neg}=.002$). The main effect of sequence is not significant ($F(3, 413)=.363$, $p=.780$). Bonferroni-corrected pairwise comparisons do not reveal any significant differences between the four sequences ($p>.999$).

The interaction between balance and sequence is significant ($F(6, 413)=3.997$, $p=.001$) (Fig. 2 and Table 2). Within the negative balance, negative/positive/negative (negative wrap) results in the highest level of PU ($M=5.04$), followed by the negative/positive ($M=4.87$), positive/negative/positive (positive wrap) ($M=4.21$) and positive/negative sequence ($M=4.21$) ($F(3, 138)=5.012$, $p=.003$). Bonferroni post hoc tests show that a negative/positive/negative wrap sequence results in significantly higher PU compared to the positive/negative/positive ($p=.025$) and positive/negative sequences ($p=.015$), but not to the negative/positive sequence ($p>.999$). H2a is supported except for the difference with the negative/positive review sequence. Within the positive balance, we obtain similar results, but in the opposite direction. The positive/negative/positive wrap sequence results in the highest PU ($M=5.04$), followed by positive/negative ($M=4.58$), negative/positive ($M=4.34$) and negative/positive/negative ($M=4.32$) ($F(3, 136)=5.421$, $p=.002$). Bonferroni post hoc tests show that positive/negative/positive results in a significantly higher PU compared to negative/positive ($p=.005$) and negative/positive/negative ($p=.003$), but not significant compared to the positive/negative sequence ($p>.117$). H2b is supported except for the difference with the positive/negative review sequence. Within the neutral balance, there is no significant effect of sequence on PU ($F(3, 137)=.182$, $p=.908$), as expected.

Analysis 2: The Moderating Role of Perceived Usefulness on the Relationship Between Recalled Review Information, Review Impression and Attitude and Behavioral Intention

The moderated mediation hypothesis was tested using the ModMed macro (Model 3) based on Preacher, Rucker, and Hayes (2007). We ran four separate models, entering the relative recall of positive review information (Rpos) and the relative recall of negative review information (Rneg) as independent variables in separate models, and estimating these models separately for the attitude towards the hotel (ATT) and for the intention to stay in the hotel (INT) as the dependent variables (Figs. 3a and b). Review impression (RI) served as the mediator and the perceived usefulness of the review set (PU) as the moderator in each of the four models. We will first elaborate on the results of the models with attitude as the dependent (first R_{pos} (model 1), followed by R_{neg} (model 2)) and then on the results of the model with staying intention as the dependent (first R_{pos} (model 3), followed by R_{neg} (model 4)).

In model 1, the effect of R_{pos} on RI is significant ($\beta=.198$, $p=.001$) and so is the effect of RI on ATT ($\beta=.608$, $p<.001$). The meaningfulness of the mediation by RI is confirmed by a Sobel tests ($Z_{ATT}=5.116$, $p<.001$). Regarding the moderated mediation, ATT is predicted by R_{pos} ($\beta=.002$, $p=.961$), RI ($\beta=.657$, $p<.001$), PU ($\beta=.001$, $p=.987$), and RI*PU ($\beta=.215$, $p<.001$). The significant interaction between the moderator (PU) and the mediator (RI) supports the moderated mediation hypothesis for R_{pos} on ATT. Using bootstrapping, as suggested by Preacher et al. (2007), the results indicate that RI mediates the impact of R_{pos} on ATT when PU is higher than 2.33 on the seven-point scale.

In model 2, the effect of R_{neg} on RI is not significant ($\beta=-.064$, $p=.198$). The effect of RI on ATT is significant ($\beta=.665$, $p<.001$). This implies the absence of mediation, as confirmed by a Sobel test (Sobel $Z_{ATT}=-1.285$, $p=.199$). For the moderated mediation model, ATT was regressed on R_{neg} ($\beta=-.058$, $p=.091$), RI ($\beta=.665$, $p<.001$), PU ($\beta=-.044$, $p=.203$), and RI*PU ($\beta=.168$, $p<.001$). The significant interaction between RI and PU supports the moderated mediation hypothesis for R_{neg}. However, further analyses (bootstrapping) failed to show at which exact PU value the mediation takes places.

The results of the models with the intention to stay at the hotel are similar to those of the attitude models. In model 3, the

