

In eWOM We Trust

A Framework of Factors that Determine the eWOM Credibility

Electronic word-of-mouth (eWOM) as an instrument of marketing communication influences many purchasing decisions. The paper identifies major determinants of credibility from a consumer's point of view. Drawing on dual process theory and source models, hypotheses are derived and tested. The paper provides evidence that expertise, trustworthiness, and aggregate rating have a positive impact on online recommendation credibility. The study also demonstrates that involvement could moderate these relationships.

DOI 10.1007/s12599-013-0261-9

The Author

Dr. Bettina Lis, Assistant Professor (✉)

Media Management
Johannes Gutenberg-University
55128 Mainz
Germany
lis@uni-mainz.de

Received: 2012-07-12

Accepted: 2013-01-26

Accepted after two revisions by
Prof. Dr. Spann.

Published online: 2013-05-08

This article is also available in German in print and via <http://www.wirtschaftsinformatik.de>: Lis B (2013) In eWOM We Trust. Ein Modell zur Erklärung der Glaubwürdigkeit von eWOM. WIRTSCHAFTSINFORMATIK. doi: 10.1007/s11576-013-0360-8.

© Springer Fachmedien Wiesbaden 2013

vertising and professional advice a few years ago, now more and more refer to recommendations of online users (Lee et al. 2008). The exchange of provider information between consumers via internet is called electronic Word-of-Mouth (eWOM) (Hennig-Thurau et al. 2004). An eWOM recommendation is characterized by a positive, neutral, or negative provider-relevant piece of information published in the internet by a consumer (Rafaeli and Raban 2005). As information thus spreads exponentially and at low cost, eWOM communication is an important factor for businesses.

Whereas traditional Word-of-Mouth (WOM) shows a direct connection between sender and receiver with a significant tie strength, eWOM is characterized by indirect and mostly public communication with normally no social connection between the sender of a message and the receiver (Godes and Mayzlin 2004; Hennig-Thurau et al. 2004). Thus each consumer may issue and receive recommendations worldwide at any time. The assessment of a recommendation by the reader however proves difficult (Smith et al. 2007). Prior studies show that credibility is especially important for the final valuation of electronic consumer recommendations: the higher the credibility of an online recommendation, the more likely it is that the receiver follows the sender's product recommendation (Wathen and Burkell 2002). Whereas the positive effects of credibility on eWOM adoption could be sufficiently confirmed (Cheung et al. 2009), little is known about the determinants of eWOM credibility (McKnight

and Kacmar 2006). Thus in many studies credibility is given as an explanation for the effects of eWOM communication (e.g., Cheung et al. 2008), but credibility itself seldom is the object of research.

Studies on eWOM have up until now had their focus mainly on the success of a product (Chevalier and Mayzlin 2006; de Bruyn and Lilien 2008), the motives for publishing eWOM (Hennig-Thurau et al. 2004; Walsh and Mitchell 2010), and an optimal seeding strategy (Berger and Milkman 2012; Hinz et al. 2011). An early conceptual study on eWOM credibility is given by Wathen and Burkell (2002). They indicate the multi-dimensionality of credibility in the context of eWOM and give a theoretical model as a basis for further empirical research. E.g., Brown et al. (2007) emphasize credibility, besides tie strength and homophily, as the key variable for the assessment of eWOM communication. Concrete identification of credibility determinants is not provided, however. Another study of Mackiewicz (2008) explains credibility, due to the anonymity in the eWOM context, solely by the linguistic quality of consumer recommendations, whereas O'Reilly and Marx (2011) analyze the credibility rating mainly against the background of technical aspects. A further contribution comes from Cheung et al. (2009). In their analysis they give two determinants of eWOM credibility: the strength of the recommendation and its value in the context (of the product) (Cheung et al. 2009). As their study is however confined to the Chinese area, the authors suggest to expand the study to individualistic cultures "(...) to permit cross-cultural comparison of the relative Silbentrennung im-

1 Introduction

In purchase decisions, consumers increasingly look for information on products and services in the internet (Lee et al. 2008). Results of representative studies show that one third actively uses online recommendations for information on products and services (Heckathorne 2010; Nielsen et al. 2010). People, who based their purchase decisions on ad-

pacts of normative influence on eWOM acceptance” (Cheung et al. 2009, p. 31). This is where the present study comes in. Significant determinants of eWOM credibility are to be defined from the view of the consumer. Here credibility in distinction to Brown et al. (2007) is not examined as a whole, but its particular determinants are defined in detail. The focus is less on linguistic (Mackiewicz 2008) and technical aspects (O’Reilly and Marx 2011) than on determinants derived from the source models. Thus the source-credibility model by Hovland et al. (1953) and the source-attractiveness model by McGuire (1985) explain the basic credibility determinants and their mode of function in the classic WOM context. The present study extends existing knowledge by examining whether the classic (informational) determinants of the source models can be transmitted to the online context. Furthermore it can be inferred, in line with the dual process theory of Deutsch and Gerrard (1955), that not only informational factors have an influence on credibility, but also normative ones, which are also to be analyzed in the present study (Cheung et al. 2009).

In sum, the present study amends existing literature in the following points. Research on eWOM credibility so far shows no integrated empirical or theoretical saturation. Considering this, the objective of this contribution is to supplement the present discussion on eWOM with the topic of eWOM credibility, which has so far not been sufficiently researched. On the one hand, the focus is on regarding credibility as a central construct. On the other hand, conceptual and operational details of the determinants of eWOM credibility are described. In this expansion of existing literature the aim is not to gain an isolated view of singular factors (as linguistic and technical aspects). Instead, its degree of novelty lies in the integrated view of various credibility determinants in a comprising research model, so far not analyzed in this context. Thus this study aims at showing eWOM credibility as a theoretical construct, consisting of two dimensions, and at putting the two dimensions into operation by corresponding determinants. In addition this study contributes to the need of research in the question of the influence of normative factors on eWOM credibility, as mentioned by Cheung et al. (2009). Whereas studies so far only focus on informational determinants of eWOM credibility (e.g., Mackiewicz 2008), this paper

amends previous analyses by including normative determinants in the study.

The subject of this research are online recommendations, as they are a widely spread form of eWOM accepted by the users (Hennig-Thurau et al. 2004). They represent so-called “consumer-created” information found in various contexts: in opinion platforms (as epinion.com), forums, blogs, or as integrated part of an online shop (as amazon.com) (Chen and Xie 2008). They are characterized by informal, interpersonal, normally not commercially oriented, product-related communication of an unspecified number of persons (Chen and Xie 2008).

Drawing on dual process theory and source models relevant factors of the perceived eWOM credibility will be identified and their relevance for influencing credibility will be examined in the following. Starting from theoretical considerations, hypotheses on the effects of particular determinants will be deduced and validated by structural equation modeling based on a sample of 643 subjects. The results show that the sender’s expertise and trustworthiness as well as the aggregated rating are significant factors in the perceived credibility of online recommendations. Additionally it becomes clear that involvement moderates the strength of this relation.

2 Theoretical Framework and Hypotheses

2.1 Source Credibility

Central significance for credibility research has to be granted to the concept of source and context oriented rating of credibility. The interest here concentrates on the characteristics of a communication source as perceived by the receiver (Hovland et al. 1953). The central idea of it being an attribution and not an inherent quality of texts is mirrored in quite a few definitions. For example, Tseng and Fogg (1999) see credibility as a “perceived quality (...) it does not reside in an object, a person, or a piece of information (...)” (Tseng and Fogg 1999, p. 40).

