The Effect of eWoM Messages: An Experimental Approach

In light of the rising number of consumers engaging in eWOM communication, studying the nature and effectiveness of the eWOM effect has become a major research stream in both the marketing and IS disciplines (e.g. Gupta and Kim, 2007). The so-called eWOM effect occurs if online shoppers base their purchase intentions and/or behaviour on online recommendations. From a scientific point of view, it is crucial to study the eWOM effect in combination with various characteristics of the eWOM message itself (Kozinets et al., 2010).

Park and Lee (2009), for example, examined how the information direction (positive versus negative) of a message contributes to the eWOM effect. They found that the eWOM effect is greater for negative eWOM than for positive eWOM. In contrast, East, Hammond and Lomax (2008) found the opposite effect of positive directed messages generally having a greater impact than negative recommendations. Recently, Cheung et al. (2009) have suggested there is a need to examine positively vs. negatively framed reviews (relating to the perceived valence of an eWOM message) and one-sided vs. two-sided reviews (relating to the perceived valence intensity of an eWOM message) in more detail. Indeed, literature on this issue is still scarce. This is unfortunate as in reality it is more common to find recommendations including both positive and negative facets simultaneously. These findings suggest that the valence and valence intensity of online reviews are critical issues for further research.

1. Theoretical Framework and Development of Hypotheses

The so-called eWOM effect occurs if online shoppers base their purchase intentions and/or behavior on online recommendations. Aside from possible moderating factors, such as website reputation (Park and Lee, 2009), the eWOM effect depends greatly on the message itself. In personal WOM an important dimension of a WOM message is the strength of delivery (delivering the message with strong words or powerfully). In written WOM messages, such as online recommendations, this characteristic of strength of delivery is reflected in the perceived valence intensity of the message. The argument strength is the extent to which the receiver of the message views the argument as valid, convincing and reinforcing its position (Cheung et al., 2009).

1.1 The overall effect of valence intensity

The basic hypothesis of this study is theoretically grounded on the Hull-Spence Behaviour Theory (HSBT) developed by Hull (1943) and Spence (1956). There have been several attempts to promote Hull’s theory as a paradigm for the study of consumer behavior. For example, Hawkins (1970) and Kivetz et al. (2006) have successfully applied and empirically tested the HSBT in the context of advertising research. Recently, Rossiter and Foxall (2008) have even argued that the HSBT constitutes an “all-encompassing theory of the type that was popular initially in consumer behaviour”. This psychological theory by Hull (1943) was the first to use not only independent variables (e.g., stimulus intensity dynamism) and dependent variables (e.g., amplitude or speed) but also intervening variables (e.g., reaction potential) which were causally related. The independent variable ‘stimulus intensity dynamism’ in particular is of critical relevance for this study. This variable indicates that a stronger stimulus will produce a stronger response, holding all other variables constant. In other words, a strong, purely positive or purely negative eWOM stimulus (high valence
intensity) will increase the propensity to respond and subsequently lead to a stronger response, i.e., greater purchase intentions, than a less intense, mixed (positive and negative) stimulus (resulting in perceived medium valence intensity). Hence, strong arguments are assumed to be more effective in altering behavioural intentions than medium-intensive texts. In line with this, we hypothesize that:

**H1**: Consumer recommendations with perceived medium valence intensity are assumed to have a significantly weaker impact on purchase intention than recommendations with high valence intensity.

### 1.2 The asymmetric effect of valence intensity

The issue of whether positive or negative directed messages are more effective has been of considerable interest (e.g., Park and Lee, 2009; Eisend, 2011). Our literature review has indicated the negativity effects as key concept in explaining the proposed asymmetric effect.

Tsang and Prendergast (2009) discuss the so-called negativity effect in the context of inconsistent reviews. This effect implies that positive and negative information do not necessarily have a symmetrical influence on consumers’ decision making, with negative information having a much more harmful impact than the beneficial impact of the positive information (Tsang and Prendergast, 2009). Many studies have supported this negativity effect (see, for an overview, East et al., 2008). Traditionally, the assumption of the negativity effect has been based on the fact that negative information is usually rarer. This makes it more surprising and, thus, it draws more attention (East et al., 2008). Based on this assumption, strong positive recommendations should lose their effectiveness as soon as negative information chunks appear in the picture. Adopting the negativity effect to look at eWOM messages, purely negative recommendations, as well as the two medium-valenced conditions which comprise both positive and negative facts, are assumed to have different effects than the purely positive ones. Thus, we hypothesize that:

**H2**: Depending on the valence of recommendations (positive vs. negative), perceived valence intensity has a varying influence on purchase intentions.

### 1.3 The effect of information credibility

H2 proposes that valence intensity has an asymmetric effect on purchase intention. According to stimulus intensity dynamism, strong recommendations in only one information direction are assumed to have a stronger impact on purchase intentions than weaker ones which contain both positive and negative elements. However, this effect can be confounded by the credibility of the recommendation. According to the persuasion effect of two-sided messages, mixed recommendations (containing both positive and negative elements) are more credible. Therefore, H3 controls for the role of information credibility and is formulated as follows:

**H3**: Depending on the level of perceived information credibility, valence intensity has a varying influence on purchase intentions.