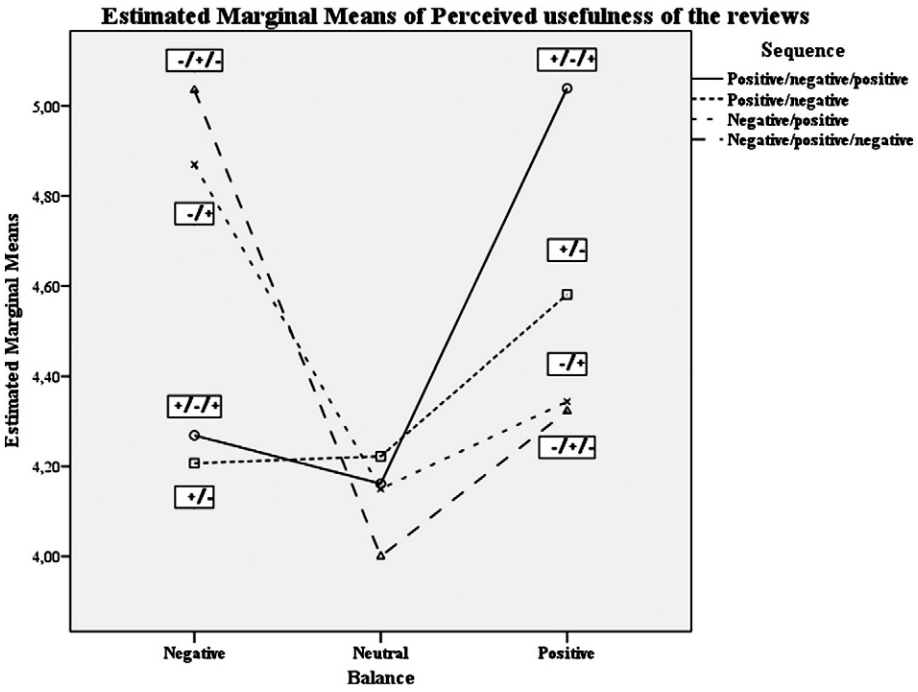

Fig. 2. Balance–sequence interaction on perceived usefulness.

effect of R_{pos} on RI is significant (β=.198, p=.001), and so is the effect of RI on INT (β=.608, p<.001). The mediation effect is confirmed by a Sobel test (Z_{INT}=5.059, p<.001). Regarding the moderated mediation, INT is predicted by R_{pos} (β=.010, p=.846), RI (β=.608, p<.001), PU (β=.040, p=.340), and RI*PU (β=.129, p=.006). The significant interaction between the moderator (PU) and the mediator (RI) supports the moderated mediation hypothesis for R_{pos} on INT. Using bootstrapping (Preacher et al. 2007), the results indicate that RI mediates the impact of R_{pos} on INT when PU is higher than 2.33 on a seven-point scale.

Similar to the attitude model, the results for model 4 show that the effect of R_{neg} on RI is not significant (β=−.175, p=.001). The effect of RI on INT is significant (β=.631, p<.001). A Sobel test confirms this non-significant mediation effect on INT (Z_{INT}=−1.284, p=.199). For the moderated mediation model, INT was predicted by R_{neg} (β=−.052, p=.156), RI (β=.631, p<.001), PU (β=.014, p=.712), and RI*PU (β=.124, p=.003). Similar to the attitude model, the significant interaction between RI and PU supports the moderated mediation hypothesis (H3) for R_{neg} on INT. However, further analyses (bootstrapping) again failed to show at which exact PU value the mediation takes places.

These results fully support H3.

Table 2
The interaction effect of balance and sequence on review perceived usefulness.

Sequences	Negative balance			Neutral balance			Positive balance		
	n	Mean	(SD)	n	Mean	(SD)	n	Mean	(SD)
Positive/negative/positive	31	4.27	(1.28)	31	4.16	(1.28)	34	5.04	(.68)
Positive/negative	29	4.21	(1.15)	30	4.22	(1.16)	39	4.58	(.67)
Negative/positive	41	4.87	(1.09)	40	4.15	(1.38)	32	4.34	(.97)
Negative/positive/negative	28	5.04	(.84)	37	4.00	(1.34)	32	4.32	(.97)
F statistics	F(3, 138)=5.012			F(3, 137)=.182			F(3, 136)=5.421		
p-value	.003			.908			.002		

Discussion, Conclusion, and Implications

The purpose of this study was to investigate the effect of the balance and sequence of a set of online reviews on the perceived usefulness of the review set and to investigate the role of this usefulness perception in the information elaboration process. Our findings established that the perceived usefulness of an online review set is affected by its balance and sequence. Unbalanced (positive or negative) review sets are considered more useful than those that are balanced (neutral). Compared to balanced sets, unbalanced sets provide the reader with a clear general direction and therefore, consistent with the diagnosticity principle, the balance of a set of reviews is accountable in determining whether or not the reviews are useful. Our results are consistent with those of Chiou and Cheng (2003) and Forman, Ghose, and Wiesenfeld (2008). As there are more individuals agreeing that the hotel is good (in case of positive balance) or bad (in case of negative balance) compared to the neutral conditions, the reader may have more confidence that the information is true (Burnkrant and Cousineau 1975). As a result, such consistent information in the positive and negative balance is perceived as more useful than the relatively inconsistent information in the neutral balance.