A suitable approach to define particular determinants of credibility is offered by source models. They determine the conditions under which the sender or the source of a message appears credible (McCracken 1989). The source-credibility model of Hovland et al.

(1953) assumes that information originating from a credible source influences attitudes, opinions, and conduct of the receiver. The credibility of a message is here determined by two dimensions: the expertise given to the sender owing to his special competence, and his trustworthiness, describing the objectivity and sincerity of the sender (Hovland et al. 1953). Credibility according to Hovland et al. (1953) thus is a function with the dimensions “expertise” and “trustworthiness”. The only relevant factor for the rating of these parameters is the subjective perception of the receiver.

Following the source-attractiveness model of McGuire (1985), the credibility of a message additionally depends upon the attractiveness of the communicator. Central quality of source-attractiveness is the similarity or social homophily respectively between sender and receiver (von Wangenheim and Bayón 2004). In consequence, the model assumes that a source is attractive for the sender and thus credible if it closely resembles him (McGuire 1985). The three-components model of Ohanian (1990, 1991) finally combines the two models of Hovland et al. (1953) and McGuire (1985) and declares the factors expertise, trustworthiness and homophily to be the essential determinants of message credibility (Ohanian 1990).

The source models are criticized on the grounds of their assumption that just the source itself is decisive for the effectiveness of a message. Influence of third parties is not taken into account. In line with the dual process theory of Deutsch and Gerrard (1955), however, it can be assumed that not only informational influences have a bearing on credibility, but that there are also normative ones (Deutsch and Gerrard 1955). Whereas informational factors of influence refer to the information and arguments exchanged during the discussion, normative factors refer to the efforts of members of the group to remain conform to the other members of the group and to be rated positively (Deutsch and Gerrard 1955). Normative influence thus exists as soon as the sender has access to the opinions and views of others (Kaplan and Miller 1987).

The dual process theory of Deutsch and Gerrard (1955) can be positioned in social psychology and so far has been mainly used when examining the credibility of information in physical scenarios

(Cohen and Golden 1972; von Wangenheim and Bayón 2004). It can be classified to belong to the block of dual process theories in company with the elaboration-likelihood model (Petty and Cacioppo 1986) and the heuristic-systematic model (Eagly and Chaiken 1993). These each postulate two kinds of information processing which differ in the extent to which individuals associate with the arguments of a message. The sender is described here as a peripheral stimulus. The theory of Deutsch and Gerrard (1955) appears to be significant for this study, as beside the classical informational dimensions of credibility also normative factors are taken into account. It also lends itself as a superior concept to the classification of the particular credibility dimensions described in the following.

2.2 Informational Determinants

2.2.1 Source Expertise

Following the source-credibility model, the perceived expertise of the sender is a significant determinant of credibility (Hovland and Weiss 1951). This expertise can be defined “as the extent to which a person is perceived to possess knowledge, skills or experience and thereby is considered to provide accurate information” (Ohanian 1990, p. 44). It refers to the knowledge of a sender on a product or a service. A receiver will probably turn directly to a sender whom he considers knowledgeable and experienced (Yale and Gilly 1995). He presumes that the sender has substantial and especially useful information due to his high expertise (Bansal and Voyer 2000).

Empirical studies demonstrate that information provided by experts has a great impact on the receiver. Bone (1995), Yale and Gilly (1995), as well as Gilly et al. (1998), for example, established for classical WOM that in the rating of products the influence on the receiver increases when the WOM originates from a sender with high expertise. In the context of services, Bansal and Voyer (2000) and also von Wangenheim and Bayón (2004) show a positive correlation between the expertise of the sender and its impact on the receiver. Following the tenor of the source-credibility model, it can be presumed that the sender’s expertise also forms a relevant factor in the rating of credibility in online recommendations (Bansal and Voyer 2000). Thus receivers choose senders of high expertise as they

expect them to provide highly qualified information (McCracken 1989). A sender with high expertise appears more credible, since the receiver has little cause to doubt the correctness of this information due to the knowledge and the competence of the communicator (Kroeber-Riel and Weinberg 2003, p. 504c.). This presumption is supported by the theoretical study of Wathen and Burkell (2002). Additionally, experts often possess more power of persuasion. Due to their extensive knowledge and experience, experts should be better able to convince other consumers and thus appear more credible (von Wangenheim and Bayón 2004). So we find:

H1: *The higher the reviewer’s level of expertise, the more his or her online recommendations will be perceived as credible.*

2.2.2 Source Trustworthiness

Along with expertise, the source-credibility model names perceived trustworthiness of the sender as another determinant of credibility (Hovland et al. 1953). The credibility of information coming from a trustworthy source is doubted less by the receivers than one of an origin considered not trustworthy (Sparkman and Locander 1980). Here credibility and trustworthiness are relational constructs and therefore require at least two actors. Whereas credibility describes a comprehensive relational process, trustworthiness refers to certain aspects within this relation (Hovland et al. 1953). A reviewer and thus his recommendation is acknowledged as trustworthy if the statement is judged valid, honest, and to the point (Hovland and Weiss 1951). The issue therefore is the degree of objectivity and sincerity the sender is granted. The construct trustworthiness here is closely related to the idea of trust (McKnight and Chervany 2002). Whereas trustworthiness relates to the cognitive-affective component (trusting beliefs, Jones 1996), trust refers to the aspect of behavior in the form of willingness or intention to rely on a different person (trusting intentions, Büttner and Göritz 2008).

With regard to the source-credibility model it can be assumed that the reviewer’s trustworthiness plays a role in assessing eWOM credibility. A trustworthy reviewer showing a high degree of objectivity and sincerity appears more credible, as the receiver has no cause to question the validity of the given information. Therefore it is more likely that the

receiver will rely on the transmitted information in the case of high trustworthiness and find it more influential and credible than in the case of low trustworthiness (Huang and Chen 2006). Empirical studies in the context of classical WOM support this assumption. E.g., Wilson and Sherrell (1993) confirm this positive effect on the change of attitude when the source is rated as trustworthy. As, however, consumers in the context of eWOM normally cannot directly judge whether a recommendation is trustworthy or not, they use indirect methods such as evaluating the consistency of the arguments or the objectivity of the contents. Therefore:

H2: *The higher the reviewer’s level of trustworthiness, the more his or her online consumer recommendations will be perceived as credible.*

2.2.3 Social Homophily

Besides expertise and trustworthiness a further factor appears important for the assessment of credibility: social homophily (Miller and Hoppe 1973). Social homophily or similarity between sender and receiver emerges as a central component from the source-attractiveness model (McGuire 1985). The construct describes the similarity of two individuals concerning particular attributes (Rogers 1983). Social homophily can be differentiated according to demographic (age, gender, education, occupation) and/or perceived attributes (values, preferences) (Lazarsfeld and Merton 1964; Gilly et al. 1998). Concerning the emergence of homophily there are significant differences between an 3 online and offline context. Due to reduced information the rating in an online context basically results from the contents of the website. According to Gilly et al. (1998), the demographic determinants such as gender or socio-economic status are of less importance than the perceived attributes such as similar values (Blanton 2001) or preferences (Brewer and Webber 1994). In the text of reviews consumers look for values and experiences matching their own character and ideas. If a recommendation contains such information and the reader senses similar values and preferences, this leads to an increased perceived homophily (Blanton 2001).