### 2. Experimental Study

#### 2.1 Method

**Participants and Design.** In the current research project the online experiment method was chosen since the test situation equates to a ‘real’ product evaluation and purchase decision
making process in e-commerce based on online reviews. (see, for a methodological review, Reips, 2002). An electronic invitation to take part in the research project was emailed to students of a large European Business School. Five vouchers for a travel agency were promised to five randomly drawn students as an incentive. The experiment employed a 2 (Valence: positive, negative) x 2 (Valence Intensity: medium, strong) x 2 (Product: Book, Hotel) within-subject design. Overall, 339 respondents (211 female, 128 male; mean age: 23 years) participated in the online experiment.

Stimuli. Two pictures (one book cover and one picture of a hotel) served as product stimuli. Four different online reviews (positive/negative vs. medium/high valence intensity) were used as manipulations for each product type. Each review comprised subjective evaluations, product information and stories about the experience with the book or hotel, respectively. The product stimuli, as well as the valence and the valence intensity of the online reviews, were pre-tested in an online experiment (n=56). Additionally, technical issues, such as the randomized assignment of respondents and data export, were tested before the main study was launched.

Procedure. The cover story explained the study was about shopping behaviour on the internet. Participants were informed that the study is anonymous. After answering some demographic questions, the participants went through different phases in the experiment in the following order: conditioning phase book, a manipulation and control check book, purchase intention measurement book, conditioning phase hotel, a manipulation and control check hotel, purchase intention measurement hotel. Participants were thanked and reminded to provide an email address for the lottery drawing.

Measurement. Purchase intention, measured by the items “How likely is it that you will buy the book?” and “How likely are you to book a room in this hotel?”, respectively, was chosen as the dependent variable. A seven point rating scale, with end-points verbalized as 1 = “very likely” and 7 = “very unlikely”, was employed. Additionally, two variables measuring the perceived valence and the information credibility of the online reviews provided in the experiment were included. The measures for these two independent variables were derived from explicit ratings given by the respondents along a semantic differential scale (positive – negative, trustworthy – untrustworthy). Lower values indicated a more positive perceived valence and a more trustworthy evaluation of the online reviews.

2.2 Results

Manipulation Check. As a first step, the authors tested the desired effects of the manipulations. For this purpose, the respondents were asked about their quality perceptions of the online recommendations, for each manipulation group separately. A series of Pearson correlation tests between quality perceptions and purchase intention revealed significant and substantially large coefficients ranging from .174 to .655 (all p < .05). Based on these results, we conclude that the quality of the manipulated online recommendations was perceived by the respondents as intended by the researchers.

Valence intensity. H1 proposes that the valence intensity of online recommendations has a positive significant influence on a customer’s purchase decision. The data for the positive and negative recommendations were aggregated yielding two new variables for medium and high valence intensity. Afterwards, a paired sample t-test was conducted. The results show a significant effect of valence intensity for books (M<sub>medium</sub> = .80; M<sub>high</sub> = 1.08; t (1, 138) = -3.381; p < .01) and hotels (M<sub>medium</sub> = .79; M<sub>high</sub> = 1.13; t (1, 153) = -7.175; p < .01). Hence, H1 is supported by the data.

Asymmetric effect of valence intensity. The findings support the proposed asymmetric influence of valence intensity on purchase intentions, affirming H2. Whereas strong (high
valence intensity) positive recommendations have a significantly stronger effect on purchase intentions than medium (valence intensity) positive recommendations, the same effect is not significant for negative online reviews. Consistently, this result is true for both book (M_{positive-medium} = .84; M_{positive-high} = 1.32; F (1, 40) = 9.962; p < .01; M_{negative-medium} = .84; M_{negative-high} = 0.80; F (1, 37) = .001; p > .1) and hotel recommendations (M_{positive-medium} = .79; M_{positive-high} = 1.12; F (1, 42) = 13.776; p < .01; M_{negative-medium} = .84; M_{negative-high} = 0.89; F (1, 34) = .258; p > .1). The means are shown in Figure 1.

**Figure 1: Mean Differences Student Sample**

![Graph showing mean differences between positive and negative recommendations for hotel and book products.](image)

**Message Credibility.** Credibility of eWOM messages has a significant effect in all four experimental settings (all p < .05). However, the main findings of our study (the asymmetric effect of valence intensity) are not confounded by the perceived credibility. Valence intensity remains significant in the manipulations with positive recommendations only (all p < .001). For negative recommendations, the increase in valence intensity does not significantly change the purchase intention (all p > .230). H3 can be rejected.

**Conclusions and Implications**

The study illustrates the importance of positive product recommendations with high valence intensity. Reichheld (2003) suggests measuring the WOM effect on a 0 – 10 rating scale by asking a simple question: “How likely is it that you would recommend our company to a friend or colleague?”, in an offline context. This question enables firms to calculate the net promoter score: the ratio of promoters (9-10) to detractors (0-6). Since the approach promises simple and timely data that are correlated with growth and profit of a firm, it can easily be adopted by Internet companies. Companies such as Microsoft, General Electric and American Express have already followed the recommendation and integrated “the ultimate question” into their market research activities. The net promoter score was originally invented and based on the consulting experiences of Reichheld (2003). To date, a theoretical explanation has been missing. Our study aimed to fill this gap. We have shown that strong positive product recommendations achieve the highest eWOM effect. Empirical evidence is grounded on the stimulus response intensity dynamism introduced by Hull (1943) and Spence (1956). We conclude that the application of the net promoter score is highly relevant for marketing managers, but the theoretical fundamentals are interesting for researchers as well.
References