Based on the diagnosticity literature, one could have expected that negatively balanced reviews would result in a higher perceived usefulness than positively balanced ones. Negative attributes are usually considered to be more

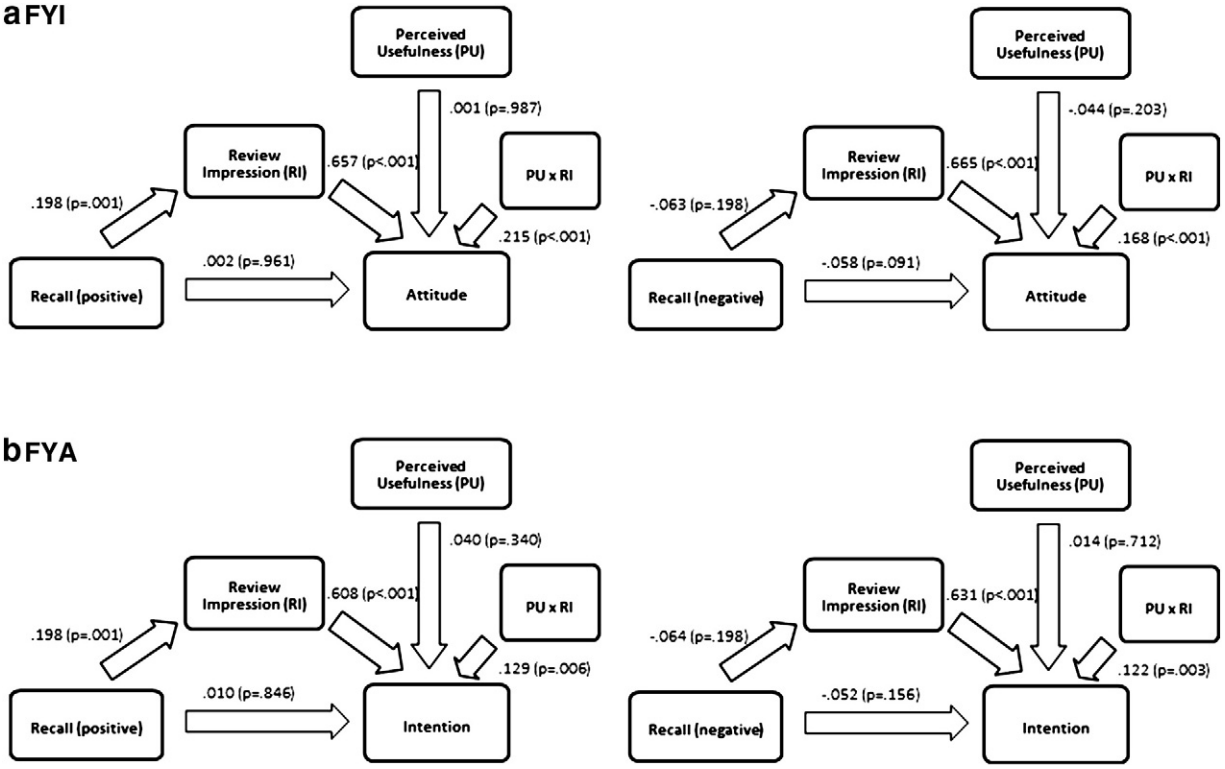

Fig. 3. (a) Moderated mediation on attitude. (b) Moderated mediation on intention.

characteristic in identifying bad product quality than positive attributes in identifying good quality, and a number of studies have shown that negative information is perceived as more useful than positive information (Ahluwalia 2002; Feldman and Lynch 1988). However, we did not find a significant difference between the perceived usefulness of positive and negative unbalanced sets. One explanation might be that there is a ceiling effect regarding the perceived usefulness of information. Another explanation may be that all sets contained positive and negative review elements, but in a different ratios. Thus, our "negative balance" condition still contained two positive reviews, whereas the "positive balance" condition also included two negative reviews. Even though this is a highly realistic situation, the negativity effect is likely to come out less strongly under these circumstances. Earlier studies investigating message valence have only considered a single message, rather than a set of reviews. The insights from the present study provide more understanding on how consumers process a mix of positive and negative messages in an online context.

Review sequence affects the perceived usefulness of review sets, but only for unbalanced (positive or negative) review sets. Consistent with the primacy–recency reinforcement and the wrap effect (Deese and Kaufman 1957; Purnawirawan, De Pelsmacker, and Dens 2010), our findings indicate that positive wrapping (positive/negative/positive) in positively balanced sets and negative wrapping (negative/positive/negative) in negatively balanced sets, improve the perceived usefulness of the reviews. It is noteworthy that when the balance is positive (negative), positive (negative) wrapping does not generate significantly better usefulness perception than the positive/negative (negative/positive) configuration. This suggests that although primacy–recency reinforcement or wrapping clearly plays a role, there might be a limited effect of mere primacy as well. The reinforcement effect clearly leads to improved usefulness perceptions over other conditions. Additionally, it seems that primacy itself slightly bumps usefulness perceptions as well.