According to the source-attractiveness model it can be assumed that social homophily is also significant for the credibility rating of online recommendations. Receiving and viewing a viral message

causes an emotional reaction on the recipient's side (Gilly et al. 1998). The recipient is motivated to validate these emotions by social comparison. A sender with a perceived high affinity is more likely to give reason for the accuracy of his emotions and thus is rated as more credible (Gibbons and Gerrard 1991). Empirical studies in the field of classical WOM support this assumption. They show that a greater homophily between sender and receiver has a positive effect on the sender's influence (Gilly et al. 1998). Homophile sources are more frequently used in a consumer decision (von Wangenheim and Bayón 2004). The so-called "like-me" principle is a fundamental concept of human communication. Thus individuals tend to interact with other individuals who are similar to them (Laumann 1966, p. 29). Therefore a transmission of ideas and information happens more often between individuals of high homophily (Rogers 1983). Thus for eWOM follows:

H3: *The higher the perceived homophily between the reviewer and the reader, the higher the perceived credibility of the online consumer recommendations will be.*

2.3 Normative Determinants

2.3.1 Aggregated Recommendation Rating

In line with the dual process theory, one may assume that not only informational influences have bearings on the credibility of online recommendations, but that also normative ones exist (Deutsch and Gerrard 1955). Normative influence is always given when the sender has access to the views and opinions of different people (Kaplan and Miller 1987). In the online context, recommendation rating is a possibility to represent the opinion of others. Online forums allow users to evaluate the contents of recommendations according to quality, utility, and so on. Recommendation rating is the product of a multitude of singular ratings (Qiu and Li 2010). When reading for example a negatively rated recommendation, the recipient is more likely to question this text and doubt its credibility (Qiu and Li 2010).

In this context, group pressure in line with the conformity thesis of Asch (1951) plays a decisive role. If a person approves of the group opinion, this reduces the

feeling of dissonance. Groups perform a normative influence, which means there is little dispute of contents but rather a poorly reflected takeover. When individuals in a certain situation have no access to complete information, others may become information sources. Here the group opinion receives more credibility than an individual opinion (Asch 1951). Conformity is achieved by following the majority's opinion in order to avoid personal insecurity (Asch 1951). Following Asch (1951) it can be assumed that the recipient of a recommendation believes it more credible when the contents are rated positive by other users.

H4: *The more positive the rating of the recommendation, the higher the perceived credibility of the online consumer recommendation will be.*

2.4 Moderating Effect of Involvement

Besides the shown direct effects, further relational structures can exist which moderate the force of effectual relations in dependence on various conditions. In literature the moderating role of involvement is of central importance (Petty and Cacioppo 1986). E.g., the elaboration-likelihood model (ELM) indicates that the motivation for information engineering is essentially determined by involvement (Petty and Cacioppo 1986). Generally involvement can be defined as a personally perceived relevance of an object based on the own needs, values, and interests of a person (Zaichkowsky 1985). Involvement depends on the inner participation or respectively the mental engagement of a consumer regarding an object (Celsi and Olson 1988). Thus consumers with low involvement also experience low need for information, whereas consumers of high involvement extensively look for information which provides added informational value (Zaichkowsky 1985).

From this, two central findings can be deduced for this study. The simple heuristic equalization "positive sender attributes = higher credibility" does not hold beyond contexts. Rather, the relevance of particular sender attributes varies in dependence on involvement (de Bruyn and Lilien 2008). If one follows the argumentation of ELM above, highly involved receivers are specially affected by the communicator's characteristics which possess an added informational value. According to de Bruyn and

Lilien (2008) it can be assumed that the attributes of the sender in eWOM communication normally are processed with high involvement. Consequently, a differentiated view on the influence of the particular determinants and on their effects on eWOM credibility is required.

As shown, the sender's expertise is a decisive factor for influencing a receiver in the eWOM context. Principally, the strong influence of a sender with high expertise results from the availability of quantitatively and qualitatively high-end information. As highly involved receivers according to ELM mainly look for information with large added informational value, and senders with high expertise are influential due to the quality of their information, it can be assumed that highly involved receivers are more strongly influenced than those with low involvement. This argumentation is supported by von Wangenheim and Bayón (2004) as well as Petty et al. (1983). Petty et al. (1983) demonstrate that both purchase intention and attitude of highly involved consumers in regard to a product are influenced more strongly by the expertise of the sender. For the context of eWOM we can assume:

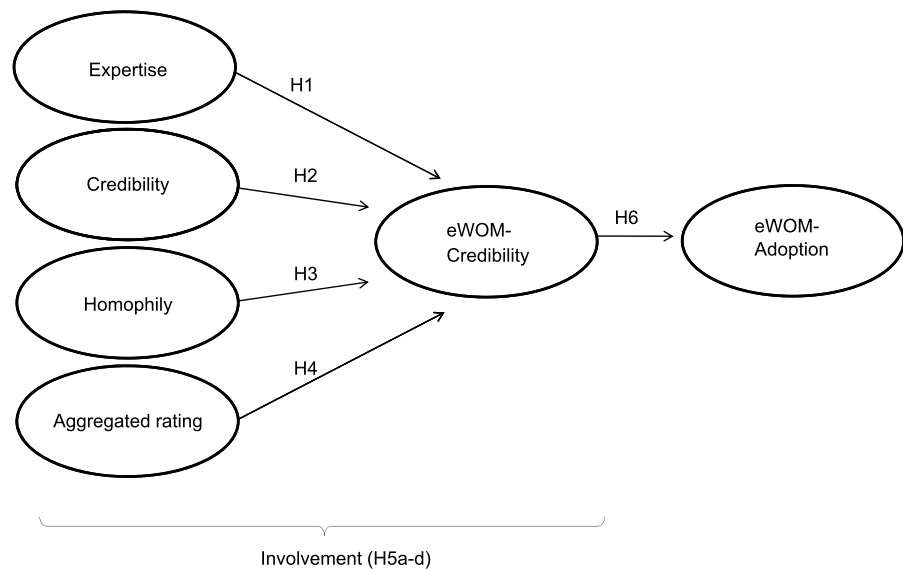
H5a: *Involvement strengthens the relationship between expertise and the perceived credibility of online consumer recommendations.*

In connection with the trustworthiness it can however be assumed that qualitative aspects of information have a lower priority (Leonard-Barton 1985). When assessing trustworthiness, participants prefer for example the objectivity of the statements (Ohanian 1990). Senders of high trustworthiness seem to exert their influence less by the quality of their information but mainly due to its perceived reliability. Following the argumentation of ELM it can be assumed that highly involved receivers are less influenced by the sender's trustworthiness than those with low involvement.

H5b: *Involvement weakens the relationship between trustworthiness and the perceived credibility of online consumer recommendations.*

In addition, it can be argued according to von Wangenheim and Bayón (2004) that the positive relation between social homophily and credibility is stronger with highly involved receivers. The reason for this is that even though source

Fig. 1 Research model



credibility has priority for the highly involved receiver, the sender should also be homophile to the receiver. Following the source-attractiveness model it can be assumed that the recommendation of a sender with homophile attitudes and values is more relevant as he is seen as a valid source for the satisfaction of one's own needs (Ohanian 1990). A homophile sender will be assumed to have similar preferences and to convey information with an emotional or informational added value to the recipient. Price and Feick (1984) argue similarly when they say that communication between homophile senders is especially effective and simple due to similar values.

H5c: *Involvement strengthens the relationship between homophily and the perceived credibility of online consumer recommendations.*

Finally Lord et al. (2001) show that in purchase situations characterized by a high level of involvement, the main influence is informational and not normative. Highly involved individuals are generally less susceptible to third parties in regard to their opinions and views (Sherif and Hovland 1965). For the most part, individuals of high involvement have definite and strongly anchored positions and opinions. In the context of this study it can be assumed that high involvement weakens the relation between recommendation rating (as a normative measure of influence) and credibility.

H5d: *Involvement weakens the relationship between recommendation rating and the perceived credibility of online consumer recommendations.*

2.5 Effect on Perceived eWOM Credibility on eWOM Adoption

A successful eWOM communication process is concluded by the eWOM adoption, that is, the acceptance of the recommendation of the relevant review (Sussman and Siegal 2003). Several studies show that a basic requirement for the adoption of eWOM is its credibility (e.g., McKnight and Kacmar 2006). Thus recipients adopt a recommendation from a reliable source more readily than one which they estimate as unreliable (Bansal and Voyer 2000). Petty et al. (2002) confirm this by varying the credibility of a sender in an experiment: When they described the source as credible, the recipients for the most part did not doubt it and adopted the information immediately. In addition, several studies (e.g., Petty et al. 1983; Ohanian 1990) allow the conclusion that credible sources lead to a more positive attitude and acceptance of the described object on the part of the recipient than less credible ones. Direct effects of credibility could be shown for purchase intention (Hu et al. 2008) and also for information adoption (Cheung et al. 2009). ELM in particular serves as a theoretical support due to the information processing postulated (Bhattacharjee and Sanford 2006). Thus ELM was used as a theoretical explanation for the information adoption of their test subjects by Sussman and Siegal (2003). It can be assumed:

H6: *The higher the perceived credibility of online consumer recommendations, the more likely they are to be adopted.*

Figure 1 presents the research framework. It includes all of the informational and normative determinants that explain the consumer's process of forming consumers' perceived credibility of online recommendations.

3 Methodology

3.1 Sample and Data Collection

To verify the described hypotheses, an online survey was used. A first pretest among 18 students of social and economic studies aged 20 to 28 resulted in no objections. The main study took place from March to June 2011 with an interrogation of 2000 users of a leading online consumer discussion forum which remains undisclosed for reasons of discretion. It is an online community whose main contents are user-oriented, site-related ratings on a local basis. Users rate businesses, locations, and services (e.g., hotels, restaurants, or fitness studios). The entries include personal assessments and recommendations from users for users. The provider offers a system which indicates the "online reputation" of the users and the possibility to rate the recommendations of other members.

All in all, 634 test subjects participated in the survey, which equals a 34 % rate of return. The relation between genders is nearly balanced: 45 % men, 55 % women. As to occupations, the three strongest groups were clerks with 52 %, students 38 %, and pensioners 10 %. As for formal education, the "Abitur"

Table 1 Construct measurement items

Construct	Source	Cronbach's α	Instruments
Expertise (EXP)	Ohanian (1991)	0.856	The reviewer is an expert The reviewer is experienced The reviewer is knowledgeable The reviewer is qualified The reviewer is skilled
Trustworthiness (TRUST)	Ohanian (1991)	0.901	The reviewer is undependable The reviewer is honest The reviewer is reliable The reviewer is sincere The reviewer is trustworthy
Homophily (HOMO)	McCroskey et al. (1974); McCroskey and Young (1981)	0.912	The reviewer is very similar to me/is very different from me The reviewer thinks a lot like me/doesn't think like me at all
Aggregated Recommendation Rating (AGG)	Cheung et al. (2009)	0.879	Based on the review rating, the review was found to be favorable by other audiences Based on the review rating, the review is highly rated by other audiences Based on the review rating, the review is good
Perceived eWOM Credibility (CRED)	Cheung et al. (2009)	0.904	I think the review is factual I think the review is accurate I think the review is credible
eWOM Review Adoption (ADOP)	Cheung et al. (2009)	0.898	To what extent do you agree with the review? Information from the review contributed to my knowledge of the product discussed The review made it easier for me to make my purchase decision The review has enhanced my effectiveness in making a purchase decision The review motivated me to take purchasing action
Involvement (INV)	Zaichkowsky (1985)	0.911	I am interested in online recommendations I always wanted to know more about online recommendations, so I appreciate if friends give me some explanations Online recommendations are a hobby of mine Online recommendations are important to me

(university entrance examination) represented 40 %, the “Fachabitur” (technical diploma) 28 %, and the “Realschulabschluss” (certificate of secondary education) 22 %. The average age was 34.5 years. Nearly all of the interviewees had an experience with the internet of three years or more. 84.4 % use the internet for more than one hour per day.

3.2 Measures

Variables were measured through seven-point Likert scales, ranging from strongly agree (1) to strongly disagree (7). In all cases, items were extracted from previous research. First, expertise and trust-

worthiness were measured with the items proposed by Ohanian (1991). To measure social homophily, the approaches of McCroskey et al. (1974) and McCroskey and Young (1981) respectively were employed. The measurement of the recommendation rating was shaped according to the scale of Cheung et al. (2009). Measuring eWOM credibility is based on the inventory of Cheung et al. (2009). To determine the involvement the scale of Zaichkowsky (1985) was used. In the context of this study the online recommendations refer to products and services respectively. Involvement in this context concerns the descriptions of products and services in these rec-

ommendations. Finally, eWOM adoption was assessed through five items used by Cheung et al. (2009). It proved to be especially suited to these consumer recommendations. **Table 1** provides a complete list of the measurement items.

3.3 Common Method Bias

As the dependent and independent variables were taken for the same person, potentially the problem of Common Method Bias may arise (Podsakoff and Organ 1986). Therefore the data raised have to be checked accordingly. With reference to Podsakoff et al. (2003), Harman's single-factor test

Table 2 Results of discriminate validity analysis

	EXP	TRUST	HOMO	AGG	CRED	ADOP	INV
EXP	0.683						
TRUST	0.338	0.670					
HOMO	0.220	0.391	0.731				
AGG	0.146	0.494	0.130	0.770			
CRED	0.375	0.384	0.183	0.338	0.790		
ADOP	0.145	0.124	0.171	0.128	0.301	0.782	
INV	0.153	0.138	0.139	0.143	0.131	0.257	0.832

Table 3 Results of hypotheses testing (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$)

Hypotheses basic model	Standardized estimates	<i>t</i> -value
H ₁ (EXP → CRED)	0.449***	5.523
H ₂ (TRUST → CRED)	0.479***	6.224
H ₃ (HOMO → CRED)	0.021	0.756
H ₄ (AGG → CRED)	0.338***	3.729
H ₆ (CRED → ADOP)	0.750***	8.126

was executed both with an explorative (EFA) and a confirmatory factor analysis (CFA). The EFA-approach of the unrotated principal-components analysis shows seven factors with an intrinsic value of larger than 1 (Kaiser criterion). The factor with the highest intrinsic value covers only 26.5 % of the whole variance. The danger of common method bias can thus be considered low. In addition, CFA was used. Here the quality of the one-factor solution of CFA was compared to the quality of the measurement model used (Podsakoff et al. 2003). The results show that the quality of the one-factor model is significantly lower ($\chi^2/d.f. = 6.65$; RMSEA = 0.225; CFI = 0.70; GFI = 0.61; NFI = 0.59). Therefore a substantial common method bias cannot be assumed.