Perceived review usefulness affects the impact of recall of positive and negative information on the readers' attitude and behavioral intention. After reading the reviews, potential buyers retain some of the review information in their short term memory. This recalled information forms the basis of their attitudes and behavioral intention toward the reviewed object. For recalled positive information, this recall effect is fully mediated by their impression of the reviewed object. The effect of recalled negative information on attitude and behavioral intention is not mediated by review impression in the general model. However, both for attitude and behavioral intention, and both in case of positive and negative review information recall, perceived review usefulness moderates the mediating effect of the impression about the reviews on attitude and behavioral intention. When people perceive the reviews to be more useful, their impression toward the reviewed object becomes a stronger predictor of their attitude and behavior than when people perceive the reviews to be less useful. These findings are consistent with the accessibility–diagnosticity framework, showing that this framework can be extended to the context of online reviews or eWOM.

The present study adds to our knowledge about the primacy–recency reinforcement principle and the accessibility–diagnosticity mechanism in a context of online user-generated

content. As perceived usefulness can conceptually be interpreted as a consequence of perceived diagnosticity of the information (Mudambi and Schuff 2010), our results demonstrate that review sequence in unbalanced review sets can enhance information diagnosticity, more specifically the primacy–recency reinforcement effect enhances information diagnosticity and thus usefulness. Moreover, this wrap effect reinforces, through its effect on perceived usefulness, the role of diagnosticity in carrying over recall of positive and negative review information to attitude and intention formation. We thus provide evidence that primacy–recency effects, which are usually tested on recall, can also have an effect on perceived usefulness of online reviews and indirectly also on the impact of recall of information on attitude and intention formation.

Our results also provide guidelines for practitioners. In case a review site is run by a commercial organization, reinforcing review usefulness is called for in case of positive consumer feedback. In that circumstance, presenting the reviews in an appropriate wrapping sequence will enhance the perception of usefulness and hence the positive effect of the reviews on attitude formation. However, if reviews are generally negative, wrapping positive reviews in negative ones is not advisable. This would increase the review set's usefulness and reinforce the effect of the negative feedback on attitude formation, resulting in a lower intention to purchase the reviewed object. Obviously, there are ethical implications of manipulating review sequence in function of their valence, since this could be qualified as misleading. If the review set is run by an independent organization, the intention of which is to assist consumers as much as possible in attitude formation, wrapping could be called for in both negatively and positively balanced review sets, since this would reinforce the perception of usefulness of the reviews, resulting in a more thorough use of information. When the organization notices that the reviews are balanced, they could invite consumers to add positive or negative reviews to increase the usefulness of the whole review set. The perception of usefulness may also positively influence the attitude toward the review site and intention to use this site again (Urban, Amyx, and Lorenzon 2009). At least, if the purpose of these independent organizations is to provide readers with an unbiased opinion, they should keep in mind that sequence effects can influence people's attitude formation process, and be mindful of the potential consequences. In some platforms, reviewers do not only post reviews of objects, but also post replies to earlier reviews of others. In this case, the message order manipulation might not be sensible as the reviews also generate a complete discussion.

Applied to other eWOM contexts (YouTube or other online communities), where consumers voice their opinions toward an object online, we expect to find similar results. The balance effect suggests that the opinion of the majority is relevant in shaping the attitude and behavioral intention. Furthermore, our findings suggest that the first and the last comments posted on YouTube or other file sharing communities would be crucial in the attitude and behavioral intention formation of the reader. The first comment may be considered as 'the standard' which the subsequent commenters conform to (Burnkrant and Cousineau 1975). If the first comment is positive, the next comments are more likely to be positive, and if the first two or three comments are positive, the readers are more likely to form favorable attitude and behavioral intention toward the object (Walther et al. 2010). However, assuming that people usually do *not* read all available comments (due to limited cognitive capacity, or time constraints, etc.), it is difficult to predict whether wrap effect will occur because we never know when the reader will stop reading.

Limitations and Suggestions for Further Research

The limitations of this study provide opportunities for future research. First, only eight reviews were used and the readers were forced to read them in a predetermined order to ensure internal validity. Although the pretests showed that the majority of the respondents read between five to ten reviews per session, future research should investigate what the impact of sequence and balance is when people are allowed to read as many reviews as they want or in the order of their choice (which better reflects reality). The question would then be whether balance and sequence would interact in these conditions as well, to determine how many review respondents would actually choose to read, and how that affects their attitude formation process.

In many independent review sites, the reviews are, by default, presented in a certain order: chronologically (e.g., Tripadvisor.com, Hotels.com) or most helpful first (e.g., Amazon.com). Moreover, a lot of product review sites allow Internet users to choose the presentation order of the reviews. As this feature becomes more common, the findings of this study with respect to sequence effects become less relevant. However, as there is no standard or rule for website providers on how they should order the comments, some websites (imdb.com or some national versions of Expedia.com) seem to present the comments in a random order. Furthermore, according to our pretest, 76.7% of the respondents still read reviews in the given sequence. This study demonstrates that sequence bias exists and is able to influence the perceived usefulness of the reviews. Both service providers (user-generated and marketer-generated) as well as the users should be aware of it.