4 Results

4.1 Validity of Measures

The structural model shown in Fig. 1 was estimated using the maximum likelihood algorithm with AMOS version 19. The use of structural equation models requires not only the specification of the application, the estimation of the parameters, but also the listing of suitable criteria to rate the quality of the specified model

The validity of the model was assessed using traditional methods. Table 2 presents the correlations among the framework's variables. Overall, the measurement scales show sufficient reliabil-

ity and validity; more specifically, for all constructs the composite reliability exceeds the threshold value of 0.6 (Bagozzi and Yi 1988). All coefficient alpha values exceed the threshold value of 0.7 recommended by Nunnally (1978). All the factor loadings are significant ($p < 0.01$), which Bagozzi and Yi (1988) suggest as a criterion of convergent validity. Furthermore, item reliabilities are above the recommended value of 0.4 (Bagozzi and Yi 1988). The discriminate validity of the construct measures was assessed on the basis of Fornell and Larcker's (1981) criterion which indicates that discriminate validity is supported if the average variance extracted exceeds the squared correlations between all pairs of constructs. Table 2 indicates that each explained variance estimate on the diagonal is greater than the corresponding squared inter-factor correlation estimate below the diagonal. All constructs fulfilled this requirement, which suggests that their degree of discriminate validity is sufficient.

The measures of overall fit meet conventional standards, suggesting that the model fits the data well: $\chi^2/d.f. = 3.806$, root mean square error of approximation [RMSEA] = 0.066, standardized root mean square residual [SRMR] = 0.036, normed fit index [NFI] = 0.983, goodness of fit index [GFI] = 0.90, and comparative fit index [CFI] = 0.926.

As a further rating criterion, the ratio of chi-square test size and number of degrees of freedom was brought in. Here, too, the model shows an acceptable fit on

the whole ($\chi^2/d.f. = 3.806$) (Carmines and McIver 1981).

4.2 Results on the Level of the Structural Model

4.2.1 Results of the Basic Model

Table 3 shows the standardized estimates of the model tested.

The results confirm strong positive relationships between expertise and credibility ($\gamma = 0.45$, $p < 0.01$), trustworthiness and credibility ($\gamma = 0.48$, $p < 0.01$), and recommendation rating and credibility ($\gamma = 0.34$, $p < 0.01$); therefore, H₁, H₂, and H₄ are supported. Homophily, however, did not have a significant effect on credibility ($\gamma = 0.02$, not significant [n.s.]); therefore, H₃ is not supported. Finally, credibility is a strong predictor of adoption ($\gamma = 0.75$, $p < 0.01$), which supports H₆.

4.2.2 Interaction Effects of Involvement

To test H_{5a} to H_{5d}, which refers to the moderating role of involvement, hierarchical multiple regression analyses – also called moderated regression – was used (Aiken and West 1991, pp. 49). Here connections influenced by the existence of one or several additional predictor variables of an independent predictor and a dependent criterion are examined. For this study, we focused on the question whether force and direction of the relation between predictor variables (expertise, trustworthiness, social homophily,

Table 4 Results of hierarchical regression analysis: Moderating effect of involvement on expertise-credibility relationship (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$)

Predictors	Model 1 β	Model 2 β
Expertise (EXP)	0.375***	0.391***
Involvement (INV)	0.031	0.014
EXP \times INV		0.253***
R^2	0.09***	0.10***
ΔR^2		0.01***

Table 5 Results of hierarchical regression analysis: moderating effect of involvement on trustworthiness-credibility relationship (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$)

Predictors	Model 1 β	Model 2 β
Trustworthiness (TRUST)	0.384***	0.395***
Involvement (INV)	-0.094	-0.051
Trust \times INV		0.239**
R^2	0.08***	0.13***
ΔR^2		0.05***

and recommendation rating) and criterion variables (credibility) vary depending on the characteristics of the moderator variables (involvement). To test this relationship each predictor variable was initially centered (converted into deviation score form) to minimize multicollinearity, and interaction terms were formed as the product of the centered predictors (Aiken and West 1991, pp. 49). The results of the moderated regression analysis are presented in **Tables 4, 5, 6** and **7**.

As shown in **Table 4**, expertise and involvement were able to explain 9 % of the variance in eWOM credibility ($p < 0.001$). The addition of the interaction term produces a significant increment in the amount of variance explained in credibility ($\Delta R^2 = 0.01$; $p < 0.01$) indicating that involvement moderates the expertise-credibility relationship.

The moderating effect of involvement on the trustworthiness-credibility relationship was also examined using a hierarchical regression analysis. As shown in **Table 5**, trustworthiness and involvement were able to explain 8 % of

Table 6 Results of hierarchical regression analysis: moderating effect of involvement on homophily-credibility relationship (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$)

Predictors	Model 1 β	Model 2 β
Homophily (HOMO)	0.183	0.187
Involvement (INV)	0.021	0.075
HOMO \times INV		0.212**
R^2	0.09***	0.13***
ΔR^2		0.04***

Table 7 Results of hierarchical regression analysis: moderating effect of involvement on recommendation rating-credibility relationship (* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$)

Predictors	Model 1 β	Model 2 β
Aggregated rating (AGG)	0.338***	0.396***
Involvement (INV)	-0.066	-0.064
AGG \times INV		-0.273**
R^2	0.10***	0.15***
ΔR^2		0.05***

the variance ($p < 0.001$). The addition of the interaction term again produces a significant increment in the amount of variance explained in eWOM credibility ($\Delta R^2 = 0.05$; $p < 0.01$), indicating that involvement moderates the trustworthiness-credibility relationship.

As can be seen in **Table 6**, the interaction of homophily and involvement has a significant effect on credibility ($\beta = 0.212$, $p < 0.05$). Homophily and involvement were able to explain 9 % of the variance in eWOM credibility ($p < 0.001$). The addition of the interaction term produces a significant increment in the amount of variance explained in credibility ($\Delta R^2 = 0.04$; $p < 0.01$) indicating that involvement moderates the homophily-credibility relationship.

Finally, **Table 7** shows aggregated recommendation rating and involvement were able to explain 10 % of the variance in eWOM credibility ($p < 0.001$). The addition of the interaction term produces a significant increment in the amount of variance explained in credibility ($\Delta R^2 = 0.05$; $p < 0.01$), indicating that involve-

ment also moderates the recommendation rating-credibility relationship.

The nature of the significant interaction was explored using simple slope analyses (Aiken and West 1991; Fitzsimons 2008; Hennig-Thurau et al. 2012). The significant interactions were probed using the techniques outlined by Aiken and West (1991). In this procedure, the effects of parenting variables on outcome variables are estimated at 1 standard deviation below the means (low) and 1 standard deviation above the mean (high). **Figure 2** presents the slope plots of the interactions.

Figure 2 shows the relationships between the four predictors and eWOM credibility as a function of involvement. The first slope plot supports the theoretical argument: expertise led to higher credibility when involvement was high ($b = 3.275$; $t = 6.47$; $p < 0.001$) than when it was low ($b = 1.66$; $t = 4.63$; $p < 0.001$). The spotlight analysis shows that this increase of value in the high involvement constellation is significant at $p < 0.001$. This supports H5a.

With respect to trustworthiness, the opposite can be observed: high involvement weakens the positive effects of trustworthiness on eWOM credibility. An analysis of the simple slopes demonstrates that with both strong and weak involvement an increase of higher trustworthiness is associated with higher credibility. This increase, however, is less significant with high involvement ($b = 1.08$; $t = 3.22$; $p < 0.001$) than with weak involvement ($b = 2.96$; $t = 5.25$; $p < 0.001$). H5b thus is confirmed.

The figure depicting the interaction between homophily and involvement shows that the relation between homophily and credibility increases with high values of the moderator. The analysis of “simple slopes” results in significant increases for credibility in dependence of homophily for both low involvement ($b = 1.11$; $t = 3.57$; $p < 0.001$) and high involvement ($b = 3.29$; $t = 6.48$; $p < 0.001$). H5c thus can be regarded as confirmed.

With reference to aggregated recommendation rating, a significant interaction of involvement can likewise be found. The computation of the simple slopes shows that with both strong and low involvement an increase of the aggregated rating is associated with more credibility. This increase, however, is less pronounced with strong involvement ($b = 1.96$; $t = 4.78$; $p < 0.001$) than with low involvement ($b = 3.35$; $t = 6.57$; $p < 0.001$). H5d can be confirmed.

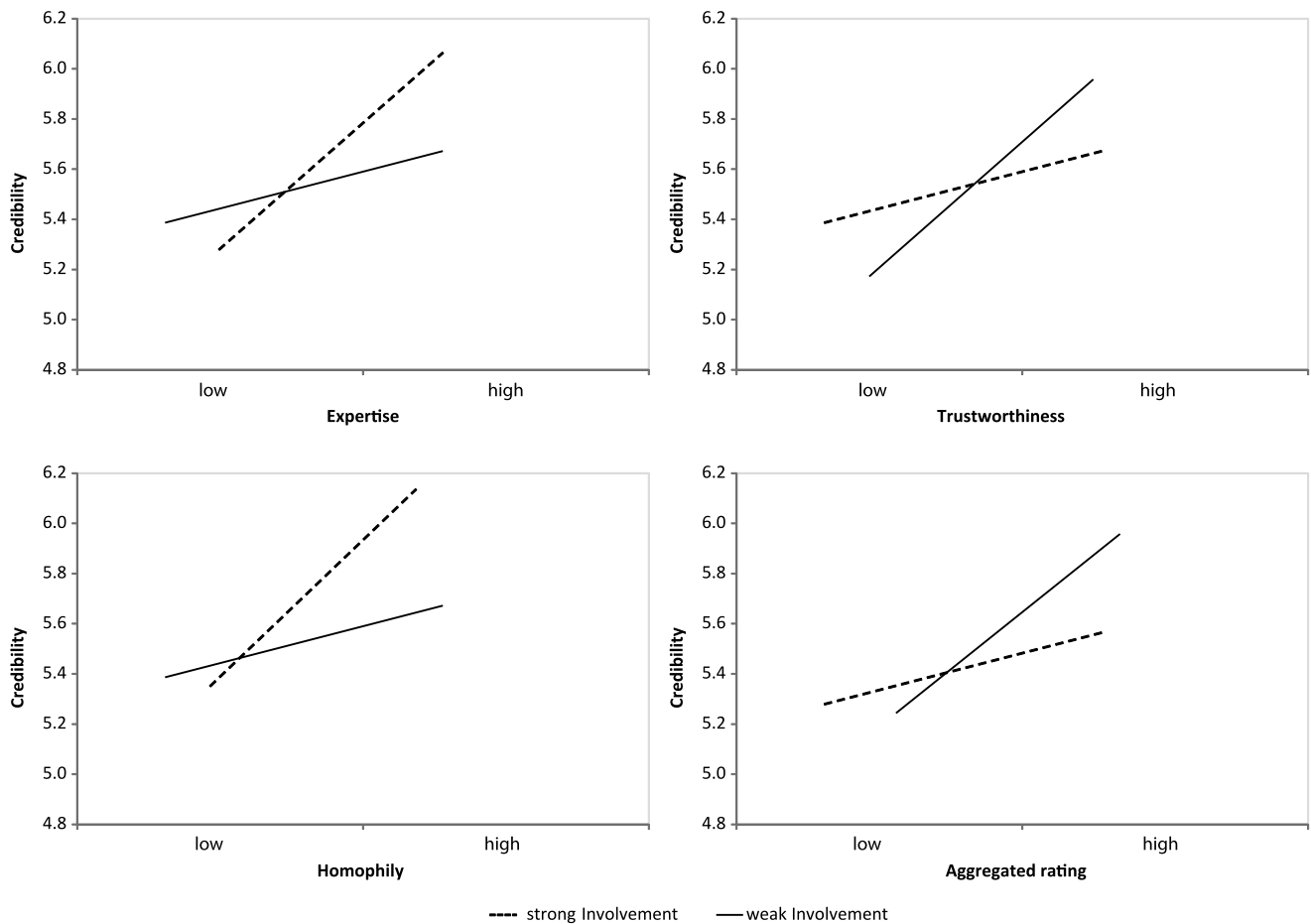


Fig. 2 Interactions between the predictors and involvement

5 Discussion

5.1 Summary

The empirical findings show that both informational and also normative determinants influence the credibility of online recommendations. Thus the two informational determinants expertise and trustworthiness are significant factors of influence for eWOM credibility. The results of the source models (Hovland and Weiss 1951) can therefore be transferred to the eWOM environment: receivers of online recommendations for their ratings mostly rely on the expertise and the trustworthiness of the sender. In contrast, the informational factor of social homophily could not be confirmed. The results show that congruency between the attributes of the participants in an online environment is less relevant than could be proved in studies of the offline world (von Wangenheim and Bayón 2004). This can certainly be explained by the fact that impressions of homophily cannot be generated easily in the environment of on-

line recommendations due to the lack of information and personal knowledge.

In extension to previous studies, which focused mostly on the effects of informational determinants, this study shows that normative factors significantly influence the credibility rating of online recommendations. Thus reviewers of online recommendations make use of the aggregated rating as an indicator for credibility, besides expertise and trustworthiness. This result allows new views indicating that normative influences are significant in the eWOM environment as well. Thus aggregated recommendation rating is based on the appraisals of the recommendations by other consumers. Are they rated positively, their credibility rises. This can be explained by the dual-process theory and the conformity thesis of Asch (1951), ascribing normative social influences to a need for conformity.

In addition this study confirmed a positive relation between eWOM credibility and final eWOM adoption. Empirical findings show that credibility has a positive effect on the final eWOM adop-

tion and the connected purchase intention. The results of the moderated regression show a larger influence of expertise and homophily on highly involved receivers than on those less involved. In line with ELM this could be explained with differing needs for information of highly and less involved people (Petty and Cacioppo 1986). Highly involved receivers show a strong need for information and for the most part refer to expertise when assessing credibility. In addition, they actively look for a high degree of homophily between sender and receiver.

5.2 Implications

This study presents an analysis of the most important factors for credibility rating of online recommendations. From the results, important implications can be derived for businesses, providers of online-forums, and online retailers. An understanding of the determinants of eWOM credibility carries implications for the identification of credible recommendations. The appraisal and under-

standing of the factors may help businesses learn how customers rate the credibility of eWOM. If, for example, businesses use online recommendations to observe the market, the identified factors can add to an effective processing of the information found. The monitoring of recommendations is a useful method to identify consumer problems and desires, and indicates product improvements. Businesses can utilize identified factors as starting points to categorize generated information and evaluate it from a consumer's perspective. This knowledge is necessary to confirm the importance of eWOM credibility and adoption as targets to be achieved. The study shows that publishing credible recommendations can be an effective way to raise eWOM adoption and thus the purchase probability. Decisive here are the factors expertise and trustworthiness of the sender as well as the aggregated recommendation rating. Businesses should enforce the observation of these factors when judging consumer recommendations. In addition to previous studies in eWOM environment, the results show that the normative influence in rating credibility has also to be considered. For businesses this means that also in the online context opinions of third parties are relevant. They might use, for example, aggregated recommendations to identify reviewers who are rated especially positively by others. These could be explicitly chosen to, e.g., test products. Also for providers of online consumer forums the findings from this study are of great benefit. The factors which all in all lead to higher credibility are pointed out. Providers should be more aware of these factors to raise the credibility of their eWOM forums. One possibility regarding expertise, e.g., would be to install bonus systems to commit users who regularly provide high quality recommendations. Furthermore, the implementation of a rating system for the improvement of trustworthiness may be advantageous. Even though providers of forums are not in a position to exercise control on the contents of normative information, they might consider making the normative aspects of a recommendation stand out. They could develop and publish aggregated rating systems to make relations with normative information easier. A further option might be a new definition of the rating system to make multi-dimensional ratings possible. Contrary to a sole offering of a general rat-

ing, the recommendation could be valued according to different criteria. Taking into account the results of the moderating influence of involvement, providers should introduce different rating systems for high and low involvement products. For low involvement products they can lay the focus on short recommendations and a rating using just a few criteria only such as notes or star icons. With high involvement products the focus should be on the reviewer's expertise, i.e., especially qualified reviewers should be labeled.