Second, in the present study we ensured that all reviews were equally important and equally strong in valence. Further research could investigate to what extent reviews of varying importance interact with balance and sequence effects.

Third, we limited our research to online product reviews which only include textual information, while a lot of product review websites allow consumers to share video, photographs or other visual elements. These online atmospherics, such as product visualizations, are highly powerful tools in influencing consumers' decisions (Malthouse and Shankar 2009). The level of congruency between text and pictures may affect processing fluency and therefore affect consumers' responses (Van Rompay, De Vries, and Van Venrooij 2010). Future research could include both pictures and text in a review to investigate how different combinations play a role in information processing and consumer decision-making.

Fourth, the perceived credibility of a piece of information is often related to the source of the information. Further study can extend these findings by varying the source of information, such

as the website (third party websites are often considered to be more trustworthy) and the reviewer (revealing more personal information can result in higher perceived credibility). The value other people attach to a review (e.g., star rating indicating the extent to which other people perceive the information to be useful) can also affect readers' perception of the review usefulness or convincingness. It would be interesting to explore how relevant these ratings are for attitude formation, compared to the actual arguments used in the verbal comments of the reviews. Finally, companies may react to the reviews that consumers place on review sites. The extent to which the nature of these reactions affects attitude formations (e.g. neutralize or reinforce positive or negative reviews) is another area for further research.

Acknowledgment

We gratefully acknowledge the financial support of the University of Antwerp Research Council.

Appendix A. Reviews used in the main experiment

	Positive reviews	Negative reviews
A	The hotel is situated at the heart of a cozy neighborhood, with lots of boutiques and restaurants. The staff spoke several languages, so we had no problem understanding each other. (+A)	The hotel is distant from shops or restaurants. We had difficulties communicating with the staff, because they spoke no foreign languages. (−A)
B	The food at the hotel was always fresh. The water in the swimming pool was also clear, the pool itself is cleaned regularly. (+B)	The food at the hotel was not always quite so fresh. The water in the swimming pool was also dirty because the pool was not cleaned on a regular basis. (−B)
C	The hotel food was very good and we got a big room. (+C)	The hotel food was not good and our room was rather small. (−C)
D	The food was very varied, there is a different buffet every day. The hotel is also close to the beach.(+D)	The food was pretty much the same every day, not much variation. The hotel is also far from the beach. (−D)
E	The hotel was very clean and the staff was helpful. (+E)	The hotel was not clean and the personnel was not at all helpful. (−E)
F	The staff was friendly and we could manually adjust the air conditioning in our room. Convenient with such warm weather. (+F)	The staff was unfriendly and we find it too bad that we could not adjust the air conditioning in our room ourselves. Not so convenient with such warm weather.(−F)
G	Our room was very clean and the selection of food and drinks at the hotel was extended. (+G)	Our room was dirty and the selection of food and drinks at the hotel was limited. (−G)
H	The hotel is near the city center and there was excellent service at mealtimes. (+H)	The hotel is located far from the city center and the service at mealtimes left much to be desired.(−H)

Appendix B. Examples of conditions

Balance	Sequence	Example							
		R1	R2	R3	R4	R5	R6	R7	R8
Positive	Positive/negative/positive	+B	+F	+C	−H	−D	+A	+G	+E
Positive	Negative/positive/negative	−E	+G	+A	+H	+C	+F	+B	−D
Negative	Positive/negative	+F	+C	−H	−E	−B	−A	−G	−D
Neutral	Negative/positive	−A	−H	−C	−G	+D	+F	+B	+E

Appendix C. Example of four scenarios per condition (neutral balance, positive/negative, 4+/4−)

Scenarios	Reviews							
	R1	R2	R3	R4	R5	R6	R7	R8
1	+A	+H	+B	+E	−C	−D	−F	−G
2	+G	+D	+A	+H	−B	−F	−E	−C
3	+D	+C	+F	+B	−A	−E	−G	−H
4	+F	+G	+E	+C	−D	−H	−A	−B

References

Ahluwalia, Rohini and Zeynep Gürhan-Canli (2000), "The Effects of Extensions on the Family Brand Name: An Accessibility–Diagnosticity Perspective," *Journal of Consumer Research*, 27, 3, 371–81.

——— Rohini (2002), "How Prevalent Is the Negativity Effect in Consumer Environments?" *Journal of Consumer Research*, 29, 2, 270–9.

Ajzen, Icek and Martin Fishbein (2000), "Attitudes and the Attitude–Behavior Relation: Reasoned and Automatic Processes," *European Review of Social Psychology*, 11, 1, 1–33.

Ansari, Asim and Carl F. Mela (2003), "E-customization," *Journal of Marketing Research*, 40, 2, 131–45.

Babin, Laurie A. and Sheri T. Carder (1996), "Viewers' Recognition of Brands Placed within a Film," *International Journal of Advertising*, 15, 1, 140–51.

Bailey, James E. and Sammy W. Pearson (1983), "Development of a Tool for Measuring and Analyzing Computer User Satisfaction," *Management Science*, 29, 5, 530–45.