The results also have important implications for online retailers. Whereas online forums usually favor a "consumer protective" approach, consumer recommendations have a quasi direct relevance to the turnover of online retailers. For retailers it should be all the more important to provide credible reviews. The results demonstrate that credible reviews increase eWOM adoption and thus the probability of purchase. For online retailers the analysis shows a direct connection between credible reviews and turnover. A further gain is to be found in the provision of credible reviews as the ordering of "wrong" articles can be avoided. This makes it possible to save costs, for example by rendering logistics to return products redundant. For the online retailer himself credible recommendations can have a positive effect. High-quality recommendations may allow him to stand out from competitors and to generate the customers' trust. As for aggregated recommendation rating, online retailers can identify reviewers who were judged especially positively and install them as independent testimonial reviewers. To distinguish these from their use for the businesses, a confirmed independence could generate a specific value for customers. If the retailer succeeds in establishing a fixed group of trustworthy reviewers, he can enhance his business model by means of a qualitative component which exceeds the easily substituted pure distribution function and thus generates a competitive advantage in a hotly contested market.

All in all, the results demonstrate that as much information on the reviewers as possible should be gathered. As a minimum, a function should be installed to evaluate and/or comment on the recommendations, so that customers can exchange opinions of the quality of the recommendations. In addition, rubrics such as "background" or "occupation" of the reviewer would be useful. Alternatively, short guidelines should

be included which appear when writing a review and show which information a "good" recommendation should contain. Also, more incentive systems should be created to insure a large number of credible consumer recommendations. In this context bonuses for reviewers such as vouchers, priority purchases, or free delivery could be offered. Additionally, a box "reviewer of the month" could reward reviewers by granting them attention.

5.3 Limitations and Future Research

Although this study has determined the relevant factors of the influence on the credibility of online recommendations, it is just a first step and ought to be developed further in different aspects. Suggestions for further research result from the various restrictions of this study. The sample, for example, was limited to an online discussion forum for consumers. Therefore I advise caution in generalizing the results of this study. Which factors are decisive for a receiver when rating credibility also depends on the kind of information available. However, results should be applicable to other online consumer forums as well. Future research should also broaden the current approach and integrate additional variables into the context of direct and moderating effects of eWOM. Thus future studies could integrate dimensions referring to text (e.g., choice of words, comprehensibility, and design) into the research design and analyze contents.

References

- Aiken LS, West SG (1991) Multiple regression: testing and interpreting interactions. Sage Publication, Newbury Park
- Asch SE (1951) Opinions and social pressure. *Scientific American* 193:31–35
- Bagozzi RP, Yi Y (1988) On the evaluation of structural equation models. *Journal of the Academy of Marketing Science* 16(1):74–94
- Bansal HS, Voyer PA (2000) Word-of-mouth processes within a services purchase decision context. *Journal of Service Research* 3(2):166–177
- Berger J, Milkman KL (2012) What makes online content viral. *Journal of Marketing Research* 49(2):192–205
- Bhattacharjee A, Sanford C (2006) Influence processes for information technology acceptance: an elaboration likelihood model. *MIS Quarterly* 30(4):805–825
- Blanton H (2001) Evaluating the self in the context of another: the three-selves model of social comparison assimilation and contrast. In: Moskowitz GB (ed) *Cognitive social psychology: the Princeton symposium on the legacy and future of social cognition*. Erlbaum, Mahwah, pp 75–87

- Bone PF (1995) Word of mouth effects on short-term and long-term product judgements. *Journal of Business Research* 32(3):213–223
- Brewer MB, Webber JG (1994) Self-evaluation effects of interpersonal versus intergroup social comparison. *Journal of Personality and Social Psychology* 66(2):268–275
- Brown J, Broderick AJ, Lee N (2007) Word of mouth communication within online communities: conceptualizing the online social network. *Journal of Interactive Marketing* 21(3):2–20
- Büttner OB, Göritz AS (2008) Perceived trustworthiness of online shops. *Journal of Consumer Behaviour* 7(1):35–50
- Carmines EG, McIver JP (1981) Analysing models with unobserved variables: analysis of covariance structures. In: Bohmstedt GW, Borgatta EF (eds) *Social measurement*. Sage, Thousand Oaks, pp 65–115
- Celsi RL, Olson JC (1988) The role of involvement in attention and comprehension processes. *The Journal of Consumer Research* 15(2):210–224
- Chen Y, Xie J (2008) Online consumer review: word-of-mouth as a new element of marketing communication mix. *Management Science* 54(2):477–491
- Cheung CMK, Lee MKO, Rabjohn N (2008) The impact of electronic word-of-mouth. *Internet Research* 18(3):229–247
- Cheung M, Luo C, Sia CL, Chen H (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 JA, Mayzlin D (2006) The effect of word of mouth on sales: online book reviews. *Journal of Marketing Research* 43(3):345–354
- Cohen JB, Golden E (1972) Informational social influence and product evaluation. *Journal of Applied Psychology* 56(1):54–59
- de Bruyn A, Lilien G (2008) A multi-stage model of word-of-mouth influence through viral marketing. *International Journal of Research in Marketing* 25(3):151–163
- Deutsch M, Gerrard HB (1955) A study of normative and informational social influence upon individual judgment. *Journal of Abnormal and Social Psychology* 51(3):629–636
- Eagly AH, Chaiken S (1993) *The psychology of attitudes*. Harcourt Brace Jovanovich, San Diego
- Fitzsimons GJ (2008) Death to dichotomizing. *Journal of Consumer Research* 35(1):5–8
- Fornell C, Larcker DF (1981) Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* 18(1):39–50
- Gibbons FX, Gerrard M (1991) Downward comparison and coping with threat. In: Suls J, Wills TA (eds) *Social comparison: contemporary theory and research*. Lawrence Erlbaum, Hillsdale, pp 317–345
- Gilly MC, Graham JL, Wolfenbarger MF (1998) A dyadic study of interpersonal information search. *Academy of Marketing Science* 26(2):83–100
- Godes D, Mayzlin D (2004) Using online conversations to study word of mouth communication. *Marketing Science* 23(4):545–560
- Heckathorne W (2010) Speak now or forever hold your tweets. Two in five say they aim to influence others when they express their preferences online (Harris Interactive Poll). <http://www.harrisinteractive.com/Insights/HarrisVault.aspx>. Accessed 2012-03-12
- Hennig-Thurau T, Gwinner K, Walsh G, Grewler D (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
- Hennig-Thurau T, Marchand A, Marx P (2012) Can automated group recommender systems help consumers make better choices? *Journal of Marketing* 76(5):89–109
- Hinz O, Skiera B, Barrot C, Becker JU (2011) Seeding strategies for viral marketing: an empirical comparison. *Journal of Marketing* 75(6):55–71
- Hovland C, Weiss W (1951) The influence of source credibility on communication effectiveness. *Public Opinion Quarterly* 15(4):635–650
- Hovland CI, Janis IL, Kelley HH (1953) *Communication and persuasion*. Yale University Press, New Haven
- Hu N, Liu L, Zhang J (2008) Do online reviews affect product sales? The role of reviewer characteristics and temporal effects. *Information Technology and Management* 9(3):201–214
- Huang JH, Chen YF (2006) Herding in online product choice. *Psychology & Marketing* 23(5):413–428
- Jones K (1996) Trust as an affective attitude. *International Journal of Ethics* 107(1):4–25
- Kaplan MF, Miller CE (1987) Group decision making and normative versus informational influence: effects of type of issue and assigned decision rule. *Journal of Personality and Social Psychology* 53(2):306–313
- Kroeber-Riel W, Weinberg P (2003) *Konsumentenverhalten*, 8th edn. Vahlen, München
- Laumann EO (1966) *Prestige and association in an urban community*, 2nd edn. Bobbs-Merrill, Indianapolis
- Lazarsfeld PF, Merton RK (1964) Friendship as social process. A substantive and methodological analysis. In: Berger M, Abel T, Page CH (eds) *Freedom and control in modern society*. Octagon, New York, pp 18–66
- Lee J, Park D-H, Han I (2008) The effect of negative online consumer reviews on product attitude: an information processing view. *Electronic Commerce Research and Applications* 7(3):341–352
- Leonard-Barton D (1985) Experts as negative opinion leaders in the diffusion of a technological innovation. *Journal of Consumer Research* 11(4):914–926
- Lord KR, Lee M-S, Choong P (2001) Differences in normative and informational social influence. *Advances in Consumer Research* 28(1):280–285
- Mackiewicz J (2008) Reviewer motivations, bias, and credibility in online reviews. In: Kelsey S, Amant K (eds) *Handbook of research on computer mediated communication*. IGI Global, Hershey, pp 252–266
- McCracken G (1989) Who is the celebrity endorser? Cultural foundations of the endorsement process. *Journal of Consumer Research* 16(3):310–321
- McCroskey J, Hamilton P, Weiner A (1974) The effect of interaction behavior on source credibility, homophily, and interpersonal attraction. *Human Communication Research* 1(1):42–52
- McCroskey J, Young T (1981) Ethos and credibility: the construct and its measurement after three decades. *The Central State Speech Journal* 32(1):24–34
- McGuire W (1985) Attitudes and attitude change. In: Gardner L, Elliott A (eds) *Handbook of social psychology*, New York, vol 2, pp 233–346

Abstract

Bettina Lis

In eWOM We Trust

A Framework of Factors that Determine the eWOM Credibility

Electronic word-of-mouth (eWOM) is an important factor in marketing communication. As more people use eWOM to assist them in making purchase decisions, the process by which they evaluate the credibility of these online recommendations becomes increasingly relevant. Although previous studies have recognized that credibility is one of the most important antecedents of eWOM adoption, little is known about the drivers of this credibility. Thus, this paper examines factors that influence the perceived credibility of consumer online recommendations. Drawing on dual process theory and source models, hypotheses were derived and tested with structural equation modeling on a basis of 643 consumers. Generally, the paper provides evidence that expertise, trustworthiness, and aggregate rating are the most significant factors of the perceived eWOM credibility. The study also demonstrates that involvement could moderate these relationships.

Keywords: Electronic word-of-mouth, Perceived credibility, Viral marketing, Dual process theory, Online consumer recommendations

- McKnight DH, Chervany NL (2002) What trust means in e-commerce customer relationships: an interdisciplinary conceptual typology. *International Journal of Electronic Commerce* 6(2):35–59
- McKnight DH, Kacmar C (2006) Factors of information credibility for an Internet advice site. In: Proc. 39th Hawaii international conference on system sciences, Hawaii, pp 1–10
- Miller DT, Hoppe RA (1973) The effect of regional similarity-dissimilarity on communicator credibility. *Language and Speech* 16(3):211–217
- Nielsen, MTV, VW (2010) Me public. A global study on social media youth: executive summary. http://www.viacombrandsolutions.de/media/6_research/studien_pdfs/. Accessed 2012-03-12
- Nunnally JC (1978) *Psychometric theory*. McGraw-Hill, New York
- O'Reilly K, Marx S (2011) How young, technical consumers assess online WOM credibility. *Qualitative Market Research: An International Journal* 14(4):330–359
- Ohanian R (1990) Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness. *Journal of Advertising* 19(3):39–52
- Ohanian R (1991) The impact of celebrity spokespersons' perceived image on consumers' intention to purchase. *Journal of Advertising Research* 31(1):46–54
- Petty RE, Cacioppo J, Schumann D (1983) Central and peripheral routes to advertising effectiveness: the moderating role of involvement. *Journal of Consumer Research* 10(10):135–146
- Petty RE, Cacioppo JT (1986) Elaboration likelihood model. In: Berkowitz L (ed) *Advances in experimental social psychology*, San Diego, pp 123–205
- Petty RE, Priester J, Brinol P (2002) Mass media attitude change: implications of the elaboration likelihood model of persuasion. In: Bryant J, Zillmann D (eds) *Media effects: advances in theory and research*. Lawrence Erlbaum, Mahwah, pp 155–198
- Podsakoff N, Organ D (1986) Self-reports in organizational research: problems and prospects. *Journal of Management* 12(4):531–544
- Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP (2003) Common method bias in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology* 88(5):879–903
- Price LL, Feick LF (1984) The role of interpersonal sources in external search: an informational perspective. *Advances in Consumer Research* 11:250–255
- Qiu L, Li D (2010) Effects of aggregate rating on eWOM acceptance: an attribution theory perspective. In: Proc PACIS 2010
- Rafaelli S, Raban DR (2005) Information sharing online: a research challenge. *International Journal of Knowledge and Learning* 1(2):62–79
- Rogers EM (1983) *Diffusion of innovations*. Free Press, New York
- Sherif M, Hovland CI (1965) *Social judgement: assimilation and contrast effects in communication and attitude change*, 2nd edn. Yale University Press, New Haven
- Smith T, Coyle JR, Lightfoot E, Scott A (2007) Reconsidering models of influence: the relationship between consumer social networks and word-of-mouth effectiveness. *Journal of Advertising Research* 47(4):387–397
- Sparkman R, Locander W (1980) Attribution theory and advertising effectiveness. *Journal of Consumer Research* 7(7):219–224
- Sussman SW, Siegal WS (2003) Informational influence in organizations: an integrated approach to knowledge adoption. *Information Systems Research* 14(1):47–65
- Tseng S, Fogg BJ (1999) Credibility and computing technology. *Communications of the ACM* 42(5):39–44
- von Wangenheim F, Bayón T (2004) The effect of word-of-mouth on services switching: measurement and moderating variables. *European Journal of Marketing* 38(9/10):1173–1185
- Walsh G, Mitchell VW (2010) The effect of consumer confusion proneness on word of mouth, trust, and customer satisfaction. *European Journal of Marketing* 44(6):838–859
- Wathen CN, Burkell J (2002) Believe it or not: factors influencing credibility on the web. *Journal of the American Society for Information Science and Technology* 53(2):134–144
- Wilson EJ, Sherrell DL (1993) Source effects in communication and persuasion research: a meta-analysis of effect size. *Journal of the Academy of Marketing Science* 22(2):101–122
- Yale LJ, Gilly MC (1995) Dyadic perceptions in personal information search. *Journal of Business Research* 32(3):225–237
- Zaichkowsky JL (1985) Measuring the involvement construct. *The Journal of Consumer Research* 12(3):341–352