Bakeman, Roger (2000), "Behavioral Observation and Coding," *Handbook of Research Methods in Social and Personality Psychology*. Cambridge University Press, 138–59.

Batra, Rajeev and Douglas M. Stayman (1990), "The Role of Mood in Advertising Effectiveness," *Journal of Consumer Research*, 17, 2, 203–14.

Bickart, Barbara and Robert M. Schindler (2001), "Internet Forums as Influential Sources of Consumer Information," *Journal of Interactive Marketing*, 15, 3, 31–40.

Bronner, Fred and Robert de Hoog (2010), "Consumer-generated versus Marketer-generated Websites in Consumer Decision Making," *International Journal of Market Research*, 52, 2, 231–48.

Brown, Jo, Amanda Broderick, and Amanda Lee (2007), "Word of Mouth Communication within Online Communities: Conceptualizing the Online Social Network," *Journal of Interactive Marketing*, 21, 3, 2–20.

Bruner, Gordon C. and Anand Kumar (2000), "Web Commercials and Advertising Hierarchy-of-effects," *Journal of Advertising Research*, 40, 1, 35–42.

Buda, Richard and Yong Zhang (2000), "Consumer Product Evaluation: The Interactive Effect of Message Framing, Presentation Order, and Source Credibility," *Journal of Product and Brand Management*, 9, 4, 229–42.

Burnkrant, Robert E. and Alain Cousineau (1975), "Informational and Normative Social Influence in Buyer Behavior," *Journal of Consumer Research*, 2, 3, 206–15.

Cheung, Christy M.K., Matthew K.O. Lee, and Neil Rabjohn (2008), "The Impact of Electronic Word-of-Mouth — The Adoption of Online Opinions in Online Customer Communities," *Internet Research*, 18, 3, 229–47.

Cheung, Man Y., Chuan Lao, Choon L. Sia, and Huaping Chen (2009), "Credibility of Electronic Word-of-Mouth: Informational and Normative Determinants of Online Consumer Recommendations," *International Journal of Electronic Commerce*, 13, 4, 9–38.

Chevalier, Judith A. and Dina Mayzlin (2006), "The Effect of Word of Mouth on Sales: Online Book Reviews," *Journal of Marketing Research*, 43, 3, 345–54.

Chiou, Jyh-Shen and Cathy Cheng (2003), "Should a Company Have Message Boards on its Web Sites?," *Journal of Interactive Marketing*, 17, 3, 50–61.

Cohen, Jacob (1968), "Weighted Kappa: Nominal Scale Agreement Provision for Scaled Disagreement or Partial Credit," *Psychological Bulletin*, 70, 4, 213–20.

Cohen, Ronald L. (1981), "On the Generality of Some Memory Laws," *Scandinavian Journal of Psychology*, 22, 1, 267–81.

Craik, Fergus I.M. and Michael J. Watkins (1973), "The Role of Rehearsal in Short-term Memory," *Journal of Verbal Learning and Verbal Behavior*, 12, 6, 599–607.

Deese, James and Robert A. Kaufman (1957), "Serial Effects in Recall of Unorganized and Sequentially Organized Verbal Material," *Journal of Experimental Psychology*, 54, 3, 180–7.

Dens, Nathalie and Patrick De Pelsmacker (2010), "Attitudes toward the Extension and Parent Brand in Response to Extension Advertising," *Journal of Business Research*, 63, 11, 1237–44.

Doh, Sun-Jae and Jang-Sun Hwang (2009), "How Consumers Evaluate Ewom (Electronic Word-of-mouth) Messages," *Cyberpsychology, Behavior and Social Networking*, 12, 2, 193–7.

Drèze, Xavier and Fred Zufryden (2004), "The Measurement of Online Visibility and its Impact on Internet Traffic," *Journal of Interactive Marketing*, 18, 1, 20–37.

Feldman, Jack M. and John G. Lynch (1988), "Self-generated Validity and Other Effects of Measurement on Belief, Attitude, Intention, and Behavior," *Journal of Applied Psychology*, 73, 3, 421–35.

Fishbein, Martin and Icek Ajzen (1975), *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison - Wesley.

Forman, Chris, Anindya Ghose, and Batia Wiesenfeld (2008), "Examining the Relationship between Reviews and Sales: The Role of Reviewer Identity Disclosure in Electronic Markets," *Information Systems Research*, 19, 3, 291–313.

Goldsmith, Ronald E. and David Horowitz (2006), "Measuring Motivations for Online Opinion Seeking," *Journal of Interactive Advertising*, 6, 2.

———, Barbara A. Lafferty, and Stephen J. Newell (2000), "The Impact of Corporate Credibility and Celebrity Credibility on Consumer Reaction to Advertisements and Brands," *Journal of Advertising*, 29, 3, 43–54.

Gupta, Pola B. and Kenneth R. Lord (1998), "Product Placement in Movies: The Effect of Prominence and Mode on Audience Recall," *Journal of Current Issues and Research in Advertising*, 20, 1, 47–59.

Hansen, Torben, Jan Möller Jensen, and Hans Stubbe Solgaard (2004), "Predicting Online Grocery Buying Intention: A Comparison of the Theory of Reasoned Action and the Theory of Planned Behavior," *International Journal of Information Management*, 24, 6, 539–50.

Haugtvedt, Curtis P. and Duane T. Wegener (1994), "Message Order Effects in Persuasion: An Attitude Strength Perspective," *Journal of Consumer Research*, 21, 1, 205–18.

Hawkins, Scott A. and Stephen J. Hoch (1992), "Low-Involvement Learning: Memory without Evaluation," *Journal of Consumer Research*, 19, 2, 212–25.

Hennig-Thurau, Thorsten, Kevin P. Gwinner, Gianfranco Walsh, and Dwayne D. Gremler (2004), "Electronic Word-of-Mouth via Consumer-opinion Platforms: What Motivates Consumers to Articulate Themselves on the Internet?" *Journal of Interactive Marketing*, 18, 1, 38–52.

Herr, Paul M., Frank R. Kardes, and John Kim (1991), "Effects of Word-of-mouth and Product-Attribute Information on Persuasion — An Accessibility–Diagnosticity Perspective," *Journal of Consumer Research*, 17, 4, 454–62.

Holbrook, Allyson L., Jon A. Krosnick, Penny S. Visser, Wendi L. Gardner, and John T. Cacioppo (2001), "Attitudes toward Presidential Candidates and Political Parties: Initial Optimism, Inertial First Impressions, and a Focus on Flaws," *American Journal of Political Science*, 45, 4, 930–50.

Hoque, Abeer Y. and Gerald L. Lohse (1999), "An Information Search Cost Perspective for Designing Interfaces for Electronic Commerce," *Journal of Marketing Research*, 36, 3, 387–94.

Hovland, Carl I., Irving L. Janis, and Harold H. Kelley (1953), *Communication and Persuasion: Psychological Studies of Opinion Change*. New Haven: Yale University Press.

Jiang, Zhenhui and Izak Benbasat (2007), "Investigating the Influence of the Functional Mechanisms of Online Product Presentations," *Information Systems Research*, 18, 4, 454–70.

Klein, Jill G. (1996), "Negativity in Impressions of Presidential Candidates Revisited: The 1992 Election," *Personality and Social Psychology Bulletin*, 22, 3, 288–95.

Krugman, Herbert E. (1965), "The Impact of Television Advertising: Learning without Involvement," *Public Opinion Quarterly*, 29, 3, 349–56.

Lavidge, Robert J. and Gary A. Steiner (1961), "A Model for Predictive Measurements of Advertising Effectiveness," *Journal of Marketing*, 25, 6, 59–62.

Lee, Jumin, Do-Hyung Park, and Ingoo Han (2008), "The Effect of Negative Online Consumer Reviews on Product Attitude: An Information Processing View," *Electronic Commerce Research and Applications*, 7, 3, 341–52.

Li, Jin and Lingjing Zhan (2011), "Online Persuasion: How the Written Word Drives Wom Evidence from Consumer-Generated Product Reviews," *Journal of Advertising Research*, 51, 1, 239–57.

Mackie, Diane M. and Arlene G. Asuncion (1990), "Online and Memory-based Modification of Attitudes: Determinants of Message Recall-Attitude Change Correspondence," *Journal of Personality and Social Psychology*, 59, 1, 5–16.

Malthouse, Edward and Venkatesh Shankar (2009), "Measuring and Managing Interactive Environment," *Journal of Interactive Marketing*, 23, 3, 207–8.

Matos, Celso A. and Carlo A.V. Rossi (2008), "Word-of-mouth Communications in Marketing: A Meta-analytic Review of the Antecedents and Moderators," *Journal of the Academy of Marketing Science*, 36, 4, 578–96.

Mudambi, Susan M. and David Schuff (2010), "What Makes a Helpful Online Review? A Study of Customer Reviews on Amazon.com," *MIS Quarterly*, 34, 1, 185–200.

Murdock, Bennet B. (1962), "The Serial Position Effect of Free Recall," *Journal of Experimental Psychology*, 64, 5, 482–8.

Murphy, Jamie, Charles Hofacker, and Richard Mizerski (2006), "Primacy and Recency Effects on Clicking Behavior," *Journal of Computer-Mediated Communication*, 11, 2, 522–35.

Netemeyer, Richard G., James G. Maxham III, and Chris Pullig (2005), "Conflicts in the Work–family Interface: Links to Job Stress, Customer Service Employee Performance, and Customer Purchase Intent," *Journal of Marketing*, 69, 2, 130–43.

Petty, Richard E., John T. Cacioppo, and D. Schumann (1983), "Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement," *Journal of Consumer Research*, 10, 2, 135–46.

Preacher, Kristopher J., Derek D. Rucker, and Andrew F. Hayes (2007), "Assessing Moderated Mediation Hypotheses: Theory, Methods, and Prescriptions," *Multivariate Behavioral Research*, 42, 1, 185–227.

Purnawirawan, Nathalia A., Patrick De Pelsmacker, and Nathalie Dens (2010), "Balance and Sequence in Online Reviews: The Wrap Effect," 9th International Conference on Research in Advertising (Icoria) Proceedings.

Rundus, Dewey and Richard C. Atkinson (1970), "Rehearsal Processes in Free Recall: A Procedure for Direct Observation," *Journal of Verbal Learning and Verbal Behavior*, 9, 1, 99–105.

Russell, Cristel A. (2002), "Investigating the Effectiveness of Product Placements in Television Shows: The Role of Modality and Plot Connection Congruence on Brand Memory and Attitude," *Journal of Consumer Research*, 29, 3, 306–18.

Sen, Shahana and Dawn Lerman (2007), "Why Are You Telling Me This? An Examination into Negative Consumer Reviews on the Web," *Journal of Interactive Marketing*, 21, 4, 76–94.

Sweeney, Jillian C., Geoffrey N. Soutar, and Tim Mazzarol (2008), "Factors Influencing Word of Mouth Effectiveness: Receiver Perspectives," *European Journal of Marketing*, 42, 3/4, 344–64.

Urban, Glen L., Cinda Amyx, and Antonio Lorenzon (2009), "Online Trust: State of the Art, New Frontiers, and Research Potential," *Journal of Interactive Marketing*, 23, 2, 179–90.

Van Rompay, Thomas J.L., Peter W. De Vries, and Xaviera G. Van Venrooij (2010), "More than Words: On the Importance of Picture-Text Congruence in the Online Environment," *Journal of Interactive Marketing*, 24, 1, 22–30.

Vermeulen, Ivar E. and Daphne Seegers (2009), "Tried and Tested: The Impact of Online Hotel Reviews on Consumer Consideration," *Tourism Management*, 30, 1, 123–7.

Walther, Joseph B., David De Andrea, Jinsuk Kim, and James C. Anthony (2010), "The Influence of Online Comments on Perceptions of Antimarijuana Public Service Announcements on Youtube," *Human Communication Research*, 36, 4, 469–92.

Werbler, Carolyn (2009), *Online Feedback Significantly Influences Consumer Purchasing Decision*. Opinion Research Corporation. http://www.opinionresearch.com/fileSave/Onlline_Feedback_FINAL4_13_09.pdf. (Accessed March 4, 2011)).

Willemsen, Lotte M., Peter C. Neijens, Fred Bronner, and Jan A. de Ridder (2011), ""Highly Recommended!" the Content Characteristics and Perceived Usefulness of Online Consumer Reviews," *Journal of Computer-Mediated Communication*, 17, 1, 19–38.

Winer, Russell S. (2009), "New Communications Approaches in Marketing: Issues and Research Directions," *Journal of Interactive Marketing*, 23, 2, 108–17.

Wyer, Robert S. and Thomas K. Srull (1989), *Memory and Cognition in Its Social Context*. Mahwah, NJ: Lawrence Erlbaum Associates.

Zhu, Feng and Xiaoquan Zhang (2010), "Impact of Online Consumer Reviews on Sales: The Moderating Role of Product and Consumer Characteristics," *Journal of Marketing*, 74, 2, 133–48.

Nathalia Purnawirawan (M.S., Ghent University) is a researcher and Ph.D. candidate at the University of Antwerp, Faculty of Applied Economics, Marketing Department. Her research interests include electronic word-of-mouth (eWOM) and online consumer behavior. She presented her papers at the International Conference of Research in Advertising (ICORIA) and European Marketing Academy (EMAC) conference.

Patrick De Pelsmacker (Ph.D., Ghent University) is a professor of marketing at the University of Antwerp and at Ghent University. His research interests include advertising effectiveness, advertising in new media, branding and ethical marketing. His work has been published in, amongst others: *International Journal of Research in Marketing, Journal of Advertising, International Journal of Advertising, Psychology & Marketing, Marketing Letters, Journal of Business Research, Journal of Business Ethics, Journal of Consumer Affairs, Cyberpsychology & Behavior*. He is an associate editor of *Journal of Advertising*, and he is on the editorial board of *International Journal of Advertising* and *Journal of Public Policy and Marketing*.

Nathalie Dens (Ph.D., University of Antwerp) is assistant professor of marketing at the University of Antwerp, Faculty of Applied Economics, Marketing Department. Her research focuses on advertising effectiveness for different communication formats and branding strategies. She has published in international peer-reviewed journals such as *Accident Analysis & Prevention, Health Communication, International Journal of Advertising, Journal of Brand Management, Journal of Business Research, Journal of Marketing Communications, Marketing Letters*, and *Sex Roles: A Journal of Research*. She reviews for several journals and is a member of the editorial board of the *International Journal of Advertising* and *Journal of Business Research*.